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Development and testing of a longitudinal model designed to examine the factors that influence the career paths of Iowa State University teacher education graduates

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Development and testing of a longitudinal model designed to examine the factors that influence the career paths of Iowa State University teacher education graduates

by

Janet Chapman Sweeney

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CHAPTER I. INTRODUCTION

Background

An open letter to the general public, A Nation at Risk (National Commission on Excellence in Education, 1983), marked the emergence of heightened concern about the quality of education in America's public schools. It is hardly surprising that the teaching profession has come under close scrutiny and that many of the recommendations that have been offered to improve the quality of education have been aimed at improving the quality of our nation's teaching force. Among the issues that have received considerable attention is the need to retain quality teachers.

The problem seems serious. It appears that teacher shortages are imminent and that by the end of the decade there may not be an adequate supply of teachers to staff the classrooms of our nation's public schools. Data indicate that approximately 50 percent of the 1983 teacher education graduates did not enter teaching the academic year following graduation (Feistritzer, 1984), compared to 25 to 30 percent of the nation's 1959 teacher education graduates (Pavalko, 1970). Even more alarming, there are data which indicate that half of those who entered teaching have left the profession after five years (Schlechty & Vance, 1981; Mark & Anderson, 1978). A decrease in the number entering teacher education, coupled with a predicted moderate increase in the number of school-age children, suggests that the teacher shortage, currently found only in certain geographical and academic areas, will be a national problem within five years (Darling-Hammond, 1984; Feistritzer, 1984; Weaver, 1984; Musemeche & Adams, 1978).

Teacher quality also may be a problem. Recent evidence suggests that the academic ability or quality of those choosing to enter and remain in the profession is declining (Weaver, 1984; Herman, 1978; Schlechty & Vance, 1981) and that the decline will negatively affect the quality of education. A number of studies have shown that there is a relationship between teachers' verbal ability and students' achievement (Glassman & Biniaminov, 1981; Bridge, Judd, & Moock, 1979; Robbins, 1975; Fetters, Collins, & Smith, 1968). While the possible negative effect on student achievement resulting from a decline in quality of those entering and remaining in teaching is a major concern, the public relations problem that this creates for the teaching profession and the possible effect on the quality and quantity of those recruited into and retained in the profession is equally troublesome.

Teacher attrition also may have a deleterious effect on the learning environment. Public demand for accountability has forced educators to examine factors that influence student achievement. Research indicates that student achievement is negatively affected by teacher turnover (Gupta, 1979; Bridge, Judd, & Moock, 1979; Katzman, 1971; Levin, 1970; Fetters, Collins, & Smith, 1968; Burkhead, Fox, & Holland, 1967). According to Gupta (1979), reduced student learning may result from a "sense of turmoil" or "lack of environmental stability" caused by teachers coming and going (p. 17).

Other factors appear inextricably tied to teacher retention. One is the apparent decline in teacher satisfaction. Between 1971 and 1981, the percentage of teachers who indicated that they would not again choose

teaching as a career increased from approximately 10 percent to almost 40 percent (Darling-Hammond, 1984). In a 1980 national survey of teachers (National Education Association, 1980), 25 percent indicated that they were dissatisfied with their jobs, a significant increase over the relatively low level (10%) consistently reported since 1935 when Hoppock conducted the first teacher job satisfaction survey (Hoy & Miskel, 1982).

Working conditions have been cited as a contributing factor in the declining level of satisfaction. Teachers enter the profession with a desire to work with children, but find that current conditions in the schools inhibit their opportunities to do what gives them their greatest satisfaction, helping children learn (Cresap, McCormick, & Paget, 1984; Lortie, 1975). Several factors undermine teachers' perceptions of their ability to help children learn, or sense of efficacy. According to McLaughlin, Pheifer, Swanson-Owens, and Yee (1986), the increase in single-parent and dual-career families has forced many teachers to assume duties that formerly were assumed in the home, limiting the amount of time they can spend helping children learn. Darling-Hammond (1984) reported that factors that undermine teachers' sense of efficacy include large class sizes, lack of adequate facilities and materials, too many nonteaching duties, and inadequate preparation and teaching time.

The prestige or status associated with teaching has declined markedly (Gallup, 1984). Seventy-five percent of those who participated in the 1969 Gallup Poll responded positively when asked if they would like to have a child of theirs take up teaching in the public schools. Only 45 percent of those who participated in the 1983 Gallup Poll, however, shared

that opinion (Gallup, 1983). Working in a profession no longer as respected or held in as high esteem as it once was may cause teachers to leave.

In summary, the impending teacher shortage, the decline in quality of those entering and remaining in the profession, and the effects of attrition on the learning environment all point to the need to enhance teacher retention. Yet, while the teaching profession is losing its members in alarming numbers, particularly during the early years following preparation, there is evidence to suggest that the problem may worsen in light of the decline in teacher satisfaction and status. It appears that our efforts to achieve educational excellence may be jeopardized by our inability to retain an adequate number of quality teachers.

Need for the Study

Teacher retention, however, has received only limited attention from education researchers. While a number of factors have been found related to teacher retention, there is little agreement about or understanding of the strength of the factors that influence teachers' decisions to enter and remain in teaching or the relationship between those factors. Of the limited number of studies of teacher retention, few have systematically examined teacher retention.

The different ways researchers have operationally defined attrition, or leaving teaching, contributes to the lack of understanding about teacher retention. For example, researchers often failed to differentiate between leaving a position and leaving the profession. Erickson, Jacobs, and Robin (1968) addressed this problem:

> Among most studies of teacher turnover, teacher mobility (a change in district of employment) is not distinguished from teacher dropout (teachers leaving education for other careers). A different set of factors may be more appropriate for explaining teacher dropout than would be appropriate for explaining teacher mobility (pp. 5, 6).

In addition, researchers often did not differentiate between voluntary and involuntary attrition. Bloland and Selby (1980) noted the need for research that examines retention "from the perspective of individual teachers for whom career change has been mandated by a district reduction in force or who would like to leave teaching for some other pursuit" (p. 22). An examination of teacher retention should be based on a careful definition of retention and differentiate between those who are and are not teaching by choice.

The lack of understanding about the factors that influence teachers' decisions to enter and remain in teaching also may be attributed, in part, to the lack of a comprehensive framework for studying teacher career change (Chapman, 1983b; Erickson, Jacobs, & Robin, 1968). Chapman (1983b), for example, noted that:

> ...few models or theories have been offered to explain teacher's decisions to leave or remain in teaching. Lacking clear models, much of the research that is conducted is not cumulative in its impact (p. 43).

The types of research designs used also have contributed to the lack of understanding. A review of the teacher retention research revealed that much of the research employed a cross-sectional design in which the data analyzed were gathered at one point in time. In many cases, the data were collected only from those who had left or made the decision to leave,

using "after-the-fact" surveys (Erickson, Jacobs, & Robin, 1968). In others, the data were collected from a sample that included both teachers and ex-teachers. Typically, the data were time-ordered and hypotheses were tested. This creates a serious problem, since respondents often do not accurately remember earlier attitudes or opinions (Borg & Gall, 1979). Rhodes and Doering (1983) referred to this as "principally a static analysis," since it does not allow for examination of changes that occur in the individual over time. They noted that the "critical need for career change research" is a longitudinal design that utilizes a panel study. This type of design in which the same subjects are surveyed at each data collection point is considered superior because of the opportunity it affords to examine changes or time-ordered relationships (Borg & Gall, 1979).

Even when longitudinal panel designs have been used in teacher retention studies, an overemphasis on demographic data has hindered the research effort. The data frequently have been gathered from records or a combination of records and a questionnaire. The extensive use of records in examining teacher retention has resulted in research that focuses upon too few variables, and while it has provided some insight into the problem, it has done little to explain changes in attitudes or reasons why teachers leave. Bloland and Selby (1980) explicitly underscored this shortcoming in teacher retention research.

> Much of the research has concentrated on the identification of the demographic factors associated with turnover rather than on personality and questions of effect and attitude. More studies need to identify why people leave teaching and how they feel about it (p. 22).

There is a need for research which identifies the variables that influence retention and systematically examines how variables influence retention, directly and indirectly; how these variables are interrelated; and which of these variables appear to be most salient for predicting retention. There is a need for a study that examines teacher retention using both a bivariate and a multiple variable approach.

Statement of the Problem

One of the major challenges confronting educators is the need to retain quality teachers. The high rate of attrition following preparation, the decline in teacher satisfaction and status, and the high rate of attrition during the early years following entrance seriously challenge the profession. Research has examined factors related to teacher retention, but the data are sparse. Studies that have been conducted suffer from a number of shortcomings: (1) failure to differentiate between different types of teacher attrition; (2) research designs that have not allowed for the examination of changes in the individual over time or for the examination of a significant number of variables; and (3) the lack of a comprehensive framework to allow for the systematic examination of teacher retention/attrition. There was a need to conduct further research on teacher retention, to address the shortcomings of previous research, and to develop and test a model to help explain why teachers leave teaching.

Purpose of the Study

The overarching purpose of this study was to develop and test a longitudinal model to help educators understand why teacher education graduates enter or do not enter teaching and why teachers leave or remain in teaching through the early years following entry. This model, the Career Path Model, was designed to help provide educators and policy makers with a sound basis for making decisions to enhance the retention of quality teachers. Previous research has investigated selected variables related to retention. However, further research was needed to (1) further examine the relationships between important variables and retention; (2) investigate the effect of additional variables on retention; and (3) develop and examine, using panel study data, a longitudinal model designed to determine the cause of teacher retention.

Data Source

In 1980, the Research Institute for Studies in Education (RISE) began implementation of a comprehensive model designed to evaluate and improve the teacher preparation program at Iowa State University. The model, which was designed to be a longitudinal study, includes the collection of data from teacher education students and graduates at major points in their preparation and careers. Three of these key data collection points include the semester of graduation from the program, one year following graduation, and five years following graduation. These data provide information about the attitudes, competencies, personal characteristics, and career paths of the teacher education students and graduates at various stages in their career development. This study utilized data

collected at these three points in time to examine the influence of various factors on the career paths of the Iowa State University (ISU) teacher education graduates. More specifically, the study examined the career paths of the ISU teacher education graduates at one year and five years following graduation.

Objectives of the Study

The study had eight major objectives. These were:

1. To provide a conceptual framework for examining teacher retention, and, since teacher satisfaction is an issue of great concern, for examining teacher satisfaction.

2. To develop a general model based on theory and research to guide the development of the Career Path Model examined in the study.

3. To provide a rationale for the major components included in the Career Path Model.

4. To review the literature and identify the major factors to be included within each of the major components of the Career Path Model.

5. To develop the Career Path Model, identify the portions examined in this study, and formulate the hypotheses to be examined in the study.

6. To test the portions of the Career Path Model selected for this study with a sample of ISU teacher education graduates.

7. To cross-validate one portion of the Career Path Model by testing it with a second sample of ISU teacher education graduates.

8. To provide suggestions for practical application of the findings, further research, and necessary revisions in the Career Path Model.

Organization of the Remainder of the Study

Presented in Chapter II is the review of the literature. It includes a discussion of the theoretical and empirical literature related to the two major concerns of the study, teacher retention and satisfaction. This discussion provides the basis for the development of the Career Path Model and the hypotheses to be examined in the study.

Presented in Chapter III are the methodology and design of the study. It includes a discussion of the data source and collection, population and samples, instrumentation, measurement and operationalization of the variables, and the data analysis techniques employed.

Presented in Chapter IV are the results of the data analysis, or testing of the portions of the model. The findings from the testing of each portion of the model will be presented and interpreted.

Presented in Chapter V is a summary of the study, a discussion of the major conclusions, a discussion of the implications of the research findings for educational practice and research, and recommendations for further study.

CHAPTER II. REVIEW OF LITERATURE

Introduction

The primary purpose of this study was to develop a longitudinal model to assess the relative effect of factors that influenced teacher education graduates to enter and remain in teaching through five years. The review of literature is designed to describe the conceptual basis for developing the model examined in the study and to identify the variables included in the model.

The review of literature consists of six sections. Presented in the first section is the review of the theoretical literature and empirical findings that served as the basis for developing the model used in this study. It includes the literature on career choice and development theory, which was helpful in developing the conceptual framework for the study model. It also includes a discussion of previous studies of teacher satisfaction and retention that have drawn upon career choice and development models and explicates the major components of the study model. In the next four sections, the factors chosen for inclusion in the study model and the literature supporting their inclusion are discussed. In the sixth, or final section, the model is presented in its entirety and discussed, the portions of the model to be tested in this study are identified, and the theoretical hypotheses examined in the study are presented.

The Theoretical Framework

Teacher retention research suffers from three major shortcomings: (1) problems with operationally defining teacher retention; (2) weaknesses in research design; and (3) lack of a comprehensive framework. The lack of a comprehensive framework, and/or models, for examining career change of teachers may be the greatest shortcoming of previous teacher retention research and probably accounts for many of the weaknesses in the research designs of previous studies. Career development literature, models, and research provided the rationale for developing the model used to examine the factors that influenced teacher education graduates' decisions to enter and remain in teaching.

While there is, as yet, no comprehensive theory of career choice and development, a number of theories help explain, in general terms, what influences career decisions. These theories also help us to understand and examine the factors which may influence teacher satisfaction. Three theories appear to be particularly salient: Super's Theory of Career Development, Holland's Theory of Person-Environment Congruence, and Krumboltz' Social Learning Theory of Career Decision Making. Super's theory, which emphasizes the stages of career development and interaction of the stages with other factors, lays the foundation for the overarching model; it is presented first. Holland's theory and Krumboltz' theory have served as a basis for a number of studies on teacher retention and satisfaction and are helpful, from a theoretical standpoint, in conceptualizing the constructs to be included in the study. The

contribution of both theories and the studies emanating from them related to retention and satisfaction also are discussed in this section.

Super's Theory of Career Development

Super's Theory of Career Development, because of its developmental approach, is considered the best suited for longitudinal research (Osipow, 1983). It has evolved slowly. While a prolific writer, Super's one major work was published in 1957, while the theory was still in the initial stages of development. His recent extensions of the theory have been presented solely in articles and papers; and it is, therefore, difficult to gain an understanding of the comprehensive theory. A number of other authors, however, have presented a comprehensive explanation of the theory. Their writings, as well as Super's, were used in developing the explanation of Super's theory presented in this review of literature. The sources that serve as the basis for the explanation of Super's theory presented below are from Osipow (1983), Harmon and Farmer (1983), Super (1983), Super (1980), Isaacson (1978), Zaccaria (1970), and Super (1957). With the exception of direct references from Super's writing, the discussion below is drawn from the works of those credited above.

Super's theory of career development draws from three psychological areas. The first, differential psychology, was based on the assumption that an individual possesses the potential for success and satisfaction in a variety of occupational settings. However, because a pattern of interests and abilities develops in an individual and because different occupations require different patterns of interests and abilities, individuals are likely to be better suited for some occupations than for

others. The greater the congruency between the patterns of the individual and those required by the occupation, the more likely the individual will be satisfied in the occupation.

Super also drew upon self-concept theory. Each individual has a mental image of self, and behavior is an attempt to express that mental image. The self-concept is continually evolving and changing in accordance with life's experiences, and Super viewed the formation of the vocational self-concept as one of the systems that comprise the self-concept. According to Super, formation of the self-concept requires individuals to become aware of the similarities between themselves and others at the same time that they recognize themselves as distinct individuals. Super posited that individuals are attracted to, enter, and remain in occupations that they believe are compatible with their vocational self-concept and that the degree of satisfaction individuals derive from their work is related to the extent to which they have been able to implement their vocational self-concept in their work. Individuals who find that their work does not provide them with the opportunity to adequately express their abilities, interests, values, and personality traits become dissatisfied and are likely to seek work where they can more adequately express themselves.

Developmental psychology also influenced Super. Super considered career development an evolutionary, orderly, and dynamic process. To provide a framework for examining this process, he incorporated the concept of developmental stages into his theory. Life consists of a series of distinct stages which are age-related and characterized by

different tasks that must be successfully completed before an individual can move onto the next stage. Super identified five vocational life stages and the ages associated with each: growth (birth to 14 years), exploration (15 to 24 years), establishment (25 to 44 years), maintenance (45 to 65 years), and decline (65 years to death). He also identified the vocational behaviors associated with each, and for the two that occur during the vocationally significant years (exploration and establishment), a number of substages. The behaviors associated with these two stages suggest the gradual evolution of vocational concerns that eventually lead to educational and vocational decisions. These decisions are constantly evaluated and either modified or crystallized.

Since Super assumed that vocational tasks are included in the life tasks, he identified five vocational development tasks that, due to social norms, individuals are expected to complete at certain ages. To be vocationally mature, these tasks must be successfully completed at the expected time. These five tasks and the range of ages at which an individual can be expected to complete them are: crystallization of vocational preference (14-18), specification of vocational preference (18-21), implementation of vocational preference (21-24), stabilization within a vocation (25-35), and consolidation of status and advancement (late 30s to mid 40s).

Super assumed that personal and situational factors play an important role in the career development process. Career development consists of interactions between the person and his/her environment. While the importance of this interaction was noted in his earlier work, Super was

not very explicit in identifying the personal and situational factors that need to be considered in the career development process. More recently, in attempting to provide a more comprehensive explanation of the career development process through a life-span, life-space approach, Super (1980) elaborated on the situational and personal factors that influence career development and decision making. He suggested that as an individual passes through the life stages, decision points occur that reflect his/her encounters with a variety of personal and situational determinants that can be labeled either remote or immediate. He proposed a conceptual model which illustrates the major personal and situational determinants of occupational careers at any and all decision points. These determinants, which have a continuing effect, can be assumed to influence vocational preferences, choices, entry, and changes.

As Super conceptualized it, the individual is placed at the center of the model between the situational and personal determinants which either push him/her up or pull him/her down. The remote personal determinants consist of the individual's biological heritage, which, interacting with both the remote and immediate situational determinants, produces the individual immediate personal determinants. These include intelligence, specific aptitudes, academic achievement, needs, values, interests, abilities, and self- and situational-awareness. The remote situational determinants are the geographic, historic, social, and economic conditions in which the individual functions throughout his/her life. The immediate situational determinants may be reflected by employment, school, community, and family conditions.

In summary, the work of Super supports the premise that career development is an on-going, cumulative, evolutionary process. The continuing interaction of personal and situational factors shape the vocational self-concept of the individual and influences vocational preferences, choices, entry, and changes. The satisfaction one derives from work and the extent to which an individual stays with a chosen occupation are dependent upon the extent to which the individual believes that the chosen occupation allows him/her the opportunity to express his/her vocational self-concept. Further, because each vocational development stage is associated with different vocational tasks, or concerns, vocational behavior can be understood better by viewing it within the context of the concerns the individual is confronting at the particular stage in his/her vocational development.

Super's theory, then, provides a general theoretical framework for understanding the major influences in the career development process of individuals in any occupation. Drawing on the work of Super, it is possible to develop a general causal model that explains the career development process of teacher education graduates and teachers and explains the influences of career decisions. The overarching model (Figure 1), which guided the development of the model used in this study, shows that decisions to prepare for (Preparation for Career), enter into (Entry into Career), and remain in the teaching profession (Stabilization within Career) are a result of the influence of the personal and background characteristics of each individual and the situational and

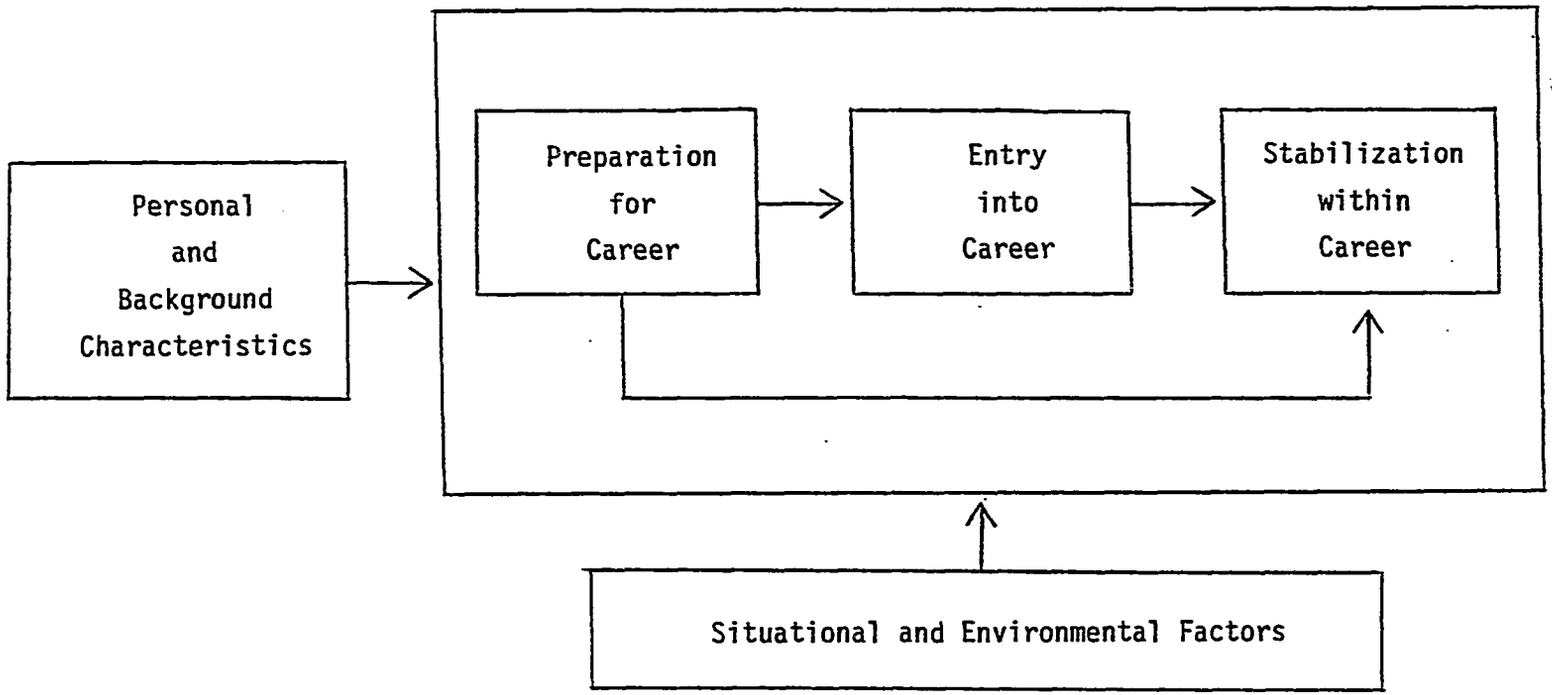

Figure 1. General model of career development process

environmental factors that he/she encounters throughout these three stages in the career development process.

Figure 1 also illustrates the cumulative effect of career decisions; decisions made at one stage in the career development process, as well as the factors that influenced them, affect subsequent career decisions. The decision to prepare for a career in teaching influences the decision to enter teaching following preparation. Likewise, the decision to remain (or become stabilized) in teaching is influenced by the two previous decisions: (1) preparation for a career in teaching and (2) entering teaching.

It is important to be reminded that vocational uncertainty marks the first two career stages depicted in the model. According to Super's theory, before the teacher education graduates reach the stage of stabilization within a career, they can be expected to continuously evaluate the efficacy of their career decisions. There appears to be an element of "test and try" or "goodness of fit" during this period in which the graduates seek their niche in the world of work and attempt to determine if teaching is the career for which they are best suited and in which they are likely to be most satisfied. This is also the period of time when attrition from teaching is the greatest. Attrition rates ranging from 10-20 percent after the first year and 10 percent after the second and third years each have been consistently reported (Wolf & Wolf, 1964; Pavalko, 1970; Schlechty & Vance, 1981). Attrition rates typically appear to decline somewhat after the third year and then stabilize at 5-7 percent annually (Feistritzer, 1984). Drawing upon Super's theory as well

as an analysis of the teacher attrition data, career stabilization can typically be expected to occur between three to five years following entry into teaching.

Holland's Theory of Person-Environment Congruence

Holland's Theory of Person-Environment Congruence provided the theoretical framework for a number of studies of teacher retention and satisfaction. Holland (1973) posited that choice of career is an attempt by the individual to match his/her personality with the characteristics of the work environment. Individuals can be classified into six personality types: realistic, investigative, social, conventional, enterprising, and artistic. The work environment also can be classified into these same six categories. Teachers are seen as exhibiting, in descending order, a combination of social, artistic, and enterprising characteristics and are comfortable in a social environment.

Holland further asserted that career satisfaction, stability, and achievement result from congruence between person and environment (Holland and Gottfredson, 1976). People search for work environments that will let them utilize their skills and abilities, express their attitudes and values, and take on agreeable problems and roles. People who possess the competencies required by their environment and who desire the rewards that the environment provides are more satisfied and involved. Conversely, those who find themselves in an environment that is not congruent with their personal characteristics are likely to be uninvolved, dissatisfied, and unsuccessful. People leave jobs because of excessive

person-environment incongruence or because of an opportunity to increase congruence.

Chapman and others utilized Holland's theory to investigate both teacher retention and teacher satisfaction. Chapman and Hutcheson (1982), building from Holland's theory (1973) and the work values identified by Super and Hall (1978), conducted a study in which they investigated differences in skills and abilities and criteria used to judge differences in success between individuals who entered and left teaching and those who entered and remained in teaching. They hypothesized that those who left teaching would differ significantly from those who remained in teaching in their self-rated skills and abilities and the importance they assigned to selected criteria of success. Specifically, they hypothesized that those who remained in teaching would be better at explaining things to others, supervising others, organizing, and getting people to do things their way than would those who left teaching. They further hypothesized that those who remained in teaching would place less importance on job autonomy and salary increases and more importance on recognition by other people, particularly family, friends, and supervisors, than would those who left teaching. Using a sample of 690 teacher education graduates who graduated selected years between 1967 and 1978 from three Indiana universities, and whose first employment experience following graduation was elementary or secondary teaching, they found that their hypotheses were for the most part supported.

Chapman (1983a), using data from the same sample of University of Indiana graduates, conducted a study in which he hypothesized that

teachers differing in career satisfaction would differ in their skills, abilities, and values in the same pattern that distinguished those who remained in teaching from those who left teaching. Results indicated that, while the same pattern prevailed, it existed to a lesser degree.

Chapman and Lowther (1982), again drawing from Holland's person-environment congruence theory and the work values identified by Super and Hall (1978), conducted a study designed to investigate the factors that influence career satisfaction of public school teachers. They developed a conceptual model that is recursive and depicts relationships among teacher's personal characteristics, skills and abilities, values, professional achievement, and career satisfaction. In testing the model with a sample of 542 randomly selected graduates who had graduated from the University of Michigan every other year between 1946 and 1976, they found that the model predicted career satisfaction. Specifically, women were more satisfied with teaching as a career than were men. Teachers who perceived themselves more effective speakers and more able to persuade others to accept ideas were more satisfied with teaching, while those who felt less able to write effectively and to communicate with others were less apt to be satisfied.

The importance assigned to leadership activities and the opportunity to learn new things were negatively related to career satisfaction, while actual achievement in leadership and learning new things were positively related to satisfaction, leading Chapman and Lowther to conclude that teachers do not place great value on those things they perceive they did not achieve or have the opportunity to obtain, but value them if they

attain them. There was a strong positive relationship between recognition received from administrators and supervisors and career satisfaction.

Krumboltz' Social Learning Theory of Career Decision Making

Krumboltz' Social Learning Theory of Career Decision Making has been used in one of the few comprehensive examinations of teacher retention. Krumboltz (1979), in developing the theory, drew from social learning theory to explain why an individual chooses a particular career path. Social learning theory is based on the premise that psychological functioning is explained in terms of the individual's expectance, on the basis of past learning through both observation and direct experience, that a given behavior will be followed by the desired reinforcement (Rotter, 1982).

According to Krumboltz (1979), social learning theory can be used to identify the interactions of genetic factors, environmental conditions, learning experiences, cognitive and emotional responses, and performance skills that produce movement along one career path or another. Combinations of these factors interact in different ways to produce different career decisions (p. 19).

Guided by Krumboltz' theory, Chapman (1983b) proposed a longitudinal model to explain teacher retention. In developing the model, Chapman suggested that:

> ...to understand a teacher's decision to remain in or leave teaching, it is necessary to take into account (a) the personal characteristics of the teacher, (b) the nature of teacher training and early teaching experience, (c) the degree to which the teacher is socially and professionally

> integrated into the teaching profession, (d) the satisfaction teachers derive from their career, and (e) the external environmental influences impinging on the teacher's career (p. 47).

The model included eight variables. Personal characteristics are assumed to be related to both educational preparation and initial commitment to teaching. These two factors, which are assumed to have reciprocal influence, plus the factor external influences are seen as influencing quality of first employment experience. The variable, integration into teaching, is considered to be influenced by the quality of first employment experience and external influences. Career satisfaction both influences and is influenced by integration into teaching and is also influenced by external influences. The decision to remain in or leave teaching is influenced by career satisfaction.

Chapman (1984) subsequently tested the model with a sample of 1,282 graduates of the University of Michigan who graduated every other year between 1946 and 1980. Since portions of the model are nonrecursive (subject to reciprocal causation), and because he used data gathered at only one point in time, he was not able to fully test the model. He used discriminant analysis to examine differences between three groups of teachers: (1) those who started in and remained in teaching; (2) those who started in and left teaching within five years; and (3) those who received certification but never entered teaching.

Chapman found meaningful distinctions between the teacher education graduates who did not enter and those who entered but left teaching within five years. Both groups, however, differed from those who remained in teaching beyond five years. Career satisfaction was significantly related

to teachers' decisions to leave or never enter teaching. Initial commitment to teaching was the single strongest predictor of retention. Of those who entered, the quality of the first teaching experience was strongly related to the decision to remain in or leave teaching.

Summary

In summary, career choice and development theories provide a useful approach for examining the factors that influence teacher education graduates to enter and remain in teaching short term. Super's Theory of Developmental Stages provided the overarching framework for the study. The work of Holland and Krumboltz supported the need to include personal and situational factors in the model. On the basis of these theories and their application to the study of teacher retention and satisfaction, it appears that the factors that are likely to influence the career decisions and satisfaction of the teacher education graduates can be grouped into four major areas: Personal and Background Characteristics, Preparation Program Factors, Employment Factors, and Indicators of Career Satisfaction. Each of the four areas is examined in the next four sections. Included in each section is a discussion of the area factors selected for inclusion in the study model.

Personal and Background Characteristics

Personal and background characteristics influence career decisions and are related to teacher retention. Research points to four characteristics most likely to play an important role in influencing teacher education graduates' decisions to enter and remain in teaching.

They are gender, marital status, socio-economic status of parental family, and academic ability/achievement.

Gender

The relationship between gender and teacher retention has probably been examined more than any other relationship. After examining the findings, one might reach one of three general conclusions: (1) females are more likely to leave teaching than males; (2) males are more likely to leave; and (3) there is no significant difference in the attrition rates for males and females. There does appear to be some explanation for these inconsistent findings. One is the possible influence of sociological factors on teacher retention and the other is interaction between gender and other variables. Below are some of the significant studies which indicate the disparate findings and the effects of the specific sociological factors and interactions.

A number of early studies found that females were more likely to leave teaching than males. Whitener (1965), in a study designed to examine the ten-year survival rates of 937 new entrants into the teaching profession in ten St. Louis suburban area schools during the years 1951 through 1953, found that gender was significantly related with survival; males outsurvived females. Similar findings were reported by Charters (1970) when he examined the four-year retention rates of 2,064 teachers hired in the Oregon public schools during the 1962-1963 academic year. Mark and Anderson (1978), in studying the survival rates of teachers entering the profession in the St. Louis metropolitan area between 1968 and 1976, found that women were more likely than men to leave teaching.

It was noted that the difference in survival rates between men and women decreased over the time period of the study, from a 5.6 percent difference in the 1968 group to a 1.1 percent difference in the 1975 group. Finally, a later study, consisting of a sample of University of Michigan graduates who graduated every other year from 1946 through 1980, was conducted by Chapman (1984) to examine the factors influencing teaching retention. He found that those who left teaching within the first five years tended to be female.

Findings from more recent studies indicate that males are more likely to leave teaching than females. Mueller (1976), in a study that traced the career patterns of 190 recent graduates of Harris Teachers College in St. Louis, found that male graduates were more likely to leave teaching than female graduates. Schlechty and Vance (1981), in a study of North Carolina teachers, found that during the early years following entry, white males left teaching at a somewhat higher rate than white females. Finally, there is other research which indirectly supports the contention that women are more likely to remain in teaching. Chapman and Lowther (1982) and Lortie (1975) both found women more satisfied with teaching as a career than men. Perhaps, since women appear to be more satisfied, they are more likely to remain in teaching.

It should be pointed out that there are studies which found no significant difference between the attrition rates for male and female teachers. Chapman and Hutcheson (1982), conducted a study designed to examine how those who remained in teaching differed from those who left. Using a sample of graduates from three universities in Indiana who

graduated between the years 1967 and 1978, the researchers found that the differences were not explained by gender. An earlier study by Silverman (1957) also found no significant difference between attrition rates for male and female teachers. However, since his sample was comprised primarily of female elementary teachers, the generalizability of his findings is somewhat limited.

Research findings on gender as a direct influence on teacher retention/attrition are mixed, but there may be a logical explanation. When one examines the time period in which retention was examined (1950s through 1980), there appear to be periods where discernible sociological phenomena affected or influenced teacher retention. For example, researchers who found that females were more likely to leave teaching than males used data collected from teachers who entered teaching from the late 1940s through the mid-1960s (i.e., Whitener, 1965; Charters, 1970; Chapman, 1984). During this period, it was not only assumed that women would leave teaching when they married, it may have been "mandated" by school boards (Lortie, 1975).

Researchers who used data collected after the mid-1960s found higher attrition rates for men or no significant difference in attrition rates between men and women which may reflect the social changes influencing our society since the mid-1960s. According to Yankelovich (1981), one of the most dramatic shifts that occurred in American society in recent years is the changing role of women. The increased number of women in the work place and the increased number of career opportunities available to women are both factors that may have and may continue to have a significant

influence on decisions to enter and remain in teaching. For example, while women have and continue to comprise the bulk of the teaching force, the number choosing to enter the profession between 1970 and 1981 declined from 36 percent to 17 percent (Darling-Hammond, 1984). Darling-Hammond, in explaining the reasons for this decline, noted that academically talented women "who were once restricted to teaching as a professional option, are now choosing other occupations that promise greater financial rewards, more opportunities for advancement, and better working conditions" (p. v). Other factors noted by Yankelovich, such as the increase in the number of dual-career couples, the high divorce rates, the increase in single-parent families, and the decisions by many couples to either have fewer or no children and to delay parenthood, also are likely to influence teacher retention.

Given the likely influence of sociological changes on teacher attrition/retention, it is important that further research be conducted to examine the effect of gender as a direct influence on teacher retention. There are other reasons why it is important to include gender in a model to examine teacher retention. Gender may interact with other variables. Bloland and Selby (1980), in reviewing the literature on career change among secondary teachers, posited that the effect of gender may be, at best, minimally significant; its importance may be in its interaction with other variables. For example, Oaklander (1969) suggested that combining gender with marital status may provide a more realistic means of obtaining significant findings. After doing this, he found that single males were

most likely to leave teaching while single females were more apt to leave teaching than were married females.

In summary, there appears to be sufficient reason to include gender in the model. There is a need for further examination of the influence of gender on teacher retention and the extent to which it interacts with other variables.

Marital status

Marital status, examined independently, also has been found to be related to retention. Pavalko (1970), in fact, reported that the relationship between marital status and retention was stronger than that of any other variable he examined. He found significantly more single than married teachers remained in teaching. Chapman (1984) also found that those who taught continuously were more likely to be single than those who never entered or who left teaching within the first five years. Marital status also has been linked to career satisfaction, with single women appearing to express the most dissatisfaction with teaching (Lortie, 1975).

There is a logical basis for the association between marital status and retention. If a teacher is married, spouse and family considerations are likely to play a significant role in his/her career decision. There is some empirical support for the premise. Erickson, Jacobs, and Robin (1968) found that one of the most important determinants of male teachers' career decisions was the desires of their spouses concerning their careers.

Family considerations also appear to be a significant factor. Phillips and Lee (1980) found that teachers who experience high family/role conflict are more likely to leave their jobs. Rhodes and Doering (1983) suggested that career/family conflict is likely to be a significant factor in career change. Family considerations are especially likely to be a significant factor in the career decisions of young women. Lortie (1975), for example, found that many young women expected to have their careers either interrupted or terminated by marriage and/or childbearing.

Socio-economic status of parental family

Findings from numerous studies that examined the relationship between socio-economic status of teacher's parental family and retention are consistent: Teachers who have a low, rather than high, socio-economic family background are more likely to remain in teaching (Dworkin, 1980; Pavalko, 1970; Erickson, Jacobs, & Robin, 1968; Hilton, Levin, & Leiderman, 1957). It appears that teachers from lower socio-economic backgrounds also are more likely to express greater satisfaction with their choice of teaching as a career (Pavalko, 1965).

Teachers from farm or rural backgrounds are typically analyzed separately, due to uncertainty about how to categorize their socio-economic status (Dworkin, 1980; Lortie, 1975). It appears that those from farm or rural backgrounds are somewhat less likely to remain in teaching than those from lower socio-economic backgrounds, but somewhat more likely to remain than those from higher or middle socio-economic backgrounds (Dworkin, 1980).

One explanation of why teaching is more attractive to those from lower socio-economic backgrounds is that it provides them an opportunity to achieve status and upward mobility. Teaching is white-collar, middle-class work (Lortie, 1975). It is also a profession for which American society has traditionally expressed a high regard (Harris, 1979; Lortie, 1975; Hakel, Hollmann, & Dunnette, 1968; Hodge, Siegel, & Rossi, 1964). Although Lortie (1975) suggested that expressed regard may be greater than actual regard, for those from lower socio-economic backgrounds, teaching represents an attractive route to the middle class; for those from higher socio-economic backgrounds, however, teaching may represent a step downward (Lortie, 1975; Feldvebel, 1968; Bloland & Selby, 1980; Dworkin, 1980).

Dworkin (1980) offered two other explanations. He noted that those from lower socio-economic backgrounds expend a greater proportion of their personal and economic resources to obtain a teacher certificate than do those from higher socio-economic backgrounds. Since their investment costs are greater, they are less likely to leave teaching. He also observed that those from higher socio-economic backgrounds are likely to have a wider and more influential network of friends who can, in turn, facilitate their entry into other careers.

Academic ability/achievement

There is considerable evidence suggesting that academic talent is related to teacher retention. While academic talent is measured in a number of different ways, the measures typically employed are of two types: (1) scores on standardized tests of academic ability, such as the

Scholastic Aptitude Test (SAT) or the American College Test (ACT), and (2) school-related measures, such as grade point average (GPA).

A number of studies have employed standardized tests as the measure of academic ability to examine the relationship between academic ability and teacher retention. Findings of the few studies that used standardized measures to examine the relationship between academic ability and entry into teaching following preparation are inconclusive. Pigge (1985) found that the most academically able are the least likely to enter teaching, while Villeme and Hall (1980) found that there was no significant difference in the academic ability between those who did and did not enter teaching.

Pigge (1985) employed ACT scores as the measure of academic ability when he examined the relationship between academic ability and entry into teaching for two samples of teacher education graduates from the same university. He found that for both groups of graduates (those who graduated from 1972-1975 and those who graduated from 1980-1983), those who had the highest ACT scores were the least likely to enter teaching following training. Villeme and Hall (1980), however, in a one-year follow-up study of 458 teacher education graduates of the University of South Florida, found no significant difference between the ACT scores of those who entered teaching the year following graduation and those who did not.

The studies that have used standardized measures to examine the relationship between academic ability and retention following entry are more consistent. Three researchers, each using a different measure of

academic ability, found that the more academically able are the least likely to remain in teaching. Pavalko (1970), in a seven-year follow-up study of students who graduated from Wisconsin high schools in 1957, utilized the Henmon-Nelson Test of Mental Ability as the measure of academic ability in examining the factors related to retention of the 437 females who became teachers. He found that the most academically able tended to leave the profession. Those who remained in teaching tended to be the least academically able.

Schlechty and Vance (1981), using performance on the National Teacher Examination (NTE) as the measure of academic ability, found a strong negative relationship between measured academic ability and retention among those who entered teaching in North Carolina from 1973 through 1980. Those who had higher scores on the NTE were more likely to have left teaching.

To determine if their findings could be generalized beyond the North Carolina teachers, Vance and Schlechty (1982) conducted another study that utilized data drawn from a national sample. Using data from the National Longitudinal Survey of 1972 High School Seniors, in which SAT scores were employed as the measure of academic ability, they reported findings that paralleled those of their earlier study: Those who scored higher on the SAT were more likely to have left teaching, while those who were more likely to indicate intentions to remain in teaching tend to have scored lower.

When school-related measures were employed to examine the relationship between academic ability and retention, the findings are not

as consistent. Pigge (1985), for example, found that for both groups of graduates examined in his study, those who had the highest GPAs were the least likely to enter teaching. Chapman (1984), however, found that GPA did not significantly explain differences between those who did and did not enter teaching or between those who left and those who remained. Chen (1982), on the other hand, in a study that examined which factors were most predictive of a sample of 496 ISU teacher education graduates' intentions to teach, found that those who had higher GPAs were more likely to report an intention to teach. Page, Page, and Million (1983), in a follow-up study of 300 Georgia first-year teachers, also found that those who had higher GPAs were more likely to report an intention to remain in teaching.

In summary, the results of studies that have used standardized tests of academic ability to examine the relationship between academic ability and retention tend to support the premise that the most academically able are the least likely to enter and remain in teaching. While there is some evidence to indicate that the premise applies when school-related measure of academic ability are used to examine the relationship, results are inconclusive.

There are a number of possible explanations for the apparent flow of talent from teaching. There appears to be general agreement that individuals who are more academically talented have more career options available to them than do those of lesser talent (Schlechty and Vance, 1981; Weaver, 1984). Roberson, Keith, and Page (1983) contended that teacher training is adequate preparation for countless jobs outside

education. Therefore, those who are the most academically able may find it much easier to make the shift to other types of employment. Weaver (1984) posited that the academically talented leave teaching because employers outside the schools are more willing to reward them financially. The frequency with which those who leave teaching cite low salary and the opportunities for good jobs outside education as the precipitating factors in their decisions to leave provide support for this premise (Thorndike & Hagen, 1960; Turk & Litt, 1982).

The findings regarding the relationship between school-related measures and teacher retention appear contradictory and confusing. There may be an explanation. GPA is one reflection of an individual's level of accomplishment, effort, and persistence in the teacher preparation program. It provides an indication of the extent to which he/she has acquired the necessary skills and abilities for teaching. Page, Page, and Million (1983) noted that many of the problems and frustrations experienced by those in the teaching profession can be attributed to a lack of knowledge and skills needed for success in teaching. Wolf and Wolf (1964) suggested that those who expend a great deal of effort to attain a position are not likely to give it up readily. Beginning teachers, in particular, appear to be plagued by feelings of inadequacy. The transition from student of teachers to teacher of students has traditionally been considered a crucial time for new teachers as they often realize that they have not been adequately prepared for the realities of classroom teaching (Veenman, 1984). It seems reasonable to assume that those with higher GPAs were more adequately prepared to teach,

and, therefore, derived more satisfaction from their accomplishments in the classroom. The findings of a study by Villeme and Hall (1983-84) support this assumption. In a follow-up study of University of South Florida teacher education graduates who entered teaching the academic year following preparation, they found that those with higher GPAs tended to express greater satisfaction with teaching. It is interesting to note that the researchers found no significant relationship between ACT scores and satisfaction with teaching as a career.

Preparation Program Factors

There has been little research examining the relationship between teacher preparation and teacher retention. There does, however, appear to be some support for including factors in the preservice education of teachers, particularly those related to student teaching, in a model which examines retention. Murphy (1982), for example, contended that inadequate preparation, or a lack of efficacy, causes many to leave teaching. Indeed, teachers consistently report that their teacher education programs have not prepared them adequately for the reality of classroom teaching (Lortie, 1975; Gaede, 1978). The results of a recent Gallup Poll, in which teachers were asked to assign a letter grade A, B, C, D, or F to their preservice training, revealed that less than half felt that their training programs deserved a grade of A or B (Gallup, 1983).

The preparation program is likely to influence retention in other ways. Chapman (1984) found that the initial commitment to teaching made during the teacher training program was the best predictor of teacher retention and concluded that the teacher preparation program plays a

significant role in influencing teacher education graduates to enter and remain in teaching. The sense of efficacy influenced by the quality of the preparation program and the student teaching experience, widely believed to be the most important part of the preparation program, are factors worthy of careful examination.

Sense of efficacy and perceived quality of preparation program

Preparation is the stage in the career development process where an individual develops the skills, knowledge, and attitude needed for entry in his/her chosen profession (Isaacson, 1978). That individual's self-perception of competence, or efficacy, has been found to be a valid predictor of behavior, perhaps even a better predictor of career pursuits than actual performance level (Darling-Hammond, Wise, & Pease, 1983). Ashton, Webb, and Doda (1983), for example, found that teachers with a strong sense of efficacy were more satisfied with their choice of teaching as a career than were teachers with a lower sense of efficacy.

There also is evidence to indicate that the quality of the preparation program influences teacher retention. In a study designed to determine which factors were most predictive of 300 Georgia first-year teachers' decisions to remain in teaching, Page and others (1983) found that of the 17 variables which combined to predict whether a teacher would remain in teaching, 10 were related to self-assessment of quality of preparation. These 10 included abilities to (1) select and use proper questioning techniques, (2) evaluate teaching effectiveness and make curricular revisions when necessary, (3) use instructional time

efficiently, (4) understand the roles of other educational personnel, (5) assist learners in developing a positive self-concept, (6) work with parents in the teaching-learning process, (7) work with large groups, (8) work with individual and small groups, (9) communicate enthusiasm for learning, and (10) understand and use appropriate subject matter.

It is hardly surprising that the teacher preparation program and the sense of efficacy derived from it are apt to influence beginning teachers' career plans when one considers what confronts initiates into teaching. The problems facing beginning teachers are well known. Veenman (1984) reviewed 83 studies that examined the problems of beginning teachers and reported that the more problems beginning teachers experienced, the more likely they were to leave the profession. This supports earlier research by Heffley (1983), who found that Kansas teachers leaving the profession were more likely to report more classroom teaching problems than were those intending to remain. Teachers who expressed satisfaction with their training, however, perceived fewer problems during their early teaching years (Taylor & Dale, 1971; Adams & Martray, 1980). Veenman, on the basis of his review of the literature, identified the ten most significant problems of beginning teachers. Ranked in order of importance, these were: (1) classroom discipline, (2) motivating students, (3) dealing with individual differences, (4) assessing students' work, (5) relations with parents, (6) organization of class work, (7) insufficient materials and supplies, (8) dealing with problems of individual students, (9) heavy teaching load, and (10) relations with colleagues. He also reported that

the problems of beginning teachers were remarkably similar, regardless of whether they teach at the elementary or secondary level.

The preparation program may have long-term effects. Schalock (1983) addressed this issue when he noted:

> ...it may be that program effects are cumulative; that is, they not only are reflected in the performance of first year teachers but project a pattern of excellence or mediocrity that becomes more pronounced with time (p. 61).

Research on the developmental stages of teachers provides some evidence that the effects of the preparation program are likely to last beyond the first year of teaching. Fuller and Bown (1975) identified three stages of concerns that are characteristic of teachers. The first stage involves survival concerns in which, among others, the teacher is concerned about his/her own adequacy, or competence, as a teacher. During the second stage, the focus is on teaching situation concerns (limitations and frustrations in the teaching situation, methods and materials, and mastery of skills within the teaching learning situation). During the third stage, teachers are concerned about pupils (their learning, their social and emotional needs, and relating to pupils as individuals). According to Fuller and Bown, the stages are sequential. The first stage reflects the least maturity and is the least desirable. However, concerns of the later stages cannot emerge until those of the earlier stages have been successfully resolved.

Adams, Hutchinson, and Martray (1980) and Adams and Martray (1981) conducted a developmental study based on the work of Fuller and Bown in which they used data collected during student teaching and the first,

third, and fifth years of teaching. They found that stage one, or survival, concerns decreased in magnitude from student teaching through the fifth year of teaching, while stage two, or teaching situation, concerns increased in magnitude. Stage three, or pupil, concerns, however, were not affected by teaching experience and were the highest of all concerns. The researchers posited that the teachers felt they should be highly concerned with the impact of teaching on pupils.

Student teaching

The student teaching experience, a major component of the teacher training program, is widely believed to be the most important part of the preparation program (Griffin, 1982). Hays (1982) suggested that the feeling of satisfaction that student teachers derive from their student teaching experience can be an important determinant of their decision to enter or not enter the teaching profession and shapes their attitudes about the teaching profession. Chapman (1984) concurred, noting that the actual classroom student teaching experience may provide teacher education students with important information for career decision making.

An additional important affective outcome of student teaching is the feeling of competence experienced by a student teacher (Dussault, 1970). A number of researchers have found that student teachers' self-assessed competence increases significantly as a result of the student teaching experience (Chiu, 1975; Fletcher & Dotson, 1976; Gaede, 1978). Williams (1985) reported similar findings; she found that the best predictor of a teacher education graduate's satisfaction with teaching as a career (based

on the student teaching experience) was his/her self-evaluation of teaching efficacy.

There is some evidence that factors or conditions within the student teaching experience affect teachers' perceptions of teaching. One of these factors is the relationship between student teacher and cooperating teacher. Dillon-Peterson (1982), on the basis of structured interviews with four teachers she labeled "committed to the teaching profession," found that those who reported that their student teaching experience was satisfying also reported satisfying relationships with their cooperating teachers. Specifically, they reported their cooperating teachers as positive, dedicated, and a somewhat selfless role model. Student teachers are not always so fortunate. Campbell and Williamson (1973) found that student teachers reported that the relationship between student teacher and cooperating teacher was one of the most troubling aspects of the student teaching experience. Differences in expectations, teaching methods, and unwillingness to let students assume classroom responsibility were factors that contributed to the stress and difficulty of the student teaching experience.

Length of time spent in student teaching also may be a factor. In a study of 741 1982-84 Iowa State University teacher education graduates designed to examine which factors predicted satisfaction with student teaching, Williams (1985) found that teacher education students who spent eight weeks or less student teaching were less satisfied with both their student teaching experience and with teaching as a career than those who spent more than eight weeks student teaching.

Employment Factors

Factors related to conditions of employment are related to teacher retention. Among the most salient are salary, employment expectations (the extent to which individuals assign importance to selected job characteristics), employment realities (the extent to which the job meets their expectations), and employment dissonance (the discomfort the individual experiences as a result of the difference between what he/she expects and what he/she actually receives on the job). Employment-related factors also appear to be related to teacher retention. These include size of employment community and teaching level (elementary, secondary).

Salary

Low salary is generally cited as the major deterrent to people entering teaching as well as the major reason why teachers leave teaching (Gallup, 1984; Turk & Litt, 1982; Greenfield, 1982; Page & Page, 1982; and Counts, 1978). The importance that teachers assign to salary has been found to be significantly related to retention. Chapman and Hutcheson (1982), in a study designed to determine how those who entered teaching and remained differed from those who entered and left, found that those who left teaching considered it more important than did those who remained. Research conducted during the 1960s indicated that salary as a precipitating factor for leaving the profession was less important for women (Dunn, 1961; Browning, 1963) than it was for men (Thorndike & Hagen, 1960; Blaser, 1965). However, more recent studies indicate that it is a major factor for both sexes. Heffley (1983), for example, in a survey of Kansas teachers, found that salary was the primary reason given for

leaving the profession by both males and females. One possible explanation for this change is that, until recently, teaching was one of the more lucrative career options available to women. As the doors to more and higher paying careers have opened to women, it is likely that salary has assumed more importance for them, also.

Chapman (1983b) suggested that in addition to taking into account the importance that people place on salary in career decision making, the influence of two other aspects of salary on teacher retention need to be considered: (1) the extent to which individuals perceive that the "salary they earn represents a sufficient professional accomplishment...since perceived equity and sufficiency differ across individuals" (p. 45) and (2) actual salary earned by those who remain in and those who leave teaching. Regarding the first aspect, Chapman argued that actual salary earned may represent different levels of accomplishment to different individuals. Lortie (1975) described the teaching profession as "unstaged and front loaded." Those who enter know approximately how much they will earn. They also know that starting salaries are relatively low and that they will receive limited salary increases. In addition, because salary increases are generally based on experience rather than performance, they know that teaching provides them with few opportunities to enhance their salaries through merit or incentive pay plans. Despite this, it appears that those who enter teaching following preparation, compared to those who do not, report a significantly greater discrepancy between their expectations and the reality of the job to meet their financial needs (Thompson, Warren, Dilts, & Blaustein, 1983). Regarding the second

aspect, the importance of actual salary earned from teaching may not be as important as total family income. While no studies were found that examined the relationship between family income and retention, given the increasing number of dual-career families, it is likely that the income generated when both spouses work may play a more significant factor in the career decisions of teachers than the actual teaching salary of each or either of the family members.

Employment expectations

Those who enter and remain in teaching differ from those who do not in the importance they assign to selected job characteristics. Rosenberg (1957), in an early study designed to examine the occupational values of college students bound for various careers, found that those who chose a teaching career placed the greatest value on a desire to help and work with people and the least value on extrinsic rewards. Those who valued extrinsic rewards tended to choose other types of careers, such as finance, law, or business.

Keith, Warren, and Dilts (1983), in a study of 486 Iowa State University teacher education graduates, found that those who expressed long-range career plans in teaching differed from those with nonteaching long-range career plans in the importance they assigned to specific job characteristics. Specifically, they found that teacher education graduates who expected to teach placed the greatest importance on helping and serving others and on the opportunity for creativity and to use special abilities or aptitudes (self-expression). Those who reported nonteaching career plans, on the other hand, placed the least importance

on these job characteristics. Those who did not expect to teach were likely to express a preference for a job that provided opportunities for advancement. While the researchers found that preferences for job characteristics were, for the most part, not highly related to gender, they did find that women were more likely than men to indicate that the people-oriented aspects of an occupation and diversity (variety, challenge, responsibility) in the work were important. Men, on the other hand, appeared to place greater importance on social status and prestige and on opportunities for advancement.

Chen (1982) also found a difference between the preferences of teacher education graduates who intended to teach and those who did not. Using a sample that included 496 1980-1981 graduates of the Iowa State University teacher preparation program, she found that those who intended to teach assigned greater importance to a job that provided the opportunity to help and work with people and for creativity and originality and less importance on extrinsic rewards than did those not intending to teach. She also found a difference between the importance assigned to the job characteristics by a sample of 507 practicing teachers who intended to remain in teaching and those who did not. Her findings indicated that those who intended to remain in teaching preferred intrinsic rather than extrinsic rewards. Those who intended to leave teaching were less people-oriented and placed a greater value on the opportunity to earn more money and the opportunity for advancement.

In another study, Chapman and Hutcheson (1982) examined how those who left teaching differed from those who remained in the importance they

assigned to 11 criteria for success. They found that those who left teaching at both the elementary and secondary levels placed greater importance on job autonomy than did those who remained in teaching. In addition, they found that those who left elementary teaching indicated that the chance to contribute to important decisions to be most important. Those who remained in teaching placed greater importance on interpersonal rewards: the approval and recognition of supervisors, family, and friends.

The results of a study conducted by Williams (1985) that was designed to examine the factors that influence teacher education graduates' satisfaction with student teaching revealed that the importance an individual assigns to job characteristics is related to satisfaction. Using a sample of 741 Iowa State University teacher education graduates who graduated the spring semesters from 1982 through 1984, she found that those who expressed the greatest overall satisfaction with student teaching indicated that autonomy, security, and work relationships were the most important job characteristics. Working with people and autonomy were the job characteristics most valued by those who reported satisfaction with teaching as a career on the basis of their student teaching experience.

Employment reality

For those who enter teaching, the reality of the job, or the extent to which the individual is able to enjoy those job characteristics he/she values influences both satisfaction and career decisions. Sergiovanni (1966) found that the factors that contributed most to teacher job

satisfaction tend to focus on the work itself: achievement, recognition, and responsibility. The factors that contributed most to their dissatisfaction tended to center around the conditions of work: interpersonal relations with subordinates and peers, supervision, school policy and administration, and status and unfairness.

The results of a study by Sweeney (1981a) indicated that the greater the extent to which teachers believed they were able to exercise control over professional matters, the greater their overall satisfaction in their positions. Engelking (1986) found that two factors appeared to play a significant role in teacher satisfaction: recognition and achievement. Relations with students and parents, lack of achievement by students or teachers, district policy and its administration and communication with administrators were the factors that most contributed to their dissatisfaction. Chapman (1983a) found that differences in the importance high school teachers assign to selected criteria of success were not significantly related to their career satisfaction. However, he found that for elementary teachers, those who were more satisfied assigned more importance to recognition by administrators and supervisors.

Employment dissonance

Those who find that the reality of the job fails to meet their expectations are likely to experience dissonance. Cognitive dissonance refers to the discord that an individual feels when his/her perceptions of events vary considerably from his/her expectations (Festinger, 1957). According to Festinger, attempts to reduce cognitive dissonance provide a powerful motivator for human behavior. The results of a recent study

conducted by Louis Harris and Associates for the Metropolitan Life Insurance Company (1985) indicated that more than 60 percent of those who left the teaching profession reported that the prestige in teaching (reality) failed to meet their expectations.

Goodlad (1984) suggested that if an individual enters teaching with the expectation that he/she will be able to work with children and help them learn and then finds the expectation thwarted, he/she is likely to become dissatisfied and think of leaving teaching. On the other hand, teachers who reported that the reality of the job met their expectations were more likely to express career fulfillment and to report that they would choose teaching again.

Thompson, Warren, Dilts, and Blaustein (1983), in a one-year follow-up study of 130 Iowa State University teacher education graduates, compared the ratings of the first-year teacher education graduates concerning the extent to which job characteristics were provided in their current employment with the ratings of importance they had assigned to these same characteristics the previous year. While both the teaching and nonteaching graduates reported negative discrepancies between their expectations and the reality of the job in all areas, those who were teaching reported a significantly greater discrepancy in the ability of the teaching profession to provide status and achievement needs.

Size of employment community

There is evidence to suggest that teachers who are employed in rural areas or small towns are more likely to remain in teaching than those from larger communities (Chen, 1982). This may be due, in part, to the

availability of alternative employment opportunities. In their integrated model of career change, Rhodes and Doering (1983) posited that personal and environmental factors influence the availability of alternative employment opportunities. The extent to which an individual is likely to change jobs or careers depends on the extent to which he/she believes that alternatives are available and that they will provide the desired outcome. It seems likely that those who live in or are employed in rural or small communities have fewer alternative employment opportunities and thus are more inclined to remain in teaching.

The higher teacher retention rates in rural areas or small towns also may be attributed to size of school. Rural areas or small towns typically have smaller schools. Research indicates that the larger the school, the more likely those teaching in them are to leave teaching (National Education Association, 1980; Mueller, 1976; National Education Association, 1960). After reviewing the literature on the factors associated with career change among secondary teachers, Bloland and Selby (1980) concluded that it is likely that size of school is positively related to retention, but that the positive relationship between school size and retention only holds up to a certain number of students. Once the student enrollment reaches a certain high level, it appears to make no significant difference.

One reason for the lower attrition rates in smaller schools may be that, given the fewer number of teachers, the sense of family or belonging among them is greater. Research on groups indicates that individuals in a small group find it easier to get to know one another and that there is a

greater sense of sharing, dedication, and involvement among the members. As the size of the group increases, the sense of belonging and affectional ties among the members decrease (Napier and Gershenfeld, 1981).

Communication is greater among teachers in small faculty groups than among those in larger groups (Charters, 1967), and the importance of rapport with colleagues as a determinant of job satisfaction and retention has been noted by a number of researchers (Wood, 1968; Erickson, Jacobs, & Robin, 1968). This, in turn, leads to heightened feelings of satisfaction. There is evidence that teachers in smaller faculty groups express more satisfaction with their working conditions than do those in larger groups (Goodlad, 1984; Abramowitz, 1976).

Stress also is likely to be a factor. Employee stress is frequently perceived to be a symptom of dissatisfaction (Walsh, 1979), and the more stress teachers experience, the more likely they are to leave teaching (Louis Harris & Associates, 1985). According to a 1979 survey of New York teachers (Urban Teachers Report More Stress, 1980), teachers in smaller schools appear to experience less stress than their cohorts in larger schools. Factors that teachers in schools with large enrollments reported most stressful included overcrowded classrooms and theft and destruction of teacher property.

Teaching level

Charters (1970) found that teaching level does not have a consistent direct effect on retention. He contended that teaching level is likely to influence retention through its interaction with other variables, such as age or gender. There is research, however, which suggests that secondary

teachers may be more likely to leave teaching than elementary teachers. In their survey of former teachers, Louis Harris and Associates (1985) found that 72 percent of the former teachers used to teach in secondary schools. The researchers posited that secondary teachers are more apt to leave because they have more opportunities for employment outside of teaching.

Four other studies provide evidence that attrition rates are likely to be higher at the secondary level. Keith, Warren, and Dilts (1983), for example, in a study of 486 Iowa State University teacher education graduates, found that those who indicated that their long-range career plans did not include teaching were more likely to be secondary rather than elementary teachers. The 1980 Teacher Opinion Poll (National Education Association, 1980) found that secondary teachers were somewhat more likely than elementary teachers to report that they were dissatisfied with their jobs, that they plan to leave teaching, and that, if they had it to do over, they would not again become teachers. Bentzen, Williams, and Heckman (1980) reported that secondary teachers are more dissatisfied with their jobs than elementary teachers. Goodlad (1984) also reported that secondary teachers are less likely to express satisfaction with their career choice and to indicate that they would not go into teaching a second time.

Indicators of Career Satisfaction

Teacher satisfaction has received considerable attention from educational researchers. Considerably less attention, however, has been given to examining the relationship between their satisfaction with

teaching and retention. Chapman (1983b), in proposing his model to examine the factors that influence teacher retention, noted that "career satisfaction plays an important role in teachers' persistence in teaching, particularly as it mediates the influence of other factors on their career decisions" (p. 46). Findings from Chapman's testing of the model (1984), discussed earlier in this chapter, indicated that career satisfaction was, indeed, an important factor in determining whether individuals enter and remain in teaching. Further evidence that teachers leave teaching because they are dissatisfied was provided by a Metropolitan Life Insurance Company study (Harris and Associates, 1985). The researchers found that about half the 500 former teachers who participated in the survey reported that they had not been satisfied during their teaching careers.

A number of different indicators have been used to operationally define the construct of career satisfaction. A frequently employed indicator is to ask individuals if, whether they had it to do over, they would again become a teacher (Lortie, 1975). There is evidence to suggest that it may be a valid indicator. Moracco et al. (1983), for example, designed a study to investigate whether teachers who would not again choose teaching as a career differed in perceived occupational stress from those who would again become teachers. He found that those who regretted choosing teaching as a career were absent more often and reported stress as a factor in their absences. Lortie (1975) used willingness to repeat one's career choice as the indicator of teacher satisfaction and reported that men were less likely than women to indicate that they would again choose teaching as a career.

Another common indicator of, or method of assessing, career satisfaction is to ask individuals how satisfied they are with their jobs. Rhodes and Doering (1983), in presenting their integrated model of career change, noted that one of the motivations for changing careers is job dissatisfaction. Muchinsky (1983), after reviewing 39 studies that examined the relationship between job satisfaction and turnover in the private sector, reported that there is a consistent negative relationship between job satisfaction and turnover. While the relationship was moderate (about -.40), Muchinsky concluded that this indicates that the more people dislike their jobs, the more likely they are to leave.

Satisfaction with student teaching appears to provide yet another useful indicator of career satisfaction. In a study that included 741 Iowa State University teacher education graduates, Williams (1985) found that teacher education graduates who expressed higher levels of satisfaction with their student teaching experience were more likely to report an intention to teach the academic year following graduation than were those who were less satisfied with student teaching. They also were more likely to select teaching for their long-range career plans.

The stated intention to teach, in turn, appears to be a useful predictor of future employment, since it provides an indication of an individual's commitment to the profession. Chapman (1984), for example, found that those who taught continuously expressed a higher initial commitment to teaching. Holland (1983), after reviewing several studies that examined stability or prediction of vocational preference, concluded

that self-predictions of vocational preferences "usually have a statistically significant reliability" (p. 547).

According to Chapman and Lowther (1982), there is little agreement on the best approach to use to determine career satisfaction. They discussed three approaches that have been used. The first approach views the determination of satisfaction as a discrepancy between individuals' expectations of rewards and their actual accomplishments or attainments. The second approach discussed by Chapman and Lowther draws upon Herzberg's two-factor theory where factors contributing to job satisfaction are identified as satisfiers or dissatisfiers. Rather than one continuum running from satisfied through neutral to dissatisfied, two independent continua exist. One runs from satisfied to neutral, the other from dissatisfied to neutral. In the third approach, satisfaction is determined by having respondents report their extent of satisfaction on a single continuum, or Likert-type scale, often ranging from very dissatisfied to very satisfied. The latter approach was employed by Chapman (1983a) and Chapman and Lowther (1982) in two studies designed to examine the factors that influence teacher satisfaction.

Consideration also needs to be given to the method used to measure teacher career satisfaction. Both global and facet measures of satisfaction have been employed. Global, or overall, satisfaction refers to an individual's affective reactions to his/her total work role, while facet satisfaction refers to an individual's affective reactions to particular aspects of his/her job (Holdaway, 1978). Whether global or facet satisfaction provides a more useful measure of satisfaction is an

issue of debate. For example, from the perspective of the two-factor approach, facet satisfaction is a more useful measure; since each continuum measures different facets of the job, an individual can be both very satisfied and very dissatisfied at the same time. However, there is other research which supports the use of global satisfaction as a useful measure. Scarpello and Campbell (1983), in a study of 185 employees designed to explore the usefulness of global measures of satisfaction, found that the global rating of overall job satisfaction may be a more inclusive measure of overall satisfaction than the summation of many facet responses.

In summary, there appear to be three useful indicators of teachers' career satisfaction: (1) choosing teaching again as a career; (2) job satisfaction; and (3) satisfaction with student teaching. In addition, an individual's expressed intention to teach, an indicator of his/her commitment, is likely to be positively related to persistence in teaching. Further, despite the use of different approaches to determine and measure teacher satisfaction, it appears that a global satisfaction rating on a continuum provides a useful measurement of teacher satisfaction.

The Career Path Model

The purpose of this section is to present and explain the Career Path Model developed for this study, identify the portions of the model examined in this study, and present the theoretical hypotheses. The Career Path Model is presented in Figure 2. It draws upon the theoretical and empirical literature previously discussed in this chapter. The career

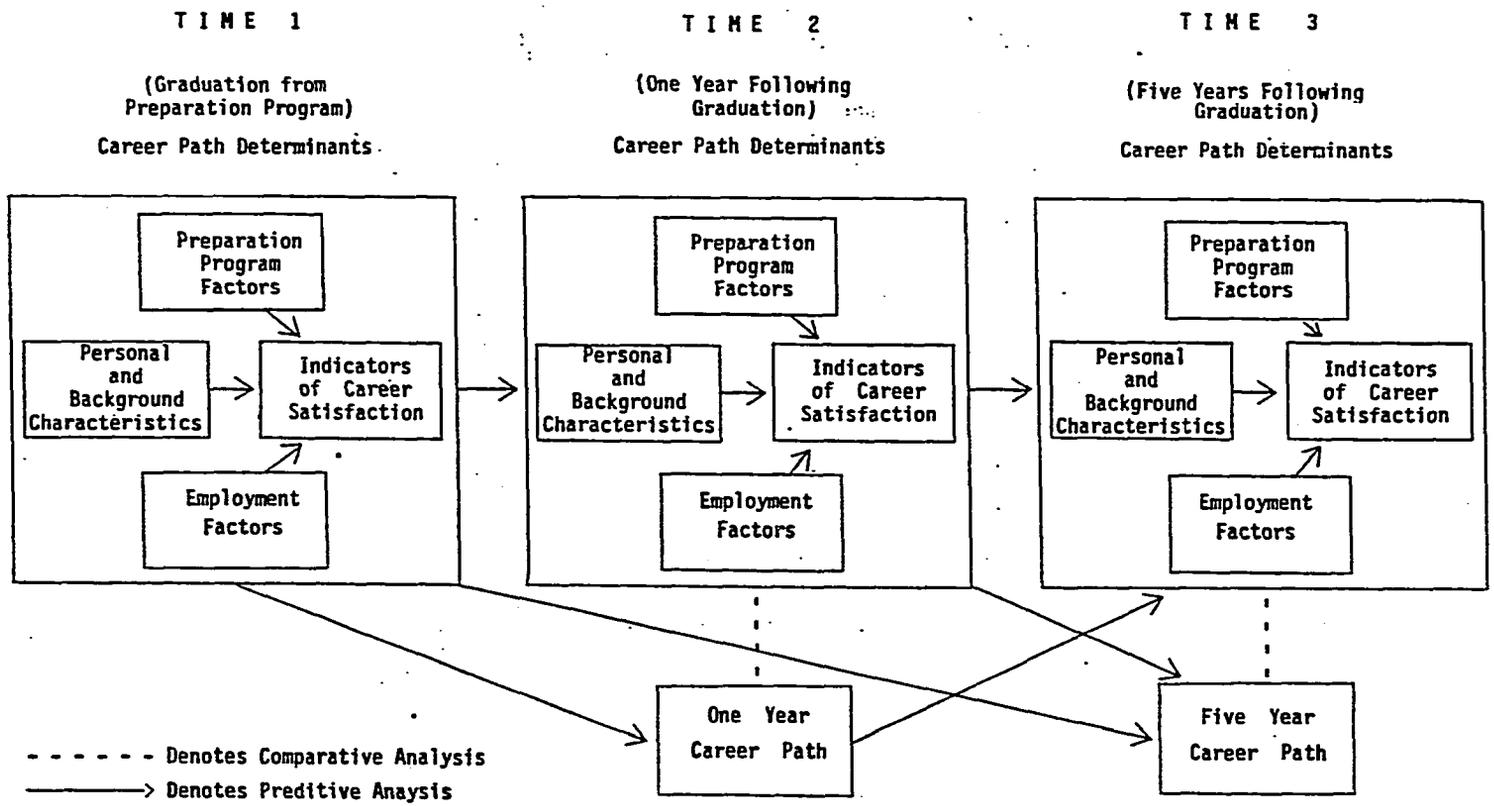

Figure 2. Career Path Model

choice and development theories of Super, Holland, and Krumboltz provided the theoretical basis for the model. Super's theory provided the overarching conceptual framework. Support for the specific Career Path Determinants included in the model and their relationships has been provided in the review of literature.

The Career Path Model is longitudinal. It includes three measurement points: graduation from preparation program (Time 1), one year following graduation (Time 2), and five years following graduation (Time 3). At each of the three measurement points, Career Path Determinants are measured. These determinants consist of factors within the four major areas: Personal and Background Characteristics, Preparation Program Factors, Employment Factors, and Indicators of Career Satisfaction.

The model allows for both predictive and comparative analyses. The solid arrows denote the causal relationships in the model; the dotted lines denote where differences between the Career Path Determinants of teacher education graduates who were following differing career paths can be examined. At each measurement point, the four Career Path Determinant areas are depicted in a larger box to eliminate drawing separate arrows or dotted lines between a large number of variables. It should be noted that the model does not identify the specific Career Path Determinants which comprise the four areas at each measurement point. It also should be pointed out that the One Year Career Path and the Five Year Career Path each have four "paths" or choices which teacher education graduates have followed or chosen. The Career Path Determinants and One and Five Year Career Paths will be delineated in the third chapter, "Methods."

It was posited that the Career Path Determinants measured at the time of graduation from the preparation program (Time 1) will predict the One Year Career Path choice of teacher education graduates (One Year Career Path). The arrows between each measurement point imply that Career Path Determinants continue to influence teacher education graduates and their career paths. In other words, the model assumes that the combination of factors examined at the time of graduation from the preparation program (Time 1) and one year following graduation (Time 2) will predict the career path of teacher education graduates at five years following graduation (Five Year Career Path). The arrow leading from One Year Career Path to the Career Path Determinants measured five years after graduation (Time 3) illustrates that the career path followed at one year influences the Career Path Determinants of the teacher education graduates at five years. Finally, the arrows leading from Personal and Background Characteristics, Preparation Program Factors, and Employment Factors to Indicators of Career Satisfaction show that the effects of these variables on Indicators of Career Satisfaction is also examined.

The model provides for examination of differences between teacher education graduates at various stages in their careers. The dotted line between One Year Career Path and the Career Path Determinants measured one year following graduation (Time 2) indicates that differences in Career Path Determinants of those in different one year career paths are examined one year following graduation. The dotted line between Five Year Career Path and the Career Path Determinants measured five years following graduation (Time 3) indicates that differences in Career Path Determinants

of those who followed different five year career path are examined five years following graduation.

Testing the entire Career Path Model was beyond the scope of this study. This study was designed to examine key portions of the Career Path Model. For this reason, two portions of the model were used to provide the framework for formulating four of the theoretical hypotheses. Figures 3 and 4 show the portions of the model selected for examination in this study. Figure 3 illustrates that the relationship between the Career Path Determinants measured at the time of graduation from the preparation program and the One Year Career Path of the teacher education graduates is examined. It also illustrates that differences in the Career Path Determinants measured one year following graduation of those who followed different career paths at one year are examined. Figure 4 shows that the relationship between Career Path Determinants measured at two times, graduation from the preparation program and one year following graduation, and the career path choice of the teacher education graduates five years following graduation is examined. Differences in the Career Path Determinants measured five years following graduation of those who followed different five year career paths also are examined. A fifth theoretical hypothesis was formulated to cross-validate the testing of the predictive portion of the model depicted in Figure 3 and presented in Hypothesis 1. These five hypotheses are presented below:

1. There is a significant relationship between Career Path Determinants measured at the time of graduation from the preparation program (Time 1) and the career path followed by the teacher education graduates the year following graduation (One Year Career Path).

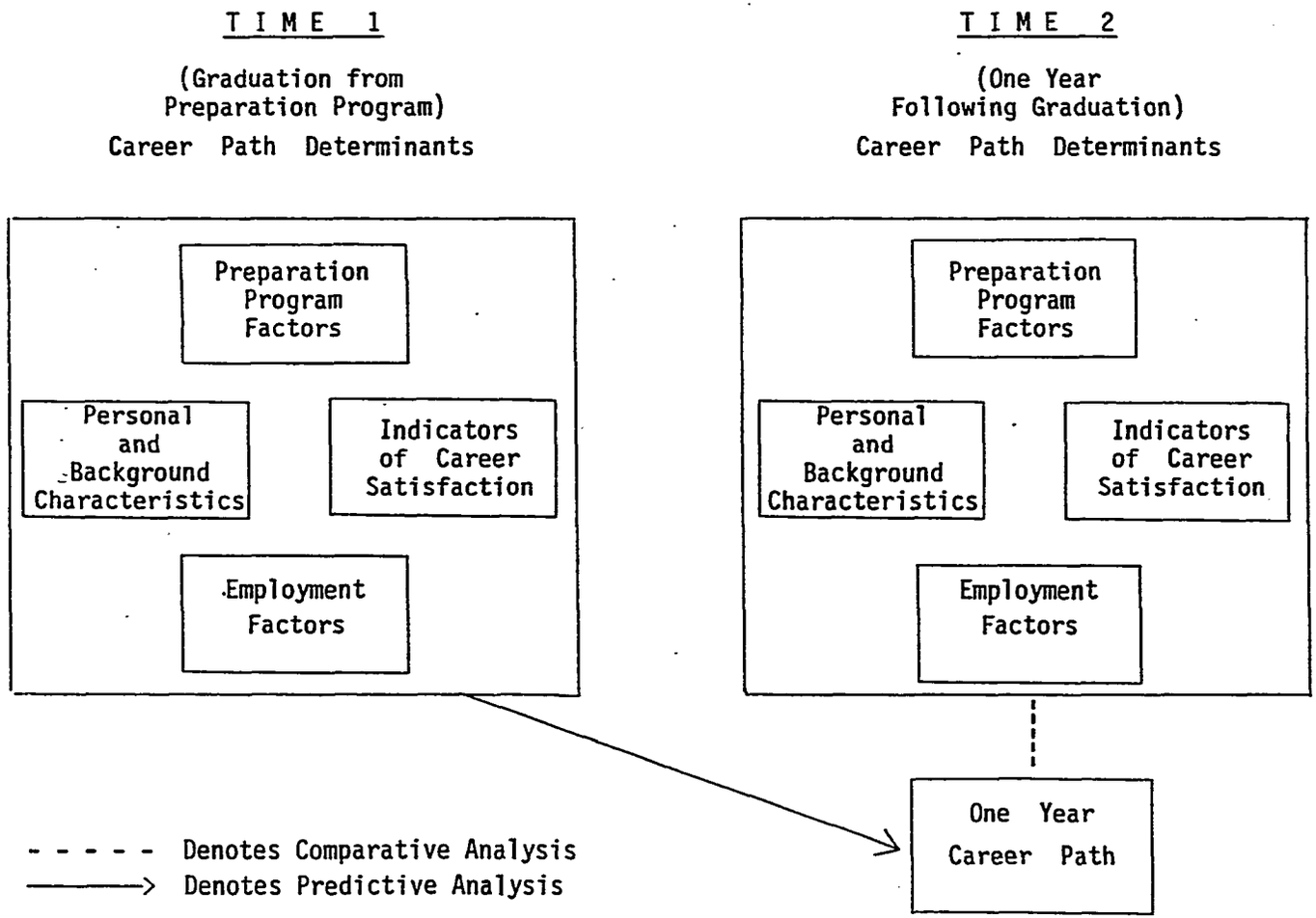

Figure 3. Portion of model to be tested to predict One Year Career Path of teacher education graduates and to examine how teacher education graduates differed one year following graduation when compared by One Year Career Path group

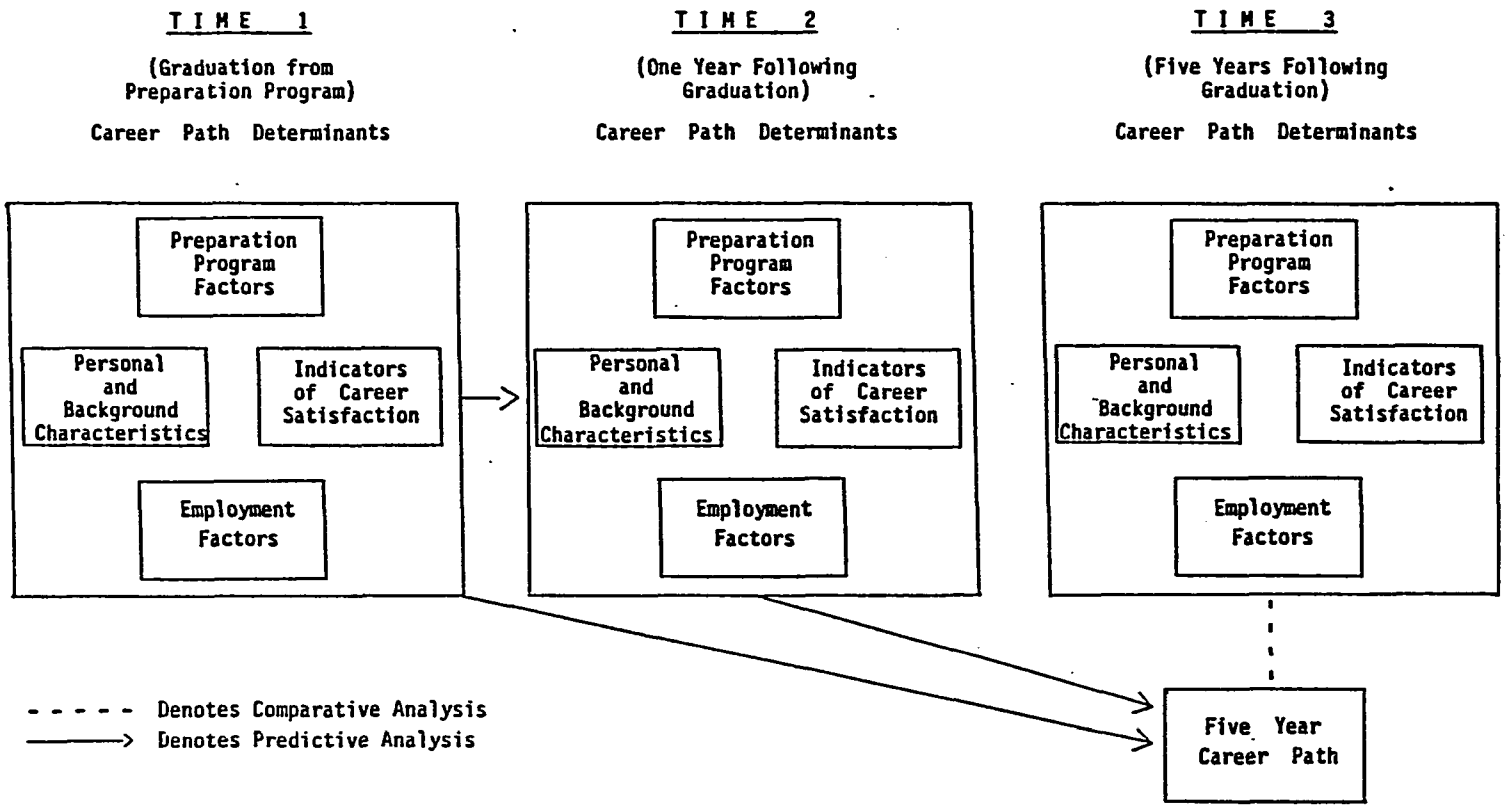

Figure 4. Portion of model to be tested to predict Five Year Career Path of teacher education graduates and to examine how teacher education graduates differed five years following graduation when compared by Five Year Career Path group

2. There is a significant difference in the Career Path Determinants measured at one year following graduation (Time 2) of teacher education graduates following differing career paths at one year (One Year Career Path).

3. There is a significant relationship between the combined effects of Career Path Determinants measured at the time of graduation from the preparation program (Time 1) and one year following graduation (Time 2) and the career path followed by teacher education graduates five years following graduation (Five Year Career Path).

4. There is a significant difference in the Career Path Determinants measured at five years following graduation (Time 3) of teacher education graduates following differing career paths at five years (Five Year Career Path).

5. The relationships between Career Path Determinants and One Year Career Path do not differ when the model is tested using a different sample of ISU teacher education graduates.

CHAPTER III. METHODS

This study was designed to develop and test a model to examine the factors that influence the career paths of teacher education graduates at one year and five years. The purpose of this chapter is to describe the data source, the instruments used to collect the data, and the study population and samples. The variables included in the study, how they were measured, when they were operationalized, and the methods of data analysis are also discussed.

Data Source and Collection

The data used in this study were collected from a comprehensive on-going research project conducted by the Research Institute for Studies in Education (RISE) for the purpose of evaluating the teacher preparation program at Iowa State University. Survey research was used to collect data from students and graduates of the teacher education program at various stages in their careers. This study used data gathered from surveys at three of the data collection points (graduation from the teacher preparation program, one year following graduation, and five years following graduation), as well as from the permanent record cards that are compiled for each teacher education student admitted to the ISU teacher preparation program. The survey conducted at the time of graduation was initiated Spring Quarter, 1980. It is conducted at the end of each fall and spring semester, and includes all those slated to graduate. (Before the switch to the quarter system at ISU in 1981/82, the survey was conducted at the end of the fall, winter, and spring quarters.) The

survey conducted one year following graduation was initiated Spring Quarter, 1981. The previous year's graduates are surveyed in the spring each year. The five-year follow-up survey, which is conducted annually during the late winter and early spring, was initiated in 1985. Those who graduated from the ISU teacher preparation program five years previously are surveyed.

In conducting each of the surveys, RISE closely follows the procedures for conducting a mail survey recommended by Dillman (1978). At each data collection point, those to be surveyed are mailed a copy of the survey with a cover letter explaining the purpose of the survey and enlisting their voluntary participation. Two weeks later, a reminder postcard is mailed to those who have not responded to the earlier mailing. After two more weeks, another copy of the survey and a second letter requesting voluntary participation are mailed to those who have not responded to the first two mailings. All surveys in the project have received approval from the Iowa State University Committee on the Use of Human Subjects in Research.

Instruments

The teacher education graduates included in this study completed at least two of three different survey instruments. All three of the instruments were developed by RISE personnel, and each was developed for use in the on-going RISE research project to evaluate the ISU teacher preparation program. Because the data collected from these surveys are used to evaluate the teacher preparation program, the questionnaires share many common items. While there have been some revisions and refinements

over the years, for the most part, the items and response stems included in the questionnaires have remained constant. Most of the data used in this study were derived from questions that were included in all three questionnaires.

The "Teacher Education Program Graduate Survey" was administered at the time of graduation. The items from the questionnaire that provided data relevant to this study are those that ask the subjects to report (1) their parents' occupations; (2) their marital status; (3) the specific length of time spent student teaching; (4) their perceptions regarding their satisfaction with specific aspects of student teaching; (5) their perceived adequacy in a number of specific preparation areas; (6) their desired job characteristics; (7) their overall satisfaction with teaching as a career; (8) whether, if they had it to do over, they would again become at teacher; and (9) their employment plans for the following year.

The "One-Year Follow-up Teacher Education Graduate Survey" was administered the year following graduation. The items from the questionnaire that provided data relevant to this study are those that ask the subjects to report (1) their marital status; (2) their perceptions regarding the length of their student teaching experience; (3) their perceptions regarding their adequacy of preparation in specific areas; (4) their perceptions regarding the quality of the preparation program; (5) the extent to which specific job characteristics are provided in their current job; (6) their family income; (7) the size of their employment community; (8) their current employment (teaching/not teaching); (9) their

current job satisfaction; and (10) whether, if they had it to do over, they would again prepare to become a teacher.

The "Five-Year Follow-up Teacher Education Graduate Survey" was administered five years following graduation. The items from this survey that provided data relevant to this study are those that ask the subjects to report (1) their marital status; (2) their perceptions regarding adequacy of preparation in specific areas; (3) their perceptions regarding the quality of the preparation program; (4) the extent to which specific job characteristics are provided in their current job; (5) their family income; (6) the size of their employment community; (7) their current employment (teaching/not teaching); (8) their employment history for the past five years; (9) their current job satisfaction; and (10) whether, if they had it to do over, they would again prepare to become a teacher. A copy of the most recent version of each of the questionnaires appears in Appendix A.

The data from the permanent record cards of the teacher education graduates that were used in the study included: (1) gender; (2) ACT scores; (3) GPA at the time of admission to the preparation program; (4) GPA at the time of graduation from the preparation program; (5) high school rank; and (6) teaching certification level.

Population and Samples

The population for this study consisted of all the graduates of the ISU teacher preparation program from Spring Quarter, 1980; Fall Quarter, 1980; Winter Quarter, 1981; Spring Quarter, 1981; Fall Semester, 1982; and Spring Semester, 1983. From this population, two different samples, or

groups, of teacher education graduates were selected to test the portions of the Career Path Model examined in the study. The first sample, which was comprised of the 1980 Spring Quarter and 1980-1981 academic year graduates, was used to test the portions of the model examined in the study. The 1982-1983 academic year graduates, who comprised the second group, were used to cross-validate the testing of the predictive portion of the One Year Career Path Model depicted in Figure 3. Presented below are the criteria used to select the subjects for each sample.

Sample One (Spring Quarter, 1980 and 1980-1981 academic year graduates)

The teacher education graduates included in this group were the graduates from Spring Quarter, 1980, through Spring Quarter, 1981, who participated in each of the surveys conducted at the time of graduation, one year following graduation, and five years following graduation. The total number of graduates during this period of time was 663; from these, 101 of the 268 Spring, 1980 graduates and 145 of the 395 1980/1981 academic year graduates completed all three of the surveys. Therefore, this sample was comprised of 246 graduates.

Sample Two (1982-1983 academic year graduates)

The teacher education graduates included in this group consisted of the graduates from Fall Semester, 1982, through Spring Semester, 1983, who completed both the survey conducted at the time of graduation and the survey conducted one year following graduation. The total number of graduates during this period of time was 340. The 179 graduates who completed both surveys comprised Sample Two.

General information about the characteristics of the teacher education graduates included in each sample is presented in Table 1. Eighty-three percent of the graduates in Sample One and 81 percent of those in Sample Two were female. The greatest percentage of graduates from both samples were from the College of Education (46 percent and 49 percent, respectively), and the next greatest percentage were from the College of Home Economics. Presented in Table 2 is information about the occupations of the graduates at one and five years following graduation. Sixty-six percent of the graduates from Sample One and 64 percent from Sample Two were teaching the year following graduation. Five years following graduation, 52 percent of the graduates from Sample One were teaching. It should be noted that for the purposes of this study, teacher education graduates who are or have been employed in a full-time, part-time, or substitute capacity in a traditional or nontraditional setting or classroom at the preschool, elementary, and/or secondary level are defined as teachers.

Measures

Presented in this section is a discussion of the measurement of the variables examined in the study. Since One Year Career Path and Five Year Career Path were the objects of study, they both serve as dependent variables. Their method of measurement is presented first, followed by method of measurement of the independent variables, or Career Path Determinants. Data for both Samples One and Two are presented. It should be noted, however, that references to measurement of the variables at one

Table 1. Characteristics of teacher education graduates--Samples One and Two

Characteristic/ grouping	Sample One		Sample Two	
	Number	Valid percent	Number	Valid percent
Gender				
Female	204	82.9	145	81.0
Male	42	17.1	34	19.0
Total	246	100.0	179	100.0
College				
Agriculture	16	6.5	22	12.3
Design	9	3.7	7	3.9
Education	113	45.9	88	49.2
Home Economics	69	28.0	42	23.5
Science and Humanities	39	15.9	20	11.2
Total	246	100.0	179	100.0

and five years following graduation (Time 2 and Time 3) do not apply to Sample Two. Data at only the first measurement point, graduation (Time 1), are presented for Sample Two since this group was used only to cross-validate the portion of the model that predicted One Year Career Path.

Dependent variables

One Year Career Path One Year Career Path was analyzed by classifying the graduates from each sample into four groups according to responses given at the time of graduation regarding their employment plans for the following year (plan to teach/do not plan to teach) and responses

Table 2. Occupation of teacher education graduates at one and five years following graduation

Time/ occupation	Sample One		Sample Two	
	Number	Valid percent	Number	Valid percent
Occupation one year following graduation				
Teaching	162	65.9	114	63.7
Nonteaching	84	34.1	65	36.3
Total	246	100.0	179	100.0
Occupation five years following graduation				
Teaching	128	52.2	NA	NA
Nonteaching	117	47.8	NA	NA
Missing	1			
Total	246	100.0		

given one year following graduation regarding their current employment (teaching/not teaching). The responses of those who indicated at one year that they were employed in both teaching and non-teaching positions were recoded "teaching." Five graduates from Sample One did not provide the data necessary for One Year Career Path group classification. There were no missing cases in Sample Two. On the basis of their responses, examination of the One Year Career Path of the teacher education graduates included the following four groups:

Teach/Teach — Those who reported at the time of graduation that they planned to enter teaching the academic year following graduation and did teach the academic year following graduation;

Teach/Not teach	Those who reported at the time of graduation that they planned to enter teaching the academic year following graduation, but did not teach the academic year following graduation;
Not teach/Teach	Those who reported at the time of graduation that they did not plan to enter teaching the academic year following graduation, but did teach the academic year following graduation; and
Not teach/Not teach	Those who reported at the time of graduation that they did not plan to enter teaching the academic year following graduation and did not teach the academic year following graduation.

The number of graduates from Samples One and Two included in each of the One Year Career Path groups is presented in Table 3.

Five Year Career Path Five Year Career Path was analyzed by classifying the teacher education graduates from Sample One into four groups on the basis of their responses at five years when asked to report their employment history for the five years since graduating from the preparation program. Data were missing for nine of the graduates and they were not able to be classified into a Five Year Career Path group. The four classification groups and the criteria for each are presented below:

Entered and left	Those who entered teaching the first year following graduation and left before five years and did not reenter;
Entered and stayed	Those who entered teaching either the first, second, or third year following graduation and continued to teach through five years;
Taught intermittently	Those who either entered, left, and reentered teaching during the five years or those who entered the fourth or fifth year and continued to teach through five years; and

Table 3. One Year Career Path groups--frequency distribution for Samples One and Two

One Year Career Path group	Sample One		Sample Two	
	Number	Valid percent	Number	Valid percent
Teach/teach	145	60.2	98	54.7
Teach/Not teach	38	15.8	33	18.4
Not teach/Teach	16	6.6	16	8.9
Not teach/Not teach	42	17.4	32	17.9
Missing	5		0	
Total	246	100.0	179	100.0

Never taught — Those who never taught during the five years following graduation.

Presented in Table 4 is the number of graduates from Sample One included in each of the four Five Year Career Path groups.

Career Path Determinants

Marital status — Marital status is operationally defined at graduation and one year as "single" or "married," and at five years as "single," "married," or "married or single with children." At each measurement point (graduation, one year following graduation, and five years following graduation), graduates were asked to report their marital status. The number of response stems as well as the number of questionnaire items used to measure marital status has varied at the different measurement points as well as over time at a particular

Table 4. Five Year Career Path groups--frequency distribution for Sample One

Five Year Career Path group	Sample One	
	Number	Valid percent
Entered and left	46	19.4
Entered and stayed	100	42.2
Taught intermittently	40	16.9
Never taught	51	21.5
Missing	9	
Total	246	100.0

measurement point. Therefore, to achieve a consistent measure of marital status across and within measurement points, it was necessary to combine cases. For example, the questionnaire administered at the time of graduation from the preparation program included one item with four response stems: "single;" "married, no children;" "married, one or more children;" and "other." Since it can be assumed that those graduates who responded "other" were not married, these cases were added to the category "single." Responses of those who reported "married, no children" or "married, one or more children" were combined into one category, "married."

The one-year follow-up questionnaire included one item with five response stems: "single (never married);" "married, no children;" "married, one or more children;" "divorced or separated;" and "widowed."

In creating the two categories used to measure marital status at one year, the cases in the three categories of "single (never married);" "divorced or separated;" and "widowed" were combined into the category "single," while the two categories of "married, no children" and "married, one or more children" were combined into the category "married."

The 1985 five-year follow-up questionnaire included the same five categories as the one-year follow-up questionnaire to measure marital status. In creating the three categories used to measure marital status at five years from this survey, the cases in the three categories of "single," "divorced or separated," and "widowed" were combined into the category "single," while the cases in the category of "married, no children" comprised the category of "married" and those in the category of "married, one or more children" were included in the category "single or married with children."

In 1986, the five-year follow-up questionnaire used two items to measure marital status. The first item asked the respondents to indicate their marital status by responding to one of three stems: "single (never married);" "married;" or "divorced, separated, or widowed." The second item asked them to report whether they have children, and if so, how many. In this case, the responses of those who responded "single (never married)" or "divorced, separated, or widowed" in the first item and reported that they had no children in the second item were combined and categorized as "single," while those who gave one of these responses in the first item and reported that they had children in the second were combined and categorized as "single or married with children." Those who

responded that they were married in the first item but reported that they had no children in the second item were categorized as "married, no children," while those who responded "married" in the first item and reported in the second item that they have children were included in the category "single or married with children." Sample One had missing information about marital status for two of the respondents at graduation, for seven of the respondents at one year, and for 43 at five years. Sample Two had one missing case at graduation. The number of respondents included in each of the marital status categories at each of the measurement points is presented in Table 5.

Socio-economic status of parental family Socio-economic status of parental family is measured by two indicators. The first indicator is father's occupation and the second is mother's occupation. Information about both father's and mother's occupation was obtained from the questionnaire administered at the time of graduation. Graduates were asked to indicate their fathers' and mothers' occupations most of the time while they were living at home.

Responses from the graduates regarding their fathers' occupations were categorized into the following nine general areas: professional and technical, managerial and officials, farmers and farm managers, clerical, salesworkers, craftspersons and operatives, service and private household, laborers, and other. For the purposes of this study, cases from two of the areas (professional and technical and the managerial and officials) were combined into a new category labeled "professional/technical/managerial." Another new category, "skilled/semiskilled/unskilled," was

Table 5. Marital status--frequency distribution at different measurement points for Samples One and Two

Time/ marital status	Sample One		Sample Two	
	Number	Valid percent	Number	Valid percent
Graduation				
Single	188	77.0	147	82.6
Married	56	23.0	31	17.4
Missing	2		1	
Total	246	100.0	179	100.0
One year following graduation				
Single	146	61.1	NA	NA
Married	93	38.9	NA	NA
Missing	7			
Total	246	100.0	NA	NA
Five years following graduation				
Single	33	16.3	NA	NA
Married, no children	78	38.4	NA	NA
Single or married, children	92	45.3	NA	NA
Missing	43		NA	NA
Total	246	100.0	NA	NA

comprised of cases from six areas (clerical, salesworkers, craftspersons and operatives, service and private household, laborers, and other). The cases from the area "farmers and farm managers" were not combined with any other areas.

The categories used to classify the graduates' responses regarding their mothers' occupations included the following nine areas: professional and technical, managers and officials, farmers and farm

wives, homemakers, clerical, salesworkers, craftspersons and operatives, service and private household, and other. For the purposes of this study, mother's occupation was categorized as "homemaker" or "employed outside the home." The category labeled "employed outside the home" was formed by combining the cases from eight of the areas (professional and technical, managers and officials, farmers and farm wives, clerical, salesworkers, craftspersons and operatives, service and private household, and other). Information about father's occupation was missing for nine cases in Sample One and seven cases in Sample Two. There were five missing cases about mother's occupation in Sample Two and six missing cases in Sample Two. The categories used in the study to measure father's and mother's occupation and the number of cases in each from Samples One and Two are listed in Table 6.

Academic ability/achievement Four indicators are used to measure academic ability/achievement. These include score on ACT, GPA at time of admission to the teacher preparation program, GPA at the time of graduation from the teacher preparation program, and high school rank (HSR). These data were obtained from the permanent record cards of the teacher education graduates.

ACT The ACT scores of Sample One ranged from 10 to 32, while those of Sample Two ranged from 12 to 31. ACT scores for 64 graduates in Sample One and 38 graduates in Sample Two were missing.

GPA--admission The grade point averages of Sample One at the time of admission to the teacher preparation program ranged from 2.11 to 4.00 on a 4.00 scale. The GPAs of Sample Two at the time of admission

Table 6. Socio-economic background of parental family--frequency distribution of indicators for Samples One and Two

Indicator/ occupation	Sample One		Sample Two	
	Number	Valid percent	Number	Valid percent
Father's occupation				
Professional/technical/managerial	104	43.9	78	45.3
Farmers and farm managers	75	31.6	63	36.6
Skilled/semi-skilled/unskilled	58	24.5	31	18.0
Missing	9		7	
Total	246	100.0	179	100.0
Mother's occupation				
Homemaker	144	59.8	84	48.6
Employed outside home	97	40.2	89	51.4
Missing	5		6	
Total	246	100.0	179	100.0

ranged from 2.22 to 4.00. There were four missing cases in Sample One and none in Sample Two.

GPA--graduation The grade point averages of Sample One at the time of graduation from the preparation program ranged from 2.31 to 4.00 on a 4.00 scale. At the time of graduation, the grade point averages

of Sample Two ranged from 2.32 to 3.92. No cases were missing from either sample.

High school rank The high school rank of the graduates in Sample One ranged from 1 to 63. For Sample Two, high school rank ranged from 1 to 85. There were 38 missing cases in Sample One and 34 in Sample Two.

Presented in Table 7 are the mean and the standard deviation of the two samples for each of the four indicators used to measure academic ability/achievement.

Student teaching Student teaching is measured by five indicators. These indicators are number of weeks spent student teaching, perceived adequacy of length of student teaching, perceived satisfaction with location of student teaching assignment, perceived satisfaction with cooperating teacher, and perceived satisfaction with university supervisor.

Table 7. Academic ability/achievement--mean and standard deviation scores of indicators for Samples One and Two

Indicator	Sample One (N=246)		Sample Two (N=179)	
	Mean	S.D.	Mean	S.D.
ACT	23.09	4.32	21.80	4.10
GPA--admission	3.00	0.46	2.90	0.48
GPA--graduation	3.17	0.40	3.08	0.41
HSR	16.89	13.53	22.61	16.92

Responses regarding number of weeks spent student teaching were obtained from the graduates in one item included in the questionnaire administered at the time of graduation from the preparation program. This item asked the graduates to indicate the number of weeks they spent student teaching. The response categories were different for the two samples since those in Sample One graduated under the quarter system and those in Sample Two under the semester system. The four response categories for Sample One for this item were: "7 weeks or less," "8-10 weeks," "11-12 weeks," and "over 12 weeks." The four response categories for Sample Two were: "8 weeks or less," "12 weeks," "16 weeks," and "other." There were no missing cases in either Sample One or Sample Two. The number of graduates from Samples One and Two who were included in each response category are presented in Table 8.

Responses regarding perceived length of time spent student teaching were collected from the graduates at two measurement points, graduation and one year following graduation. The questionnaire administered at each of these measurement points included an item that asked the graduates to indicate whether the student teaching experience should have been longer or shorter. The response choices were "longer," "shorter," or "about right," and they were scored 1, 2, and 3, respectively. At the time of graduation, Sample One had three missing cases and Sample Two had one; at one year following graduation, there were no missing cases in Sample One. Presented in Table 9 are the number of graduates from each sample who were included in each of the response categories at the two measurement points.

Table 8. Length of student teaching experience--frequency distribution for Samples One and Two

Sample/Length of time	Number	Valid percent
Sample One		
7 weeks or less	19	7.7
8-10 weeks	33	13.4
11-12 weeks	168	68.3
Over 12 weeks	26	10.6
Total	246	100.0
Sample Two		
8 weeks or less	74	41.3
12 weeks	13	7.3
16 weeks	89	49.7
Other	3	1.7
Total	179	100.0

Table 9. Perceived adequacy of length of student teaching--frequency distribution at different measurement points for Samples One and Two

Time/ perceived adequacy	Sample One		Sample Two	
	Number	Valid percent	Number	Valid percent
Graduation				
Longer	66	27.2	18	10.1
Shorter	28	11.5	12	6.7
About right	149	61.3	148	83.1
Missing	3		1	
Total	246	100.0	179	100.0
One year following graduation				
Longer	69	28.0	NA	NA
Shorter	15	6.1	NA	NA
About right	162	65.9	NA	NA
Missing	0			
Total	246	100.0	NA	NA

An item included in the questionnaire administered at the time of graduation from the preparation program that asked the graduates to indicate how satisfied they were with specific aspects of their student teaching experience provided information about the other three indicators. Graduates were asked to rate their satisfaction with (1) getting their choice of geographical location for their student teaching assignment, (2) their cooperating teacher, and (3) their university supervisor. The response scale was "very satisfied," "satisfied," "neutral," "dissatisfied," and "very dissatisfied." These responses were scored 5, 4, 3, 2, and 1, respectively. Sample One had one missing case and Sample Two had no missing cases for the indicator perceived satisfaction with location of student teaching assignment. There were no missing cases in either Sample One or Sample Two for the indicator perceived satisfaction with cooperating teacher. The indicator perceived satisfaction with university supervisor had two missing cases in Sample One and no missing cases in Sample Two. The mean and standard deviation of each of the three indicators for Samples One and Two are presented in Table 10.

Sense of efficacy Sense of efficacy is measured by two indicators. The first indicator is the graduate's self-evaluation as a teacher. The second is the graduate's perceived adequacy of preparation in ten preparation areas. Self-evaluation as a teacher is measured by the graduate's response to an item included in the questionnaire administered at the time of graduation. This item asked the graduate to indicate whether he/she felt he/she would be "an excellent teacher," "a better than average teacher," "an average teacher," "a below average teacher," or

Table 10. Perceived satisfaction with aspects of student teaching experience--mean and standard deviation scores for Samples One and Two

Aspect	Sample One (N=246)		Sample Two (N=179)	
	Mean	S.D.	Mean	S.D.
Location of student teaching experience	4.34	1.15	4.17	1.22
Cooperating teacher	4.44	0.88	4.54	0.86
University supervisor	4.08	1.09	4.17	1.07

"an inadequate teacher." The responses were scored 5, 4, 3, 2, and 1, respectively. The scored responses for Sample One ranged from 1 to 5, while those for Sample Two ranged from 2 to 5. There was one missing case in Sample One and none in Sample Two. The mean and standard deviation for each of the samples are presented in Table 11.

The indicator perceived adequacy of preparation is measured at three measurement points: graduation, one year following graduation, and five years following graduation. At each measurement point, graduates were asked to indicate how adequate their professional education program was in specified preparation areas. The response categories and the scores assigned to each were "very adequate" (5), "adequate" (4), "neutral" (3), "inadequate" (2), and "very inadequate" (1). A sixth response category, "not applicable," was included to provide graduates with the opportunity to indicate that it was not appropriate to rate their adequacy of

Table 11. Sense of efficacy--mean and standard deviation scores of indicators for Samples One and Two

Indicator/time	Number of items[a]	Sample One (N=246) Missing cases	Mean	S.D.	Sample Two (N=179) Missing cases	Mean	S.D.
Self-evaluation as a teacher							
Graduation		1	4.35	0.59	0	4.35	0.61
Perceived adequacy of preparation in:							
Planning and delivering instruction	6						
Graduation		0	3.78	0.67	0	3.84	0.66
One year		24	3.66	0.66	NA	NA	NA
Five years		7	3.66	0.63	NA	NA	NA
Interpersonal relations	3						
Graduation		0	3.28	0.86	0	3.40	0.81
One year		24	3.19	0.83	NA	NA	NA
Five years		9	3.15	0.76	NA	NA	NA
Student motivation and discipline	3						
Graduation		0	3.47	0.82	0	3.40	0.79
One year		24	3.18	0.89	NA	NA	NA
Five years		9	3.15	0.76	NA	NA	NA
Assessing and dealing with learning problems	2						
Graduation		4	2.58	1.12	1	3.12	0.91
One year		29	2.63	1.04	NA	NA	NA
Five years		12	2.77	1.04	NA	NA	NA

[a]Refers only to the perceived adequacy of preparation area categories.

Table 11. Continued

Indicator/time	Number of items	Sample One (N=246) Missing cases	Mean	S.D.	Sample Two (N=179) Missing cases	Mean	S.D.
Monitoring student achievement	3						
Graduation		0	3.44	0.82	0	3.48	0.83
One year		24	3.36	0.78	NA	NA	NA
Five years		9	3.36	0.75	NA	NA	NA
Understanding the profession	1						
Graduation		1	3.62	0.96	0	3.61	0.89
One year		26	3.39	1.01	NA	NA	NA
Five years		7	3.30	1.07	NA	NA	NA
Ability to prepare and use instructional media	1						
Graduation		2	3.99	0.89	1	3.94	0.92
One year		25	3.94	0.83	NA	NA	NA
Five years		8	4.00	0.90	NA	NA	NA
Content preparation in area of specialization	1						
Graduation		8	4.14	0.90	2	4.06	0.97
One year		32	3.97	0.92	NA	NA	NA
Five years		15	3.90	0.98	NA	NA	NA
Assessing and implementing innovations	1						
Graduation		3	3.42	0.85	4	3.49	0.95
One year		34	3.27	0.95	NA	NA	NA
Five years		9	3.28	0.88	NA	NA	NA

Table 11. Continued

Indicator/time	Number of items	Sample One (N=246) Missing cases	Mean	S.D.	Sample Two (N=179) Missing cases	Mean	S.D.
Knowledge of psychology of learning and its application to teaching	1						
Graduation		1	3.90	0.83	0	3.87	0.81
One year		25	3.78	0.80	NA	NA	NA
Five years		10	3.87	0.73	NA	NA	NA

preparation in a specific area. This category was scored 8 and these responses were coded as missing.

Currently, the number of preparation area items is 33. Originally, however, there were 23, with eleven additional areas added and one dropped in later years. This study included only the 22 preparation area items that the graduates had the opportunity to respond to at each of the three measurement points.

The results of the 33 preparation area items recently have been factor analyzed by RISE. Using data collected at the time of graduation from Spring, 1980 through Spring, 1985 graduates, the results of this procedure (using the varimax rotation) resulted in seven multi-item and six single-item preparation area categories. Since this study only included 22 of the original 23 preparation items, the ten items added in 1982 and 1983 and the one deleted in 1983 were eliminated from the categories, resulting in five multi-item and five single-item categories. See Table 46 in Appendix B for the results of the factor analysis. Included in this table are the 13 preparation area categories, the preparation area items that comprise each, and, for each multi-item category, the reliability coefficient alpha. The ten preparation area items that were not used in this study are indicated in the appended table. The ten categories used in this study, the number of items that comprise each, and the mean and standard deviation of Samples One and Two for each of the categories are presented in Table 11. The number of missing cases for each of the categories also is presented for the two samples.

Perceived quality of preparation program Perceived quality of preparation program is measured by the overall quality rating assigned to the preparation program by the graduates at one and five years following graduation. The questionnaire administered at both these measurement points included an item that asked the graduates to rate on a scale of 0 (very poor) to 10 (very high), the quality of the teacher preparation program at ISU. The actual ratings for Sample One at both one and five years ranged from 1 to 10. Sample One had 11 missing cases at one year following graduation and 7 at five years following graduation. Presented in Table 12 are the mean and standard deviation at each measurement point for Sample One.

Table 12. Perceived quality of preparation program--mean and standard deviation scores at different measurement points for Sample One

Time	Sample One (N=246) Mean	S.D.
One year following graduation	6.60	1.85
Five years following graduation	6.62	1.81

Salary Salary is operationally defined as total annual income. At one year and five years following graduation, graduates were asked to indicate which of seven categories best described their total income during the previous year. If married, they were asked to include their spouse's income. At each measurement point, responses in the seven categories were combined to form three income categories. Responses at

one year were combined into the three categories of "less than $10,000," "$10,000 to $19,999," and "$20,000 and over." At five years, the responses were combined into the three categories of "less than $20,000," "$20,000 to $29,000," and "$30,000 and over." Data were missing for 12 graduates in Sample One at one year and for nine graduates at five years. Presented in Table 13 are the three one-year and five-year salary categories and the number of graduates from Sample One included in each at the different measurement points.

Employment expectations Employment expectations is measured by seven job characteristic items that were derived from responses to 18 items included in a section of the questionnaire administered at the time

Table 13. Salary--frequency distribution of total income for Sample One

Time/ total income	Sample One	
	Number	Valid percent
One year following graduation		
Less than $10,000	68	29.1
$10,000 to $19,999	123	52.6
$20,000 and over	43	18.4
Missing	12	
Total	246	100.0
Five years following graduation		
Less than $20,000	76	32.1
$20,000 to $29,999	57	24.1
$30,000 and over	104	43.9
Missing	9	
Total	246	100.0

of graduation from the preparation program. In this section, graduates were asked to indicate how important it is that a job provide them with each of 18 specified job characteristics. Response categories for these 18 items were "very important," "important," "neutral," "unimportant," and "very unimportant." Responses were scored 5, 4, 3, 2, and 1, respectively. The number of characteristics was reduced from 18 to seven as a result of factor analysis procedures previously conducted by RISE. Using data collected from Spring, 1980 through Spring, 1985 graduates, results on these 18 characteristics were factor analyzed using varimax rotation, and four multi-item and three single-item job characteristics were identified. The results of this factor analysis appear in Table 47 of Appendix B. This table includes a list of the seven job characteristics, the questionnaire items that comprise each, and, for each multi-item characteristic, the reliability coefficient alpha.

The seven characteristics identified through factor analysis are money, prestige, and advancement; opportunities to use special abilities and aptitudes; leadership and responsibility; helping and serving others; opportunity to effect social change; autonomy; and power. Presented in Table 14 are the seven characteristics, the number of items that comprise each, and, for each sample, the mean and standard deviation for each of the characteristics, and the number of missing cases for each of the job characteristic items.

Employment reality Employment reality is measured at two measurement points: one year following graduation and five years following graduation. At each of these measurement points, graduates were

Table 14. Employment expectations--mean and standard deviation scores for Samples One and Two

Job characteristic	Number of items	Sample One (N=246) Mean	S.D.	Missing cases	Sample Two (N=179) Mean	S.D.	Missing cases
Money, prestige, advancement	5	3.76	0.57	0	3.70	0.59	1
Opportunities to use special abilities and aptitudes	2	4.61	0.46	0	4.52	0.54	1
Leadership and responsibility	3	4.45	0.48	0	4.37	0.54	1
Helping and serving others	5	4.52	0.39	0	4.48	0.46	1
Opportunity to effect social change	1	3.76	0.76	2	3.72	0.73	1
Autonomy	1	3.69	0.87	0	3.75	0.84	1
Power	1	3.26	0.80	0	3.38	0.79	3

asked to indicate the extent to which their current jobs provided them with each of the 18 job characteristics to which they assigned importance ratings at the time of graduation. The response categories and the score assigned to each were "all of the time" (5), "most of the time" (4), "some of the time" (3), "seldom" (2), and "never" (1). At both measurement points, the original 18 job characteristic items were reduced to the same seven groupings that were used to measure Employment Expectations and that were described above. The information about the measurement of the seven

employment reality indicators at one and five years is presented in Table 15. Included are the means and standard deviations for Sample One as well as the number of missing cases for each job characteristic item.

Employment dissonance Employment dissonance is operationally defined as the difference between employment expectations and employment reality at one year following graduation and at five years following graduation. Discrepancy scores were calculated for each of the 18 job characteristic items. The score assigned by the graduates at one and five years following graduation indicating the extent to which the job they held at each of these measurement points provided each of the 18 job characteristics was subtracted from the importance score they assigned to each of the characteristics at the time of graduation. The 18 job characteristic items were then grouped into the same seven categories used to measure Employment Expectations and Employment Reality. Presented in Table 16 are the mean and standard deviation difference scores, as well as the number of missing cases for Sample One for each of the seven job characteristic items.

Size of employment community Size of employment community is operationally defined as population of the community where the graduate was employed at one and five years following graduation. A single item with seven response categories was included in the questionnaire administered to the graduates at each of these measurement points. At both one and five years, responses were combined to form four categories. There were 26 missing cases in Sample One at one year and two missing

Table 15. Employment reality--mean and standard deviation scores at different measurement points for Sample One

Job characteristic	Number of items	Sample One (N=246) Mean	S.D.	Missing cases
Money, prestige, advancement	5			
One year		2.90	0.84	27
Five years		2.97	0.88	3
Opportunities to use special abilities and aptitudes	2			
One year		3.88	0.89	26
Five years		4.04	0.79	3
Leadership and responsibility	3			
One year		4.18	0.73	26
Five years		4.13	0.69	3
Helping and serving others	5			
One year		4.12	0.70	26
Five years		3.98	0.64	3
Opportunity to effect social change	1			
One year		2.95	1.13	28
Five years		2.94	1.04	3
Autonomy	1			
One year		3.70	0.94	27
Five years		3.63	0.96	3
Power	1			
One year		3.23	1.03	28
Five years		3.18	0.94	5

Table 16. Employment dissonance--mean and standard deviation scores at different measurement points for Sample One

Job characteristic	Number of items	Sample One (N=246) Mean	S.D.	Missing cases
Money, prestige, advancement	5			
One year		0.85	0.94	27
Five years		0.78	1.00	3
Opportunities to use special abilities and aptitudes	2			
One year		0.73	0.93	26
Five years		0.56	0.88	3
Leadership and responsibility	3			
One year		0.27	0.79	26
Five years		0.31	0.77	3
Helping and serving others	5			
One year		0.40	0.72	26
Five years		0.55	0.66	3
Opportunity to effect social change	1			
One year		0.79	1.21	30
Five years		0.82	1.19	5
Autonomy	1			
One year		-0.03	1.26	27
Five years		0.06	1.27	3
Power	1			
One year		0.02	1.22	28
Five years		0.08	1.20	5

cases at five years. The four population categories and the number of graduates from Sample One included in each at each measurement point are presented in Table 17.

Teaching level Teaching level is operationally defined as the level at which the graduates received teaching certification at the time of graduation from the preparation program. The four levels are "preschool/kindergarten," "elementary," "secondary," and "K-12." The number of graduates from each sample who were included in each of the four

Table 17. Size of employment community--frequency distribution at different measurement points for Sample One

Time/ population	Sample One	
	Number	Valid percent
One year following graduation		
Under 2,500	56	25.5
2,500 - 9,999	48	21.8
10,000 - 50,000	66	30.0
Over 50,000	50	22.7
Missing	26	
Total	246	100.0
Five years following graduation		
Under 2,500	48	19.7
2,500 - 9,999	36	14.8
10,000 - 50,000	61	25.0
Over 50,000	99	40.6
Missing	2	
Total	246	100.0

categories is presented in Table 18. There were no missing cases in either sample.

Choose teaching again Choose teaching again is operationally defined as an indicator of career satisfaction. It is measured by an item included in the questionnaire administered at all three points which asked the graduates whether, if they had it to do over again, they would prepare to become a teacher. The three response choices were "yes," "no," and "undecided." A three-point continuum was created by scoring the responses 3, 1, and 2, respectively. Sample One had three missing cases at graduation, nine at one year, and three at five years. Sample Two had no missing cases at graduation. The mean and standard deviation was calculated at each measurement point. The results for the two samples are presented in Table 19.

Satisfaction with student teaching Satisfaction with student teaching is operationally defined as an indicator of career satisfaction.

Table 18. Teaching level—frequency distribution for Samples One and Two

Teaching level	Sample One		Sample Two	
	Number	Valid percent	Number	Valid percent
Preschool/kindergarten	35	14.2	18	10.1
Elementary	83	33.7	64	35.8
Secondary	113	45.9	79	44.1
K-12	15	6.1	18	10.1
Total	246	100.0	179	100.0

Table 19. Indicators of career satisfaction--mean and standard deviation of indicators at different measurement points for Samples One and Two

Indicator/time	Sample One (N=246) Mean	S.D.	Sample Two (N=179) Mean	S.D.
Choose teaching again				
Graduation	1.49	0.67	1.37	0.62
One year	2.48	0.75	NA	NA
Five years	2.25	0.84	NA	NA
Satisfaction with student teaching				
Graduation	4.32	0.92	4.34	0.86
Job satisfaction				
One year	7.00	2.41	NA	NA
Five years	7.11	1.88	NA	NA

It is measured by a question included on the questionnaire administered at the time of graduation from the preparation program that stated, "Based on your student teaching experience, what is your reaction to teaching as a career for you?" There were five response choices. These choices and the score assigned to each were "very satisfied" (5), "satisfied" (4), "neutral" (3), "dissatisfied" (2), and "very dissatisfied" (1). The actual scores for each of the samples ranged from one to five. One case was missing in Sample One and three were missing in Sample Two. The mean and standard deviation of the scores of each sample of graduates are presented in Table 19.

Job satisfaction Job satisfaction, operationally defined as an indicator of career satisfaction, is measured at one and five years by a global satisfaction rating on a continuum. The questionnaire administered at each of these measurement points included an item that asked the graduates to rate on a scale of 0 (very low) to 10 (very high) their general satisfaction with their current or most recent job. The actual scores at each measurement point for Sample One ranged from 0 to 10. There were 28 missing cases in Sample One at one year and seven missing cases at five years. The mean and standard deviation of Sample One's scores at each measurement point are presented in Table 19.

Intention to teach Intention to teach is measured at the time of graduation by a questionnaire item that asked the graduates to report their employment plans for the following academic year. Responses were coded into two categories: (1) plan to teach and (2) plan not to teach. This measure, which in the examination of One Year Career Path was used to form the dependent variable, was used as a Career Path Determinant in examining Five Year Career Path. Presented in Table 20 are the number and percentage of graduates from Sample One who reported intentions to teach or not teach the academic year following graduation. There were five missing cases.

Empirical Hypotheses

In this section, the empirical hypotheses and the specific Career Path Determinant variables that were operationalized in testing each of the hypotheses are presented. Five theoretical hypotheses were formulated

Table 20. Intention to teach academic year following graduation--frequency distribution for Sample One

Career plan	Sample One	
	Number	Valid percent
Plan to teach	183	75.9
Plan not to teach	58	24.1
Missing	5	
Total	246	100.0

in the previous chapter. Before these hypotheses can be tested, it is necessary to translate them from the theoretical to the empirical level. The five empirical hypotheses are presented below:

1. There is a significant relationship between the scores of Career Path Determinant variables measured at the time of graduation (Time 1) and the One Year Career Path group of the teacher education graduates measured at one year following graduation.

2. There is a significant difference among the four One Year Career Path groups when compared on their scores on Career Path Determinant variables measured at one year following graduation (Time 2).

3. There is a significant relationship between the scores of Career Path Determinant variables measured at the time of graduation (Time 1) and at one year following graduation (Time 2) combined and the Five Year Career Path group of the teacher education graduates measured at five years following graduation.

4. There is a significant difference among the four Five Year Career Path groups when compared on their scores on Career Path Determinant variables measured at five years following graduation (Time 3).

5. The predictive variables and their relative contribution to the prediction of One Year Career Path group are supported in both Samples One and Two.

These general empirical hypotheses represent sub-general hypotheses in each of the four Career Path Model areas as well as specific hypotheses within each of the four areas. Presented in Tables 21 through 24 are the Career Path Model areas, the Career Path Determinants included in each, and the specific variables, or empirical measures, operationalized in testing the hypotheses. The data base utilized in this study provided the opportunity to use many different measures in testing the hypotheses. Since the first and third hypotheses involved predictive models, it is useful to a priori reduce the number of variables in the models by eliminating variables that are not likely to be useful in the analysis. This includes variables that have similar group means, are intercorrelated, or are redundant. On the basis of theory and preliminary statistical analyses, it was possible to reduce the number of variables employed in testing the first hypothesis from 34 to 17 and the number in testing the third hypothesis from 66 to 19. The preliminary statistical analyses included the use of the Pearson Correlation procedure to examine relationships between and among the independent variables, chi-square and single classification analysis of variance procedures to examine differences among the groups on each of the independent variables, and discriminant analysis procedures to eliminate weak or redundant variables.

Presented in Table 21 are the Career Path Determinant variables measured at the time of graduation (Time 1) that were used in testing the first hypothesis. The Career Path Determinant variables presented in Table 22, which were measured at one year following graduation (Time 2)

Table 21. Career Path Determinant variables measured at time of graduation (Time 1) that were operationalized to test Hypothesis 1

Career Path Model area/ Career Path Determinant	Empirical measure
Personal and Background Characteristics	
Gender	Gender
Marital status	Marital status at time of graduation
Academic ability/achievement	a) GPA (combined admission and graduation) b) HSR
Preparation Program Factors	
Student teaching	Perceived satisfaction with cooperating teacher
Sense of efficacy	a) Self-evaluation as a teacher b) Perceived adequacy of preparation in planning and delivering instruction c) Perceived adequacy of preparation in interpersonal relations d) Perceived adequacy of preparation in student motivation and discipline e) Perceived adequacy of preparation in preparing and using instructional media f) Perceived adequacy of preparation in assessing and implementing innovations
Employment Factors	
Employment expectations	a) Money, prestige, advancement b) Leadership and responsibility c) Power
Teaching level	Teaching certification level

Table 21. Continued

Career Path Model area/ Career Path Determinant	Empirical measure
Indicators of Career Satisfaction	
Choose teaching again	Choose teaching again
Satisfaction with student teaching	Satisfaction with teaching as a career on basis of student teaching experience

Table 22. Career Path Determinant variables measured one year following graduation (Time 2) that were operationalized to test Hypothesis 2

Career Path Model area/ Career Path Determinant	Empirical measure
Personal and Background Characteristics	
Marital status	Marital status
Preparation Program Factors	
Student teaching	Perceived adequacy of length of student teaching experience
Sense of efficacy	a) Perceived adequacy of preparation in planning and delivering instruction b) Perceived adequacy of preparation in interpersonal relations c) Perceived adequacy of preparation in student motivation and discipline d) Perceived adequacy of preparation in assessing and dealing with learning problems e) Perceived adequacy of preparation in monitoring student achievement f) Perceived adequacy of preparation in understanding the profession g) Perceived adequacy of preparation in preparing and using instructional media h) Perceived adequacy of preparation in content preparation in area of specialization i) Perceived adequacy of preparation in assessing and implementing innovations j) knowledge of psychology of learning and its application to teaching
Perceived quality of preparation program	Perceived quality of preparation program

Table 22. Continued

Career Path Model area/ Career Path Determinant	Empirical measure
Employment Factors	
Salary	Total income
Employment reality	a) Money, prestige, advancement b) Opportunity to use special abilities and aptitudes c) Leadership and responsibility d) Helping and serving others e) Opportunity to effect social change f) Autonomy g) Power
Employment dissonance	a) Money, prestige, advancement b) Opportunity to use special abilities and aptitudes c) Leadership and responsibility d) Helping and serving others e) Opportunity to effect social change f) Autonomy g) Power
Size of employment community	Size of employment community
Indicators of Career Satisfaction	
Choose teaching again	Choose teaching again
Job satisfaction	Job satisfaction

Table 23. Career Path Determinant variables measured at time of graduation (Time 1) and at one year following graduation (Time 2) that were operationalized to test Hypothesis 3

Career Path Model area/ Career Path Determinant	Empirical measure (measurement time)
Personal and Background Characteristics	
Gender	Gender
Academic ability/achievement	GPA--graduation
Preparation Program Factors	
Student teaching	Perceived satisfaction with cooperating teacher (Time 1)
Sense of efficacy	a) Self-evaluation as a teacher (Time 1) b) Perceived adequacy of preparation in planning and delivering instruction (Time 2) c) Perceived adequacy of preparation in interpersonal relations (Time 2) d) Perceived adequacy of preparation in student motivation and discipline (Time 2) e) Perceived adequacy of preparation in monitoring student achievement (Time 2)
Perceived quality of preparation program	Perceived quality of preparation program (Time 2)
Employment Factors	
Salary	Total income (Time 2)
Employment dissonance	a) Money, prestige, advancement (Time 2) b) Opportunity to use special abilities and aptitudes (Time 2)

Table 23. Continued

Career Path Model area/ Career Path Determinant	Empirical measure (measurement time)
	c) Leadership and responsibility (Time 2) d) Helping and serving others (Time 2)
Teaching level	Teaching certification level
Indicators of Career Satisfaction	
Choose teaching again	Choose teaching again (Time 2)
Satisfaction with student teaching	Satisfaction with teaching as a career on basis of student teaching experience (Time 1)
Intention to teach	Plan to enter teaching the academic year following graduation (Time 1)
Job satisfaction	Job satisfaction (Time 2)

Table 24. Career Path Determinant variables measured at five years following graduation (Time 3) that were operationalized to test Hypothesis 4

Career Path Model area/ Career Path Determinant	Empirical measure
Personal and Background Characteristics	
Marital status	Marital status
Preparation Program Factors	
Sense of efficacy	a) Perceived adequacy of preparation in planning and delivering instruction b) Perceived adequacy of preparation in interpersonal relations c) Perceived adequacy of preparation in student motivation and discipline d) Perceived adequacy of preparation in assessing and dealing with learning problems e) Perceived adequacy of preparation in monitoring student achievement f) Perceived adequacy of preparation in understanding the profession g) Perceived adequacy of preparation in preparing and using instructional media h) Perceived adequacy of preparation in content preparation in area of specialization i) Perceived adequacy of preparation in assessing and implementing innovations j) knowledge of psychology of learning and its application
Perceived quality of preparation program	Perceived quality of preparation program

Table 24. Continued

Career Path Model area/ Career Path Determinant	Empirical measure
Employment Factors	
Salary	Total income
Employment reality	a) Money, prestige, advancement b) Opportunity to use special abilities and aptitudes c) Leadership and responsibility d) Helping and serving others e) Opportunity to effect social change f) Autonomy g) Power
Employment dissonance	a) Money, prestige, advancement b) Opportunity to use special abilities and aptitudes c) Leadership and responsibility d) Helping and serving others e) Opportunity to effect social change f) Autonomy g) Power
Size of employment community	Size of employment community
Indicators of Career Satisfaction	
Choose teaching again	Choose teaching again
Job satisfaction	Job satisfaction

were used to test the second hypothesis. The Career Path Determinant variables measured at Time 1 and Time 2 that were used to test the third hypothesis are presented in Table 23. Presented in Table 24 are the Career Path Determinant variables that were measured at five years following graduation (Time 3) and used to test the fourth hypothesis. It should be noted that the 17 variables included in Table 21 and the 19 variables in Table 23 represent only those variables that remained after the a priori reduction in variables. It also should be noted that prior to testing the first hypothesis, two variables (GPA--admission and GPA--graduation) were combined into a new variable (GPA), and that the variable teaching level was recoded into a dummy dichotomous variable (elementary, secondary) prior to testing both the first and third hypotheses. Refer to Table 48 in Appendix B for a list of all Career Path Determinant variables used in the study, their measurement time or source, and their system file names.

Data Analysis

The statistical techniques employed in testing the hypotheses examined in the study are discussed in this section. Discriminant analysis was used to test Hypotheses 1 and 3 (the predictive portions of the Career Path Model), as well as to test Hypothesis 5 (the cross-validation of the predictive portion of the One Year Career Path Model). Analysis of variance (ANOVA) and chi-square procedures were used to test Hypotheses 2 and 4 (the comparative portions of the model). In testing all the hypotheses, the data were analyzed using the SPSSX computer program.

Discriminant analysis is a multivariate statistical technique in which two or more variables are used to distinguish between two or more groups or to predict group membership (Klecka, 1980). In his discussion of discriminant analysis, Klecka presented seven assumptions which guide its use:

1. The number of groups is equal to or greater than two;
2. Each group is comprised of at least two cases;
3. The number of discriminating variables does not exceed the number of cases minus two;
4. The discriminating variables are measured at the interval or ratio level;
5. No variable may be a linear combination of other discriminating variables;
6. The covariance matrices for each group are approximately equal; and
7. Each group is drawn from a population with a multivariate normal distribution on the discriminating variables.

According to Klecka, violation of these assumptions can negatively affect the accuracy of prediction and interpretation of the discriminant analysis results. Other factors that can negatively affect the results of discriminant analysis include large amounts of missing data, highly correlated variables, and groups of considerably different sizes.

ANOVA is an inferential statistical technique which is used to determine whether the means between two or more groups are significantly different (Borg & Gall, 1979). Two assumptions underlie the use of ANOVA:

(1) the groups to be compared are truly random samples from the same population; and (2) homogeneity of variance exists among the populations from which the samples are drawn. Even when these assumptions are not satisfied, meaningful results are still likely unless the violations are excessive (Arcy, Jacobs, & Razavich, 1972).

A single classification ANOVA procedure was used in examining differences among the four One Year Career Path groups at one year and the four Five Year Career Path groups at five years on the independent variables that were measured at the interval or ratio level. Where the single classification ANOVA yielded a significant F-ratio, Duncan's Multiple Range Test was used to identify the groups that significantly differed. Chi-square, a nonparametric statistical test, was used to examine differences among the groups on their distribution among categories on variables measured nominally. The level of significance for both the single classification ANOVA and the chi-square procedures was set at .05.

CHAPTER IV. RESULTS

Presented in Chapter IV are the results of the testing of the portions of the Career Path Model that were examined in the study. The analyses used in testing these portions, in which the one and five year career paths of ISU teacher education graduates were examined, were for both predictive and comparative purposes. Four empirical hypotheses were formulated to test the portions of the model. Hypotheses 1 and 2 are related to One Year Career Path and Hypotheses 3 and 4 are related to Five Year Career Path. These four hypotheses were tested using data collected from a sample of 246 ISU teacher education graduates who graduated Spring, 1980 and the 1980/1981 academic year (Sample One). A fifth empirical hypothesis was formulated to cross-validate the testing of the portion of the model that predicted One Year Career Path. A second sample of 179 ISU teacher education graduates who graduated during the 1982/1983 academic year (Sample Two) provided the data used in testing this hypothesis.

To examine One Year Career Path, in both the initial testing with Sample One and the cross-validation testing with Sample Two, the teacher education graduates were classified into four groups. On the basis of their responses at the time of graduation regarding their employment plans for the following academic year and their actual employment the following year, these four groups were comprised of (1) those who planned to enter teaching and did (T/T); (2) those who planned to enter teaching but did not (T/NT); (3) those who did not plan to enter teaching but did (NT/T); and (4) those who did not plan to enter teaching and did not (NT/NT).

The examination of Five Year Career Path also included four groups. The teacher education graduates from Sample One were classified into four groups on the basis of their responses at five years regarding their five-year employment history since graduation from the teacher preparation program. The Five Year Career Path groups consisted of teacher education graduates (1) who entered and left teaching; (2) who entered and stayed in teaching; (3) who taught intermittently; and (4) who never taught.

The chapter is divided into four sections. Presented in the first section are the results of the testing of the One Year Career Path portion of the model (Hypotheses 1 and 2). The results of the testing of the Five Year Career Path portion of the model (Hypotheses 3 and 4) are presented in the second section. In the third section, the results of the cross-validation testing of the portion of the model that predicted One Year Career Path are presented (Hypothesis 5). Presented in the fourth section is a summary and discussion of the results of the testing of the five hypotheses.

Results of One Year Career Path Analyses

Presented in this section are the results of the testing of the two hypotheses related to One Year Career Path. These hypotheses are stated below:

1. There is a significant relationship between the scores of Career Path Determinant variables measured at the time of graduation (Time 1) and the One Year Career Path group of the teacher education graduates measured at one year following graduation.

2. There is a significant difference among the four One Year Career Path groups when compared on their scores on Career Path Determinant variables measured at one year following graduation (Time 2).

The results of the testing of the portion of the first hypothesis, in which discriminant analysis was used to predict the One Year Career Path group of the teacher education graduates, are presented first. The data used in testing this hypothesis were collected from the 246 graduates in Sample One at the time of graduation from the teacher preparation program. The results of the testing of the second hypothesis, in which single classification ANOVA and chi-square were used to examine differences among the teacher education graduates in differing One Year Career Path group at one year, are presented next. The data used in the comparative analysis were collected from the teacher education graduates in Sample One at one year following graduation.

Discriminant analysis--One Year Career Path

The discriminant analysis procedure used to predict One Year Career Path group included 17 variables. Presented in Table 25 are the intercorrelations of the independent variables used in the discriminant analysis. Since high intercorrelations between the independent variables may distort the derivation of the functions, it is important that variables with high intercorrelations not be included in the discriminant analysis (Kominski, 1975). An examination of the data in Table 25 reveals that intercorrelations between the independent variables were generally low. The highest correlations, while not high enough to be a concern in the discriminant analysis, tended to exist between the variables related to academic ability/achievement and between and among those related to adequacy and quality of preparation.

Table 25. Discriminant analysis of One Year Career Path groups--intercorrelation of independent variables

Variables (measurement time)	1	2	3	4	5	6
1. Gender	1.00					
2. GPA	-0.19	1.00				
3. HSR	0.27	-0.51	1.00			
4. Marital status (Time 1)	0.03	0.16	0.02	1.00		
5. Satisfaction with cooperating teacher (Time 1)	0.10	-0.02	0.06	0.03	1.00	
6. Self-evaluation as a teacher (Time 1)	-0.04	-0.01	-0.01	-0.11	0.24	1.00
7. Perceived adequacy of preparation in planning and delivering instruction (Time 1)	-0.09	0.12	-0.11	0.06	0.21	0.29
8. Perceived adequacy of preparation in interpersonal relations (Time 1)	-0.23	0.01	-0.13	0.03	0.23	0.20
9. Perceived adequacy of preparation in student motivation and discipline (Time 1)	-0.12	0.08	-0.14	0.05	0.21	0.34
10. Perceived adequacy of preparation in preparing and using instructional media (Time 1)	0.00	0.01	-0.10	0.03	0.08	0.16
11. Perceived adequacy of preparation in assessing and implementing innovations (Time 1)	-0.11	0.01	0.05	0.13	0.17	0.26
12. Employment expectations in money, prestige, advancement (Time 1)	0.02	-0.11	0.06	0.10	-0.03	-0.06
13. Employment expectations in leadership and responsibility (Time 1)	-0.05	0.03	-0.02	0.15	0.05	0.21
14. Employment expectations in power (Time 1)	-0.03	-0.08	0.10	0.01	0.00	0.02
15. Teaching certification level	0.24	-0.15	0.05	0.02	-0.13	-0.15
16. Choose teaching again (Time 1)	0.03	-0.07	-0.01	-0.03	-0.08	-0.29
17. Satisfaction with student teaching (Time 1)	-0.22	0.09	-0.13	0.12	0.22	0.35

7	8	9	10	11	12	13	14	15	16	17
1.00										
0.50	1.00									
0.60	0.56	1.00								
0.33	0.19	0.29	1.00							
0.55	0.48	0.52	0.35	1.00						
0.09	0.20	0.09	-0.02	0.07	1.00					
0.17	0.11	0.17	0.14	0.18	0.39	1.00				
0.12	0.14	0.09	0.03	0.11	0.34	0.31	1.00			
-0.15	-0.20	-0.30	0.12	-0.13	0.04	-0.02	0.02	1.00		
-0.12	-0.00	-0.23	-0.13	-0.15	0.24	-0.02	0.11	0.02	1.00	
0.30	0.18	0.31	0.09	0.27	-0.11	0.17	-0.14	-0.41	-0.43	1.00

A step-wise discriminant analysis procedure was used in which the 17 variables selected for analysis were allowed to enter one at a time, with an F to enter $\geq$ 1.0 and an F to remove $\leq$ 1.0 (SPSSX default values). Wilks' Lambda, a statistic which takes into account both the differences between groups and the homogeneity within groups, was used to determine the point at which the entry of an additional variable would not significantly change the F-approximation. The ten variables remaining at the conclusion of the discriminant analysis determined the three functions that were derived from the analysis. Of the three functions, the first two were significant at $p < .0001$ and the third was significant at $p < .05$. These ten variables, the step at which each entered the analysis, the Wilks' Lambda value and significance of each, and the standardized discriminant function coefficient, which indicates the extent to which each variable contributed to the discriminating efficiency of each of the three functions, are presented in Table 26.

The group centroids, which are presented in Table 29, represent the most typical position for each group and explain which groups differ on a function. Group differences are further explained by the item-to-function correlations (Table 27) and the group means and standard deviations of each independent variable (Table 28). The item-to-function correlations provide information about how each of the variables within the groups is related to each of the functions. The larger the item-to-function correlation, the more a variable contributes to group differences. Because they are bivariate correlations, the item-to-function correlations, unlike the standardized discriminant function coefficients,

Table 26. Discriminant analysis of One Year Career Path groups--summary table of variables remaining at conclusion of analysis

Variables (measurement time)	Step entered into analysis	Wilks' lambda at conclusion of analysis	Significance	Standardized discriminant function coefficients		
				Function 1	Function 2	Function 3
Satisfaction with student teaching (Time 1)	1	0.67	.00	0.96	-0.21	-0.26
Employment expectations in leadership and responsibility (Time 1)	2	0.63	.00	-0.38	0.45	0.03
Employment expectations in power (Time 1)	3	0.58	.00	0.28	-0.50	0.32
GPA (combined admission and graduation)	4	0.55	.00	0.12	0.60	0.40
Marital status (Time 1)	5	0.52	.00	-0.26	-0.30	-0.32
HSR	6	0.50	.00	-0.01	0.44	-0.49
Self-evaluation as a teacher (Time 1)	7	0.49	.00	-0.22	0.37	0.08
Teaching certification level	8	0.48	.00	0.00	-0.42	0.12
Choose teaching again (Time 1)	9	0.47	.00	-0.22	0.04	-0.31
Employment expectations in money, prestige, and advancement (Time 1)	10	0.46	.00	0.08	-0.08	0.47

Table 27. Discriminant analysis of One Year Career Path groups--partial multivariate F values and pooled within-groups correlations between discriminating variables and canonical discriminant functions

Source of variation (measurement time)	Partial multivariate F value at conclusion of analysis	Item-to-function correlation (pooled)		
		Function 1	Function 2	Function 3
Personal and Background Characteristics				
Gender	0.91	-0.23	-0.08	-0.14
GPA (combined admission and graduation)	3.18	0.14	0.44	0.50
HSR	2.27	-0.15	0.06	-0.59
Marital status (Time 1)	2.83	-0.14	-0.22	-0.24
Preparation Program Factors				
Satisfaction with cooperating teacher (Time 1)	0.70	0.15	0.12	-0.09
Self-evaluation as a teacher (Time 1)	1.93	0.13	0.45	0.09
Perceived adequacy of preparation in planning and delivering instruction (Time 1)	0.22	0.22	0.12	0.13
Perceived adequacy of preparation in interpersonal relations (Time 1)	0.28	0.14	0.02	0.15
Perceived adequacy of preparation in student motivation and discipline (Time 1)	0.64	0.24	0.17	0.14
Perceived adequacy of preparation in preparing and using instructional media (Time 1)	0.60	0.02	-0.00	0.09
Perceived adequacy of preparation in assessing and implementing innovations (Time 1)	0.50	0.17	0.09	0.00

Table 27. Continued

Source of variation (measurement time)	Partial multivariate F value at conclusion of analysis	Item-to-function correlation (pooled)		
		Function 1	Function 2	Function 3
Employment Factors				
Employment expectations in money, prestige, advancement (Time 1)	1.14	-0.16	-0.16	0.43
Employment expectations in leadership and responsibility (Time 1)	4.07	-0.18	0.27	0.26
Employment expectations in power (Time 1)	4.05	0.01	-0.37	0.40
Teaching certification level	1.24	-0.38	-0.48	0.14
Indicators of Career Satisfaction				
Choose teaching again (Time 1)	1.29	-0.51	-0.11	-0.09
Satisfaction with student teaching (Time 1)	16.42	0.84	0.19	-0.18

Table 28. Discriminant analysis of One Year Career Path groups--group means and standard deviations of independent variables

Source of variation (measurement time)	Teach/Teach		Teach/ Not teach		Not teach/ Teach		Not teach/ Not teach	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Personal and Background Characteristics								
Gender	1.13	0.33	1.10	0.31	1.14	0.36	1.35	0.49
GPA (combined admission and graduation)	3.14	0.42	3.01	0.40	2.73	0.43	3.02	0.38
HSR	16.58	13.37	12.90	10.55	26.57	14.82	18.97	16.55
Marital status (Time 1)	1.14	0.35	1.20	0.41	1.36	0.50	1.26	0.44
Preparation Program Factors								
Satisfaction with cooperating teacher (Time 1)	4.45	0.80	4.40	1.10	4.71	0.61	4.29	1.13
Self-evaluation as a teacher (Time 1)	4.46	0.56	4.20	0.55	4.14	0.53	4.26	0.68
Perceived adequacy of preparation in planning and delivering instruction (Time 1)	3.86	0.65	3.86	0.50	3.58	0.72	3.66	0.74
Perceived adequacy of preparation in interpersonal relations (Time 1)	3.38	0.87	3.31	0.74	3.10	0.82	3.00	0.88
Perceived adequacy of preparation in student motivation and discipline (Time 1)	3.59	0.82	3.34	0.83	3.36	0.65	3.23	0.90
Perceived adequacy of preparation in preparing and using instructional media (Time 1)	4.08	0.85	3.87	0.90	3.86	0.77	3.94	0.93
Perceived adequacy of preparation in assessing and implementing innovations (Time 1)	3.47	0.79	3.37	0.85	3.21	1.05	3.35	0.91

Table 28. Continued

Source of variation (measurement time)	Teach/Teach Mean	Teach/Teach S.D.	Teach/Not teach Mean	Teach/Not teach S.D.	Not teach/Teach Mean	Not teach/Teach S.D.	Not teach/Not teach Mean	Not teach/Not teach S.D.
Employment Factors								
Employment expectations in money, prestige, advancement (Time 1)	3.68	0.56	3.85	0.59	3.56	0.54	3.95	0.61
Employment expectations in leadership and responsibility (Time 1)	4.45	0.49	4.33	0.52	4.29	0.52	4.63	0.42
Employment expectations in power (Time 1)	3.21	0.79	3.63	0.61	3.07	1.00	3.32	0.87
Teaching certification level	1.39	0.49	1.63	0.49	1.64	0.50	1.84	0.37
Indicators of Career Satisfaction								
Choose teaching again (Time 1)	1.38	0.61	1.40	0.56	1.79	0.80	2.10	0.79
Satisfaction with student teaching (Time 1)	4.59	0.63	4.47	0.57	4.07	1.00	3.16	1.10

Table 29. Discriminant analysis of One Year Career Path groups--canonical discriminant functions evaluated at group means

Group	Group centroids		
	Function 1	Function 2	Function 3
Teach/Teach	0.39	0.26	-0.01
Teach/Not teach	0.52	-0.83	0.31
Not teach/Teach	-0.49	-0.49	-1.10
Not teach/Not teach	-1.79	0.04	0.22

are not affected by relationships with other variables. According to Klecka (1980), they may be more helpful than the standardized coefficients in interpreting the discriminant functions. The group means and standard deviations, which provide insight into where differences and similarities exist between and among groups, can be helpful in determining discriminant functions (Kominski, 1975).

Examination of the group centroids on the first function reveals that, in general, this function discriminated between the two groups who planned to enter teaching the first year and the two groups who did not plan to enter teaching. Those who planned to teach and did teach (T/T) were very similar to those who planned to teach but did not (T/NT), and those who did not plan to teach and did not (NT/NT) tended to be similar to those who did not plan to teach but did (NT/T). However, primary discrimination on this function (R=.64) was between the T/NT and the NT/NT groups. Those in the T/NT group were more likely than those in the NT/NT group to be female, to be certified to teach at the elementary level, and

to indicate that they would again prepare to be a teacher. This group also tended to be more satisfied with teaching as a career on the basis of their student teaching experience and to rate their adequacy of preparation higher in the areas of motivating and disciplining students and in planning and delivering instruction.

Primary discrimination on the second function (R=.38) was between the T/T group and the T/NT group. Those who planned to teach and did, compared to those who planned to teach but did not, were more likely to be single, to be certified to teach at the elementary level, to have higher GPAs, and to have rated their future teaching ability higher. In addition, while employment expectations of those in T/T group for leadership and responsibility were likely to be higher, their expectations for power were lower than those in the T/NT group.

On the third function, primary discrimination was between the T/NT and NT/T groups (R=.32). The NT/NT group, however, was very similar to the NT/T group indicating that, in general, this function discriminated between those who planned to teach and did not and those who did not plan to teach, regardless of whether they did or did not. The T/NT group was more likely to be single, to have higher GPAs, and to have ranked higher in their high school graduating classes than the NT/T group. The two groups differed in their employment expectations; the T/NT group was more likely to rate the importance of leadership and responsibility; money, prestige, and advancement; and power in a job higher than those from the NT/T group.

An examination of the partial multivariate F values that were calculated for each of the 17 variables at the conclusion of the analysis (Table 27) reveals that one variable was an especially important factor in the analysis. There was a significant difference among the four groups with respect to their satisfaction with teaching as a career on the basis of the student teaching experience, with those in the NT/NT group expressing the least satisfaction.

The results of the classification analysis, which tests the accuracy of the functions derived in this analysis to correctly classify the cases, are presented in Table 30. According to Klecka (1980), "the proportion of cases correctly classified indicates the accuracy of the procedure and indirectly confirms the degree of group separation" (p. 49). Prior to the discriminant analysis, probabilities were incorporated into the classification procedure to improve the accuracy of correct classification. An examination of Table 30 reveals that the prior probabilities of correct classification ranged from 7.2 percent to 61.3 percent. Overall, 70.92 percent of the teacher education graduates were correctly classified. The functions were most accurate in identifying those whose actual employment at one year matched their employment plans at the time of graduation; 93.3 percent of those in the T/T group and 57.6 percent of those in the NT/NT group were correctly classified, compared to 28.6 percent of those in the NT/T group and 16.7 percent of those in the T/NT group.

In summary, of the three functions yielded by ten of the 17 Career Path Determinant variables included in the discriminant analysis

Table 30. Discriminant analysis of One Year Career Path groups--results of classification analysis

Group	Prior probability[b] (pct)	Actual number of cases[c]	Predicted group membership[a]			
			Teach/ Teach	Teach/ Not teach	Not teach/ Teach	Not teach/ Not teach
Teach/Teach	61.3	119	111 (93.3%)	2 (1.7%)	0 (0.0%)	6 (5.0%)
Teach/Not teach	15.5	30	24 (80.0%)	5 (16.7%)	1 (3.3%)	0 (0.0%)
Not teach/Teach	7.2	14	6 (42.9%)	1 (7.1%)	4 (28.6%)	3 (21.4%)
Not teach/Not teach	16.0	33	12 (36.4%)	1 (3.0%)	1 (3.0%)	19 (57.6%)
Ungrouped cases	--	6	6 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

[a]Overall, 70.92 percent of all cases were correctly classified.

[b]Based on 194 cases used in analysis; 52 cases were excluded from analysis because group data were missing (6) or data for at least one discriminating variable were missing (46).

[c]Two hundred two cases were used for classification; 44 cases were excluded because data for at least one discriminating variable were missing.

procedure, two were significant at the .0001 level and the third at the .05 level, indicating the ability of these variables to accurately discriminate between teacher education graduates in different One Year Career Path groups. These ten variables included variables from each of the four major Career Path Model areas. For all four groups, the percentage of teacher education graduates correctly classified exceeded the prior probabilities of correct classification. Therefore, the results of the testing of the first hypothesis provided general support for the ability of the model to predict One Year Career Path group.

Comparative analysis--One Year Career Path

Thirty-one variables were used to examine differences among the teacher education graduates in differing One Year Career Path groups at one year. These variables, which were presented in Table 22, were measured at one year following graduation and included an examination of differences on variables in each of the four major Career Path Model areas. The results of the comparative analysis on these 31 variables are presented below under these four headings. It should be noted that while each of the variables is discussed, only those variables where the comparative analysis yielded significant differences are presented in the tables.

Comparison on personal and background characteristics The four One Year Career Path groups were compared on their marital status at one year. This was the only variable in this Career Path Model area in which change was able to occur from the time of graduation and was the only variable in this area in which differences were examined. The results of

the chi-square analysis revealed no significant difference among the groups on marital status.

Comparison on preparation program factors When the four groups were compared on the 12 variables included in this Career Path Model area, the results of the single classification ANOVA indicated that the four groups differed significantly in sense of efficacy as it related to perceived adequacy of preparation in three of the ten preparation program areas. As shown in Table 31, the groups differed significantly in their perceptions regarding adequacy of preparation in assessing and dealing with learning problems, monitoring student achievement, and preparing and using instructional media. Additional analysis using the Duncan Multiple Range Tests revealed that those in the NT/NT group rated their adequacy of preparation in assessing and dealing with learning problems significantly lower than did those in the T/T or T/NT groups (mean of 1.97 vs. 2.81, 2.73). Those in the T/NT group, however, rated their adequacy of preparation in monitoring student achievement significantly higher than did those in the T/T or NT/NT groups (3.81 vs. 3.29, 3.26). Those in the T/T group rated their adequacy of preparation in preparing and using instructional media significantly higher than did those in the NT/NT group (4.08 vs. 3.68).

On the remaining nine variables included in this Career Path Model area, there were no significant differences among the four groups. The groups did not significantly differ in their perceptions regarding either the adequacy of length of student teaching experience or the quality of the preparation program. With respect to sense of efficacy, there were no

Table 31. Preparation program factors--comparison at one year by One Year Career Path group

Career Path Determinant/ variable/group	N	Mean	S.D.	F ratio
Sense of efficacy[a]				
Perceived adequacy of preparation in assessing and dealing with learning problems				
Teach/Teach	140	2.81	1.01	6.75**
Teach/Not teach	24	2.73	1.13	
Not teach/Teach	15	2.37	0.86	
Not teach/Not teach	34	1.97	0.96	
Perceived adequacy of preparation in monitoring student achievement				
Teach/Teach	143	3.29	0.72	3.38*
Teach/Not teach	24	3.81	0.88	
Not teach/Teach	16	3.51	0.96	
Not teach/Not teach	34	3.26	0.82	
Perceived adequacy of preparation in preparing and using instructional media				
Teach/Teach	142	4.08	0.76	3.62*
Teach/Not teach	24	3.79	0.93	
Not teach/Teach	16	3.62	0.89	
Not teach/Not teach	34	3.68	0.88	

[a]Rating scale for each of these items ranged from 1 to 5, with 1=very inadequate, 2=inadequate, 3=neutral, 4=adequate, 5=very adequate.

*Significant at .05 level.

**Significant at .01 level.

significant differences among the four groups on their perceived adequacy of preparation in the areas of planning and delivering instruction, interpersonal relations, student motivation and discipline, understanding the profession, content preparation in area of specialization, assessing and implementing innovations, and knowledge of psychology of learning and its application.

Comparison on employment factors The four groups were compared on 16 employment factor variables. Chi-square results indicated no significant differences among the four One Year Career Path groups in terms of size of communities in which they were employed at one year or in family income (salary).

When compared on their responses regarding the extent to which each of seven job characteristics was provided in the jobs they held at one year, the results of the single classification ANOVA revealed significant differences among the four groups on five of the seven employment reality variables (Table 32). These included the extent to which their jobs provided money, prestige, and advancement; opportunities to exercise leadership and assume responsibility; opportunity to help and serve others; opportunities to use special abilities and aptitudes; and autonomy.

Additional analysis using the Duncan Multiple Range Test provided information about which groups differed on each of these five variables. Those in the NT/NT group were receiving significantly greater money, prestige, and advancement in their jobs than were those in either the T/T group or the NT/T group (mean of 3.43 vs. 2.78, 2.79). Those in the two

Table 32. Employment factors--comparison at one year by One Year Career Path group

Career Path Determinant/ variable/group	N	Mean	S.D.	F ratio
Employment Reality[a]				
Money, prestige, advancement				
Teach/Teach	143	2.78	0.75	6.14**
Teach/Not teach	23	3.01	0.97	
Not teach/Teach	15	2.79	0.71	
Not teach/Not teach	33	3.43	0.95	
Opportunities to use special abilities and aptitudes				
Teach/Teach	143	3.96	0.78	3.48*
Teach/Not teach	23	3.46	1.37	
Not teach/Teach	15	4.17	0.92	
Not teach/Not teach	34	3.65	0.86	
Leadership and responsibility				
Teach/Teach	143	4.27	0.64	4.37**
Teach/Not teach	23	3.97	0.89	
Not teach/Teach	15	4.42	0.67	
Not teach/Not teach	34	3.86	0.86	
Helping and serving others				
Teach/Teach	143	4.21	0.57	4.31**
Teach/Not teach	23	3.70	1.11	
Not teach/Teach	15	4.24	0.59	
Not teach/Not teach	34	3.96	0.82	

[a]Rating scale for employment reality variables ranged from 1 to 5, with 1=never, 2=seldom, 3=some of the time, 4=most of the time, and 5=all of the time.

*Significant at .05 level.

**Significant at .01 level.

Table 32. Continued

Career Path Determinant/ variable/group	N	Mean	S.D.	F ratio
Autonomy				
Teach/Teach	143	3.87	0.87	5.83**
Teach/Not teach	23	3.57	1.04	
Not teach/Teach	15	3.60	0.74	
Not teach/Not teach	33	3.15	1.03	
Employment Dissonance[b]				
Leadership and responsibility				
Teach/Teach	143	0.18	0.75	5.98**
Teach/Not teach	23	0.48	0.83	
Not teach/Teach	15	-0.20	0.55	
Not teach/Not teach	34	0.66	0.87	
Helping and serving others				
Teach/Teach	143	0.33	0.65	3.77*
Teach/Not teach	23	0.82	1.05	
Not teach/Teach	15	0.20	0.62	
Not teach/Not teach	34	0.50	0.71	
Autonomy				
Teach/Teach	143	-0.22	1.14	3.40*
Teach/Not teach	23	0.13	1.06	
Not teach/Teach	15	0.13	0.92	
Not teach/Not teach	33	0.52	1.80	

[b]The score for each employment dissonance variable was calculated by subtracting the employment reality score at one year from the employment expectation score at time of graduation.

teaching groups (T/T and NT/T), however, reported that their jobs provided significantly greater opportunities to use special abilities and aptitudes than did those in the T/NT group (3.96, 4.17 vs. 3.46). Those in the NT/NT group reported that their jobs at one year provided significantly less opportunity to exercise leadership and assume responsibility than did those in the T/T or NT/T groups (3.86 vs. 4.27, 4.24). The graduates in the T/NT group noted that they had significantly less opportunity to help and serve others in their jobs than did those in either the T/T or NT/T groups (3.70 vs. 4.21, 4.24). Those in the T/T group, compared to those in the NT/NT group, indicated that their jobs provided them with significantly greater autonomy (3.87 vs. 3.15). The two employment reality variables where there were no significant differences among the four groups included the extent to which their jobs provided opportunity to effect social change and have power.

The four groups also were compared with respect to the employment dissonance they experienced at one year on each of the seven job characteristics. When comparisons were made on their discrepancy scores, calculated as the difference between their employment expectation scores at the time of graduation and their employment reality scores at one year, the results of the single classification ANOVA revealed that the groups differed significantly on three of the employment dissonance variables. Presented in Table 32, these included the opportunity to exercise leadership and responsibility, the opportunity to help and serve others, and autonomy.

The results of the Duncan Multiple Range Test indicated that those in the NT/T group experienced significantly less employment dissonance at one year in the area of leadership and responsibility than did those in either the T/NT or the NT/NT group (-0.20 vs. 0.48, 0.66). The T/T group also was significantly different from the NT/NT group with respect to employment dissonance experienced in leadership and responsibility, with those in the T/T group reporting significantly lower discrepancy scores on this dimension than those in the NT/NT group (0.18 vs. 0.66). With respect to employment dissonance experienced at one year in opportunity to help and serve others, those in the T/NT group had significantly greater discrepancy scores than did those in the T/T and NT/T groups (0.82 vs. 0.33, 0.20). Those in the T/T group also experienced significantly less employment dissonance in autonomy than did those in the NT/NT group (-0.22 vs. 0.52).

Comparison on indicators of career satisfaction The four groups were compared on their responses to the two indicators of career satisfaction included at one year in this Career Path Model area. The results of the single classification ANOVA indicated that while there were no significant differences among the four groups with respect to their job satisfaction at one year, there were significant differences in their responses regarding whether they would again choose teaching as a career (Table 33). The Duncan Multiple Range Test revealed that those from the NT/NT group were significantly less likely than those from any of the other three groups (T/T, T/NT, NT/T) to indicate that they would not again prepare to be a teacher (2.05 vs. 2.58, 2.53, 2.60).

Table 33. Indicators of career satisfaction--comparison at one year by One Year Career Path group

Indicator/group	N	Mean	S.D.	F ratio
Choose teaching again[a]				
Teach/Teach	141	2.58	0.66	5.85**
Teach/Not teach	36	2.53	0.70	
Not teach/Teach	15	2.60	0.74	
Not teach/Not teach	40	2.05	0.93	

[a]Response scale: 1=no, 2=undecided, 3=yes.

**Significant at .01 level.

Summary In summary, the results of the testing of the second hypothesis, in which differences among the four One Year Career Path groups at one year were examined, revealed that the hypothesis was partially supported. Of the 31 variables included in the comparative analysis, significant differences among the four groups existed on twelve of the variables. These twelve variables represented three of the four major Career Path Model areas. While significant differences did not emerge in the area of personal and background characteristics, differences were examined on only one variable in this area.

Results of Five Year Career Path Analyses

The results of the testing of Hypotheses 3 and 4 are presented in this section. These two hypotheses, which are related to Five Year Career Path, are presented below:

3. There is a significant relationship between the scores of Career Path Determinant variables measured at the time of graduation (Time 1) and at one year following graduation (Time 2) combined and the Five Year Career Path group of the teacher education graduates measured at five years following graduation.

4. There is a significant difference among the four Five Year Career Path groups when compared on their scores on Career Path Determinant variables measured at five years following graduation (Time 3).

The results of the testing of the third hypothesis are presented first, followed by the results of the testing of the fourth hypothesis. In testing the third hypothesis, discriminant analysis was used to predict the Five Year Career Path group of the teacher education graduates in Sample One. The data used in testing this hypothesis were collected from the teacher education graduates at two points in time--at graduation from the teacher preparation program and at one year following graduation. Single classification ANOVA and chi-square were used to test the fourth hypothesis. Using data collected from the 246 graduates in Sample One at five years following graduation, this hypothesis was formulated to examine differences among the teacher education graduates in differing Five Year Career Path groups at five years.

Discriminant analysis--Five Year Career Path

Nineteen variables were included in the discriminant analysis procedure used to predict Five Year Career Path group. The intercorrelations of the 19 variables are presented in Table 34. In general, the intercorrelations between the variables were low. The exceptions were the correlations between and among the adequacy and quality of preparation variables, between and among the employment

Table 34. Discriminant analysis of Five Year Career Path groups--intercorrelation of independent variables

Variables (measurement time)	1	2	3	4	5	6	7
1. Gender	1.00						
2. GPA--graduation	-0.18	1.00					
3. Satisfaction with cooperating teacher (Time 1)	0.17	-0.00	1.00				
4. Self-evaluation as a teacher (Time 1)	0.02	0.04	0.24	1.00			
5. Perceived adequacy of preparation in planning and delivering instruction (Time 2)	-0.11	-0.08	0.08	0.20	1.00		
6. Perceived adequacy of preparation in interpersonal relations (Time 2)	-0.17	0.00	0.03	0.09	0.50	1.00	
7. Perceived adequacy of preparation in student motivation and discipline (Time 2)	-0.06	-0.03	0.16	0.28	0.68	0.44	1.00
8. Perceived adequacy of preparation in monitoring student achievement (Time 2)	-0.07	-0.15	0.01	0.12	0.53	0.36	0.45
9. Perceived quality of preparation program (Time 2)	-0.17	0.00	0.05	0.10	0.60	0.34	0.51
10. Total income (Time 2)	0.02	0.07	-0.01	0.13	0.16	-0.06	0.07
11. Employment dissonance in money, prestige, advancement (Time 2)	-0.10	-0.02	-0.05	-0.16	0.02	0.02	-0.02
12. Employment dissonance in opportunity to use special abilities and aptitudes (Time 2)	-0.06	-0.00	-0.21	-0.15	-0.22	-0.07	-0.18
13. Employment dissonance in leadership and responsibility (Time 2)	0.01	0.08	-0.22	-0.08	-0.15	-0.04	-0.12

8	9	10	11	12	13	14	15	16	17	18	19
1.00											
0.33	1.00										
0.08	0.11	1.00									
-0.06	0.05	-0.08	1.00								
-0.03	-0.17	-0.14	0.29	1.00							
-0.05	-0.13	-0.01	0.37	0.52	1.00						

Table 34. Continued

Variables (measurement time)	1	2	3	4	5	6	7
14. Employment dissonance in helping and serving others (Time 2)	-0.08	0.05	-0.15	-0.02	-0.17	-0.07	-0.15
15. Teaching certification level	0.28	-0.16	-0.09	-0.19	-0.16	-0.10	-0.27
16. Choose teaching again (Time 2)	-0.01	0.07	0.11	0.32	0.15	0.12	0.18
17. Satisfaction with student teaching (Time 1)	-0.16	0.15	0.26	0.41	0.28	0.13	0.33
18. Intention to teach (Time 1)	0.03	-0.12	-0.08	-0.11	-0.08	-0.05	-0.17
19. Job satisfaction (Time 2)	0.01	-0.02	0.06	0.23	0.21	0.03	0.24

8	9	10	11	12	13	14	15	16	17	18	19
0.01	-0.11	-0.06	0.28	0.56	0.62	1.00					
-0.03	-0.14	-0.06	-0.02	0.08	0.07	0.07	1.00				
0.02	0.12	0.16	-0.28	-0.17	-0.15	-0.17	-0.05	1.00			
0.16	0.23	0.15	-0.07	-0.07	-0.10	-0.07	-0.41	0.37	1.00		
0.01	-0.10	0.11	-0.06	-0.04	-0.03	-0.03	0.14	-0.13	-0.32	1.00	
0.10	0.16	0.11	-0.42	-0.56	-0.48	-0.47	-0.25	0.25	0.24	0.11	1.00

dissonance variables, and between the employment dissonance and job satisfaction variables. These intercorrelations, however, were not high enough to be a concern in the discriminant analysis.

A step-wise procedure was employed in which the 19 variables used in the discriminant analysis were allowed to enter one at a time. Using an F to enter $\geq$ 1.0 and an F to remove $\leq$ 1.0 (SPSSX default values) and Wilks' Lambda to determine the point at which the F-approximation would not be changed by the entry of an additional variable, ten variables were remaining at the conclusion of the analysis. These ten variables determined the three functions that resulted from the discriminant analysis. Of the three functions, the first two were significant at $p < .01$; the significance level of the third function was $p < .30$. The step of entry, the Wilks' Lambda value and significance, and the standardized discriminant function coefficient of each of the ten variables are presented in Table 35.

An examination of the group centroids for each of the functions (Table 38) reveals that primary discrimination on the first function (R=.69) was between those who never taught and those who entered and left teaching. In general, however, this function discriminated between those who taught and those who never taught. Both those who entered and stayed in teaching and those who taught intermittently were similar to those who entered and left, with those who entered and stayed in teaching most like those who entered and left teaching.

Those who never taught, as indicated by the item-to-function correlations (Table 36) and the group means and standard deviations (Table 37)

Table 35. Discriminant analysis of Five Year Career Path groups--summary table of variables remaining at conclusion of analysis

Variables (measurement time)	Step entered into analysis	Wilks' lambda at conclusion of analysis	Significance	Standardized discriminant function coefficients		
				Function 1	Function 2	Function 3
Intention to teach (Time 1)	1	0.66	.00	0.67	0.02	-0.19
Satisfaction with student teaching (Time 1)	2	0.60	.00	-0.51	0.07	-0.52
Employment dissonance in opportunity to use special abilities and aptitudes (Time 2)	3	0.56	.00	0.03	0.56	0.21
Perceived adequacy of preparation in student motivation and discipline (Time 2)	4	0.53	.00	0.30	-0.13	-0.62
Total income (Time 2)	5	0.51	.00	-0.01	-0.49	0.44
Self-evaluation as a teacher (Time 1)	6	0.50	.00	-0.08	0.13	0.80
Perceived quality of preparation program (Time 2)	7	0.49	.00	-0.06	-0.68	-0.06

Table 35. Continued

Variables (measurement time)	Step entered into analysis	Wilks' lambda at conclusion of analysis	Significance	Standardized discriminant function coefficients		
				Function 1	Function 2	Function 3
Perceived adequacy of preparation in planning and delivering instruction (Time 2)	8	0.47	.00	0.07	0.68	0.08
Employment dissonance in money, prestige, advancement (Time 2)	9	0.46	.00	-0.27	0.15	0.04
Employment dissonance in leadership and responsibility (Time 2)	10	0.45	.00	0.29	0.01	-0.12

Table 36. Discriminant analysis of Five Year Career Path groups--partial multivariate F values and pooled within-groups correlations between discriminating variables and canonical discriminant functions

Source of variation (measurement time)	Partial multivariate F value at conclusion of analysis	Item-to-function correlation (pooled)		
		Function 1	Function 2	Function 3
Personal and Background Characteristics				
Gender	-0.16	0.12	-0.02	0.12
GPA--admission	0.91	-0.15	-0.08	0.01
Preparation Program Factors				
Satisfaction with cooperating teacher (Time 1)	0.49	-0.22	-0.08	-0.05
Self-evaluation as a teacher (Time 1)	1.79	-0.26	0.01	0.48
Perceived adequacy of preparation in planning and delivering instruction (Time 2)	1.71	-0.03	0.02	-0.30
Perceived adequacy of preparation in interpersonal relations (Time 2)	0.22	0.02	0.06	-0.28
Perceived adequacy of instruction in student motivation and discipline (Time 2)	1.79	-0.02	-0.10	-0.51
Perceived adequacy of preparation in monitoring student achievement (Time 2)	0.85	0.07	0.05	-0.21
Perceived quality of preparation program (Time 2)	2.40	-0.11	-0.45	-0.31

Table 36. Continued

Source of variation (measurement time)	Partial multivariate F value at conclusion of analysis	Item-to-function correlation (pooled)		
		Function 1	Function 2	Function 3
Employment Factors				
Total income (Time 2)	2.36	0.02	-0.52	0.38
Employment dissonance in money, prestige, advancement (Time 2)	1.71	-0.15	0.31	-0.04
Employment dissonance in opportunity to use special abilities and aptitudes (Time 2)	1.83	0.07	0.64	0.13
Employment dissonance in leadership and responsibility (Time 2)	1.46	0.20	0.35	0.07
Employment dissonance in helping and serving others (Time 2)	0.36	0.09	0.37	0.14
Teaching certification level	0.26	0.26	0.05	0.18
Indicators of Career Satisfaction				
Choose teaching again (Time 2)	0.86	-0.22	-0.16	0.03
Satisfaction with student teaching (Time 1)	5.69	-0.67	-0.02	-0.26
Intention to teach (Time 1)	12.09	0.80	-0.08	0.04
Job satisfaction (Time 2)	-0.35	-0.03	-0.38	-0.13

Table 37. Discriminant analysis of Five Year Career Path groups--group means and standard deviations of independent variables

Source of variation (measurement time)	Entered and left		Entered and stayed		Taught intermittently		Never taught	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Personal and Background Characteristics								
Gender	1.16	0.37	1.13	0.34	1.16	0.37	1.28	0.46
GPA--admission	3.25	0.38	3.16	0.41	3.17	0.46	3.16	0.34
Preparation Program Factors								
Satisfaction with cooperating teacher (Time 1)	4.35	1.03	4.55	0.72	4.52	0.81	4.12	1.18
Self-evaluation as a teacher (Time 1)	4.54	0.65	4.38	0.51	4.29	0.53	4.06	0.76
Perceived adequacy of preparation in planning and delivering instruction (Time 2)	3.57	0.76	3.67	0.62	3.71	0.69	3.59	0.62
Perceived adequacy of preparation in interpersonal relations (Time 2)	3.15	0.95	3.18	0.81	3.24	0.65	3.10	0.90
Perceived adequacy of instruction in student motivation and discipline (Time 2)	2.95	0.93	3.24	0.82	3.22	0.90	3.10	1.01
Perceived adequacy of preparation in monitoring student achievement (Time 2)	3.46	0.58	3.32	0.79	3.44	0.88	3.49	0.81
Perceived quality of preparation program (Time 2)	6.19	2.05	6.98	1.75	6.06	2.32	6.16	1.71

Table 37. Continued

Source of variation (measurement time)	Entered and left		Entered and stayed		Taught intermittently		Never taught	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Employment Factors								
Total income (Time 2)	1.89	0.66	1.95	0.62	1.55	0.68	1.94	0.67
Employment dissonance in money, prestige, advancement (Time 2)	0.95	0.98	0.80	0.95	1.08	0.94	0.52	0.86
Employment dissonance in opportunity to use special abilities and aptitudes (Time 2)	0.89	0.81	0.51	0.86	1.15	0.95	0.81	1.11
Employment dissonance in leadership and responsibility (Time 2)	0.29	0.75	0.11	0.77	0.46	0.95	0.58	0.83
Employment dissonance in helping and serving others (Time 2)	0.39	0.65	0.30	0.68	0.61	0.95	0.54	0.72
Teaching certification level	1.43	0.50	1.42	0.50	1.45	0.51	1.81	0.40
Indicators of Career Satisfaction								
Choose teaching again (Time 2)	2.46	0.73	2.69	0.58	2.39	0.84	2.12	0.91
Satisfaction with student teaching (Time 1)	4.51	0.80	4.60	0.62	4.45	0.62	3.31	1.20
Intention to teach (Time 1)	1.08	0.28	1.11	0.31	1.16	0.37	1.75	0.44
Job satisfaction (Time 2)	6.70	2.67	7.47	2.19	6.32	2.44	6.97	2.55

Table 38. Discriminant analysis of Five Year Career Path groups--canonical discriminant functions evaluated at group means

Group	Group centroids		
	Function 1	Function 2	Function 3
Entered and left	-0.51	0.22	0.43
Entered and stayed	-0.45	-0.34	-0.10
Taught intermittently	-0.14	0.75	-0.27
Never taught	1.93	-0.09	0.05

were more likely than those who entered and left teaching to be certified to teach at the secondary level. At the time of graduation from the preparation program, those who never taught tended to rate their teaching ability lower and to express less satisfaction with their cooperating teachers and with teaching as a career on the basis of their student teaching experiences. They also were more likely than those who entered and left teaching to report that they did not plan to teach the academic year following graduation.

In addition, those who never taught were likely to experience larger discrepancies regarding the extent to which they were able to exercise leadership and assume responsibility in the jobs they held at one year following graduation compared to what they reported they expected or desired the previous year. They also were less likely to report at one year that they would again prepare to be a teacher.

Primary discrimination on the second function (R=.37) was between those who entered and stayed in teaching and those who taught

intermittently. Those who entered and stayed in teaching tended to rate the quality of the preparation program higher at one year than did those who taught intermittently. Those who entered and stayed in teaching also were likely to be more satisfied with the jobs they held the year following graduation and to report higher total incomes. In addition, they were apt to have smaller discrepancies between their employment expectations at the time of graduation and the reality of their jobs at one year to provide money, prestige, and advancement; opportunities to exercise leadership and assume responsibility; opportunities to use special abilities and aptitudes; and opportunities to help and serve others.

On the third function, primary discrimination (R=.23) was between those who taught intermittently and those who entered and left teaching. At the time of graduation, those who taught intermittently, compared to those who entered and left teaching, tended to rate their teaching ability lower and to express less satisfaction with teaching as a career on the basis of their student teaching experience. At one year following graduation, the intermittent teachers were more likely to rate the adequacy of their preparation higher in the areas of motivating and disciplining students, preparing and delivering instruction, and interpersonal relations, but to rate the quality of the teacher preparation program lower. In addition, those who taught intermittently were apt to have lower total incomes at one year following graduation than were those who entered and left teaching.

An examination of the partial multivariate F values that were calculated at the conclusion of the analysis (Table 36) indicates the saliency of two variables across the entire analysis. First, the four groups differed significantly in reference to their plans to enter teaching the academic year following graduation. Those who never taught were the least likely of the four groups to indicate at the time of graduation that they planned to teach the following year. Second, there were significant differences among the groups regarding their satisfaction with teaching as a career on the basis of their student teaching experience, with those who never taught reporting the lowest satisfaction ratings.

Presented in Table 39 are the results of the classification analysis. On the basis of the 185 cases used in the analysis, the prior probabilities of correctly classifying the teacher education graduates into their Five Year Career Path groups ranged from 16.8 percent to 45.9 percent. Overall, 61.58 percent of the cases were correctly classified. The functions provided the greatest accuracy in identifying those who entered and stayed in teaching (85.1 percent), followed by those who never taught (72.7 percent). The functions were less accurate in identifying those in the remaining two groups, with 28.2 percent of those who entered and left teaching and 25.8 percent of those who taught intermittently correctly classified.

In summary, the results of the testing of the third hypothesis generally supported the ability of the model to predict Five Year Career Path group. The 19 variables used in the discriminant analysis procedure

Table 39. Discriminant analysis of Five Year Career Path groups--results of classification analysis

Group	Prior probability[b]	Number of cases[c]	Predicted group membership[a]			
			Entered and left	Entered and stayed	Taught intermittently	Never taught
Entered and left	20.0	39	11 (28.2%)	22 (56.4%)	3 (7.7%)	3 (7.7%)
Entered and stayed	45.9	87	4 (4.6%)	74 (85.1%)	5 (5.7%)	4 (4.6%)
Taught intermittently	16.8	31	2 (6.5%)	17 (54.8%)	8 (25.8%)	4 (12.9%)
Never taught	17.3	33	0 (0.0%)	8 (24.2%)	1 (3.0%)	24 (72.7%)
Ungrouped cases	--	7	0 (0.0%)	6 (85.7%)	0 (0.0%)	1 (14.3%)

[a]Overall, 61.58 percent of all cases were correctly classified.

[b]Based on 185 cases used in analysis, 61 cases were excluded from analysis because group data were missing (7) or data for at least one discriminating variable were missing (52), or data for both were missing (2).

[c]One hundred ninety-seven cases were used for classification; 49 cases were excluded because data for at least one discriminating variable were missing.

included variables from each of the four major Career Path Model areas. The three functions derived from the discriminant analysis, which were determined by ten of these 19 variables, included variables from three of the major areas; the two variables included in the personal and background characteristics area did not contribute to the derivation of the three functions. Of the three functions, the first two were significant at the .01 level indicating that the ten variables were able to discriminate between teacher education graduates in different Five Year Career Path groups. An examination of the group centroids on the third function, although significant at the .29 level, indicates that this function also provided additional group separation.

Comparative analysis--Five Year Career Path

Thirty variables were included in the comparative analysis in which differences at five years among the teacher education graduates in differing Five Year Career Paths were examined. These variables, which were presented in Table 24, were measured at five years following graduation. The comparative analysis included variables from each of the four major Career Path Model areas and the results of the analysis are presented under the four area headings. Each of the 30 variables included in the analysis is discussed below, although only those variables where significant differences emerged are presented in the tables.

Comparison on personal and background characteristics Comparisons were made among the four Five Year Career Path groups on one variable in this Career Path Model area. When compared on their marital status at

five years, the results of the chi-square indicated that there were no significant differences among the four groups.

Comparison on preparation program factors The four Five Year Career Path groups were compared on their responses at five years to 11 factors related to the preparation program. A single classification ANOVA procedure was used to examine differences among the groups on sense of efficacy as it relates to perceived adequacy of preparation in ten preparation program areas and on perceived quality of the preparation program. The ten preparation program areas included planning and delivering instruction, interpersonal relations, student motivation and discipline, assessing and dealing with learning problems, monitoring student achievement, understanding the profession, preparing and using instructional media, content preparation in area of specialization, assessing and implementing innovations, and knowledge of psychology of learning and its application to teaching. The results of the analysis revealed that there were no significant differences among the four groups on any of the 11 variables.

Comparison on employment factors A comparison on 16 employment factor variables revealed that significant differences existed among the four Five Year Career Path groups on five of the variables. A single classification ANOVA procedure was used to examine differences among the four groups regarding the extent to which each of seven job characteristics was provided in the jobs they held at five years. The results revealed no significant differences among the four groups regarding the extent to which their jobs at five years provided

opportunities to use special abilities and aptitudes, to exercise leadership and assume responsibility, to help and serve others, and to have autonomy and power. However, the four groups differed significantly in the extent to which their jobs provided money, prestige, and advancement and the opportunity to effect social change (Table 40). The results of the Duncan Multiple Range Test indicated that both those who taught intermittently and those who entered and stayed in teaching reported that their jobs at five years provided significantly less money, prestige, and advancement than did those who entered and left teaching and those who never taught (mean of 2.74, 2.83 vs 3.15, 3.34). Regarding the extent to which their jobs provided the opportunity to effect social change, those who entered and left teaching reported that this was provided significantly less in their jobs than did those who entered and stayed in teaching or those who never taught (2.48 vs 3.18, 2.96).

Using a single classification ANOVA procedure, the four groups were compared on the employment dissonance they experienced at five years on each of the seven job characteristics. (Employment dissonance scores for each job characteristic at five years were calculated as the difference between their employment expectation score at the time of graduation and their employment reality score at five years.) The results indicated that the four groups did not differ significantly on five of the employment dissonance variables (money, prestige, advancement; leadership and responsibility; helping and serving others; autonomy; and power). However, they differed significantly in the employment dissonance they

Table 40. Employment factors--comparison at five years by Five Year Career Path group

Career Path Determinant/ variable/group	N	Mean	S.D.	F ratio
Employment Reality[a]				
Money, prestige, advancement				
Entered and left	46	3.15	0.97	5.63**
Entered and stayed	100	2.83	0.74	
Taught intermittently	40	2.74	0.86	
Never taught	50	3.34	0.98	
Opportunity to effect social change				
Entered and left	46	2.48	1.07	5.10*
Entered and stayed	100	3.18	0.97	
Taught intermittently	40	2.85	1.03	
Never taught	50	2.96	1.07	
Employment Dissonance[b]				
Opportunity to use special abilities and aptitudes				
Entered and left	46	0.75	0.96	3.60*
Entered and stayed	100	0.38	0.76	
Taught intermittently	40	0.84	0.92	
Never taught	50	0.57	0.95	

[a]Rating scale for employment reality variables ranged from 1 to 5, with 1=never, 2=seldom, 3=some of the time, 4=most of the time, and 5=all of the time.

[b]The score for each employment dissonance variable was calculated by subtracting the employment reality score at five years from the employment expectation score at time of graduation.

*Significant at .05 level.

**Significant at .01 level.

Table 40. Continued

Career Path Determinant/ variable/group	N	Mean	S.D.	F ratio
Opportunity to effect social change				
Entered and left	46	1.28	1.38	4.95**
Entered and stayed	98	0.53	1.04	
Taught intermittently	40	1.02	1.14	
Never taught	50	0.74	1.19	

experienced with respect to the opportunity to use special abilities and aptitudes and the opportunity to effect social change (Table 40).

Additional analysis using the Duncan Multiple Range Test revealed that in terms of opportunity to use special abilities and aptitudes, those who entered and stayed in teaching experienced significantly less dissonance at five years than did either those who entered and left teaching and those who never taught (0.38 vs 0.75, 0.57). With respect to employment dissonance at five years in the opportunity to effect social change, the discrepancy scores of those who entered and stayed in teaching were significantly smaller than the scores of both those who entered and left teaching and those who taught intermittently (0.53 vs 1.28, 1.02). The discrepancy scores of those who never taught, although somewhat greater than the scores of those who entered and stayed in teaching, were significantly smaller than the scores of those who entered and left teaching (0.74 vs 1.28).

Chi-square was used to examine differences among the four groups on total income at five years and size of employment community in which employed at five years. While no significant differences emerged on the former, the results of the chi-square analysis revealed that there were significant differences among the four groups on the latter (Table 41). The data indicate that while the distribution of those who taught continuously was fairly even in the four employment community size categories, those in the other three groups were more likely to be employed in communities with populations of more than 10,000; half those who entered and stayed in teaching reported that their employment

Table 41. Size of employment community at five years by Five Year Career Path group[a]

Size of employment community	Entered and left number (pct)	Entered and stayed number (pct)	Taught intermittently number (pct)	Never taught number (pct)	Total number (pct)
Less than 2,500	7 (15.2)	27 (27.3)	8 (20.0)	2 (3.9)	44 (18.6)
2,500 to 9,999	3 (6.5)	22 (22.2)	2 (5.0)	7 (13.7)	34 (14.4)
10,000 to 50,000	15 (32.6)	21 (21.2)	11 (27.5)	13 (25.5)	60 (25.4)
Over 50,000	21 (45.7)	29 (29.3)	19 (47.5)	29 (56.9)	98 (41.5)
Total	46 (100.0)	99 (100.0)	40 (100.0)	51 (100.0)	236 (100.0)

[a] Chi-square = 27.55; significance = 0.00; missing observations = 10.

Table 42. Indicators of career satisfaction--comparison at five years by Five Year Career Path group

Indicator/group	N	Mean	S.D.	F ratio
Choose teaching again[a]				
Entered and left	46	2.07	0.90	7.36**
Entered and stayed	99	2.52	0.69	
Taught intermittently	39	2.15	0.87	
Never taught	51	1.92	0.87	

[a]Response scale: 1=no, 2=undecided, 3=yes.

**Significant at .01 level.

communities at five years had a population of 10,000 or more, compared to three-fourths or more of those from the other three groups. In addition, those who never taught were the least likely to be employed in a community with a population of less than 2,500.

Comparison on indicators of career satisfaction Comparisons were made among the four Five Year Career Path groups on two indicators of career satisfaction. A single classification ANOVA procedure was used to compare their responses at five years regarding their current job satisfaction and their willingness to choose teaching again as a career. The results of the analysis revealed that the groups did not differ significantly in their job satisfaction at five years. However, the groups did differ significantly in their willingness to choose teaching again. The results of the Duncan Multiple Range Test indicated that those who entered and stayed in teaching were significantly more likely than

those who either entered and left, taught intermittently, or never taught to report that if they had it to do over, they would again prepare to be a teacher (2.52 vs 2.07, 2.15, 1.92).

Summary In summary, the results of the testing of the fourth hypothesis revealed that the hypothesis was partially supported. There were significant differences among the four Five Year Career Path groups at five years on six of the 30 variables. These six variables were included in two of the four major Career Path Model areas. The comparative analysis yielded no significant differences among the four groups on the one personal and background characteristics variable or the 11 preparation program factor variables included in the analysis. However, the groups differed significantly on five of the 16 employment factor variables and on one of the two variables included in the indicator of career satisfaction area.

Results of One Year Career Path Cross-Validation Analysis

Presented in this section are the results of the testing of the fifth hypothesis. This hypothesis, which was formulated to cross-validate the portion of the model that was developed to predict One Year Career Path, is presented below:

5. The predictive variables and their relative contribution to the prediction of One Year Career Path group are supported in both Samples One and Two.

Initial testing of this portion of the model was done with the sample of 246 Spring, 1980 and 1980/1981 academic year ISU teacher education graduates who comprised Sample One. A second sample of ISU teacher education graduates (Sample Two) was used to determine the accuracy of the

prediction model that was developed in the initial testing. Sample Two consisted of 179 ISU teacher education graduates who graduated the 1982/1983 academic year.

To examine the usefulness of the variables in the model developed in the initial testing with Sample One to correctly classify the One Year Career Path group of Sample Two, a discriminant analysis procedure was used which included ten variables in the analysis. In this approach, Sample One is used to develop the model and Sample Two to examine the variable selection as well as the relative contribution of each variable. The measurement of these ten variables was the same for both samples.

A step-wise discriminant analysis procedure was used in which the ten variables were allowed to enter one at a time. This examined the variable selection for the model. At each step, the variable with the highest F value entered the analysis; the F to enter was set at $F \geq 1.0$ and the F to remove at ≤ 1.0 (default values for SPSSX). Six of the ten variables were remaining at the conclusion of the analysis. These six variables, the step at which each entered the analysis, and the Wilks' Lambda value and significance of each are presented in Table 43. The three discriminant functions that were derived from the six variables that remained at the conclusion of the analysis were used to classify the One Year Career Path group of each of the graduates included in Sample Two.

The classification results of the discriminant analysis using Sample Two data are reported in Table 44. Overall, 62.25 percent of the cases from Sample Two were correctly classified. While this percentage was smaller than that for Sample Two (70.92 percent), this decrease was to be

Table 43. Discriminant analysis of One Year Career Path groups--summary table of variables remaining at conclusion of analysis in cross-validation testing

Variables (measurement time)	Step entered into analysis	Wilks' lambda at conclusion of analysis	Significance
Satisfaction with student teaching (Time 1)	1	0.77	.00
HSR	2	0.68	.00
Teaching certification level	3	0.63	.00
GPA (combined admission and graduation)	4	0.60	.00
Marital status (Time 1)	5	0.58	.00
Self-evaluation as a teacher (Time 1)	6	0.56	.00

expected. In the initial testing of the model, the same cases were used to determine the functions and to validate their ability to correctly classify cases, and this, according to Klecka (1980), tends to result in an overestimation of the power of the classification procedure.

Correct group classification for Sample Two, like that for Sample One, was greatest for those whose actual employment at one year matched their employment plans at the time of graduation and least for those whose actual employment did not match their plans. An examination of the percentage of cases correctly classified in Sample One (Table 30) reveals that in the cross-validation testing, the percentage of correct classifications in the T/T group was nearly the same for Sample Two as for

Table 44. Discriminant analysis of One Year Career Path groups--results of classification analysis in cross-validation testing

Group	Prior probability[b] (pct)	Actual number of cases[c]	Predicted group membership[a]			
			Teach/ Teach	Teach/ Not teach	Not teach/ Teach	Not teach/ Not teach
Teach/Teach	57.2	80	73 (91.3%)	3 (3.8%)	1 (1.3%)	3 (3.8%)
Teach/Not teach	17.4	25	15 (60.0%)	6 (24.0%)	0 (0.0%)	4 (16.0%)
Not teach/Teach	8.7	12	4 (33.3%)	1 (8.3%)	2 (16.7%)	5 (41.7%)
Not teach/Not teach	16.7	24	8 (33.3%)	4 (16.7%)	1 (4.2%)	11 (45.8%)

[a]Overall, 62.25 percent of all cases were correctly classified.

[b]Based on 138 cases used in analysis; 41 cases were excluded from analysis because data for at least one discriminating variable were missing.

[c]One hundred forty-one cases were used for classification; 38 cases were excluded because data for at least one discriminating variable were missing.

expected. In the initial testing of the model, the same cases were used to determine the functions and to validate their ability to correctly classify cases, and this, according to Klecka (1980), tends to result in an overestimation of the power of the classification procedure.

Correct group classification for Sample Two, like that for Sample One, was greatest for those whose actual employment at one year matched their employment plans at the time of graduation and least for those whose actual employment did not match their plans. An examination of the percentage of cases correctly classified in Sample One (Table 30) reveals that in the cross-validation testing, the percentage of correct classifications in the T/T group was nearly the same for Sample Two as for Sample One (91.3 percent and 93.3 percent, respectively). However, there were differences between the two samples with respect to the percentage of cases correctly classified in the other three groups. Compared to Sample One, Sample Two had a greater percentage of correct classifications in the T/NT group (24.0 percent vs. 16.7 percent) and a smaller percentage in the T/NT group (16.7 percent vs. 28.6 percent) and the NT/NT group (45.8 percent vs. 57.4 percent).

In general, the predictive ability of six variables of the One Year Career Path Model was supported in the cross-validation testing. Six of the ten variables that determined the discriminant functions in the initial testing were used in determining the discriminant functions in the cross-validation testing. An examination of the partial multivariate F value of each of these ten variables at the conclusion of the discriminant analysis with both samples (Table 45) reveals that for both samples,

Sample One (91.3 percent and 93.3 percent, respectively). However, there were differences between the two samples with respect to the percentage of cases correctly classified in the other three groups. Compared to Sample One, Sample Two had a greater percentage of correct classifications in the T/NT group (24.0 percent vs. 16.7 percent) and a smaller percentage in the NT/T group (16.7 percent vs. 28.6 percent) and the NT/NT group (45.8 percent vs. 57.4 percent).

In general, the predictive ability of six variables of the One Year Career Path Model was supported in the cross-validation testing. Six of the ten variables that determined the discriminant functions in the initial testing were used in determining the discriminant functions in the cross-validation testing. An examination of the partial multivariate F value of each of these ten variables at the conclusion of the discriminant analysis with both samples (Table 45) reveals that for both samples, satisfaction with teaching as a career on the basis of their student teaching experience was the strongest predictor of career path group. However, as indicated by the F values of the ten variables included in the analysis, there were four that appeared to either detract from or contribute little to the predictive power of the model. As shown in Table 45, two variables, power and leadership/responsibility, both had relatively high F values in the testing of the model with Sample One, but very low F values in the testing with Sample Two. This suggests that these two employment expectation variables contribute differentially for various groups and time periods. Because these variables contribute

Table 45. Partial multivariate F values at conclusion of discriminant analysis for 10 variables--Sample One and Sample Two

Variables (measurement time)	Sample One	Sample Two
Satisfaction with student teaching (Time 1)	16.42	8.34
Employment expectations in leadership and responsibility (Time 1)	4.07	0.39
Employment expectations in power (Time 1)	4.05	0.55
GPA (combined admission and graduation)	3.18	2.11
Marital status (Time 1)	2.83	1.50
HSR	2.27	2.69
Self-evaluation as a teacher (Time 1)	1.93	1.12
Teaching certification level	1.24	3.31
Choose teaching again (Time 1)	1.29	0.36
Employment expectations in money, prestige, and advancement (Time 1)	1.14	0.89

differentially in the two samples, further testing is required to determine if they should remain in the model.

Two variables that had low F values in the testing of the model with Sample One and that appeared to contribute little to the predictive power of the model included an indicator of career satisfaction variable (choose teaching again) and an employment expectation variable (money, prestige,

advancement). Since the former had the lowest F value in the cross-validation testing with Sample Two, it appears that further testing of the model may result in the elimination of this variable from the model. However, since the F value of the latter variable was almost high enough to enter when the model was tested with Sample Two, it seems likely that in testing the model with other samples, this variable may significantly contribute to the prediction of One Year Career Path.

From the initial set of ten variables, it appears that six variables are important for predicting One Year Career Path. These include GPA, HSR, marital status, teaching certification level, satisfaction with teaching as a career on the basis of student teaching experience, and self-evaluation as a teacher. Even if the F value to enter and remove variables from the discriminant analysis had been set at 1.32 (25% level) rather than the SPSSX default levels of 1.0 (50% level), five variables still would have been common in the two samples, with only the variable self-evaluation as a teacher not included in the analysis. In summary, the results of the testing of the fifth hypothesis indicate that the model that was developed in the initial testing with Sample One was generally supported in the cross-validation testing with Sample Two, both in terms of the predictive variables and in terms of their relative contribution to the prediction of One Year Career Path group.

Summary and Discussion of Findings

Presented in this section is a summary and discussion of the results of the testing of the five hypotheses. Hypotheses 1 and 3 were tested using discriminant analysis. Therefore, the summary and discussion

centers on the variables that contributed significantly to the prediction of career paths, the order in which they entered the analysis, the functions which contributed most significantly to groups separation and classification, and the percent of graduates the model correctly classified into career path groups. Hypotheses 2 and 4 were tested using Single Classification ANOVA and Duncan's Multiple Range Test, and the differences between groups are summarized and discussed. Finally, the results of the testing of the model (Hypothesis 5) with another sample of teacher education graduates are summarized and discussed.

Hypothesis 1

The results of the testing of the first hypothesis, in which 17 variables measured at the time of graduation from the preparation program were analyzed to predict the One Year Career Path group of the teacher education graduates from Sample One, revealed that the hypothesis was generally supported. Ten of the 17 variables contributed significantly to the prediction of One Year Career Path group. These ten variables included variables from each of the four major Career Path Model areas. Presented in the order in which they entered the discriminant analysis, they were: (1) satisfaction with student teaching, (2) employment expectations in leadership and responsibility, (3) employment expectations in power, (4) GPA, (5) marital status, (6) high school rank, (7) self-evaluation as a teacher, (8) teaching certification level, (9) choose teaching again, and (10) employment expectations in money, prestige, and advancement. The seven variables that did not significantly contribute to the prediction of One Year Career Path group were: (1) gender; (2)

satisfaction with student teaching cooperating teacher, and perceived adequacy of preparation in: (3) planning and delivering instruction, (4) interpersonal relations, (5) student motivation and discipline, (6) preparing and using instructional media, and (7) assessing and implementing innovations.

In the discriminant analysis step-wise approach, variables enter the analysis only if their inclusion makes a significant contribution to the variables already included in the equation. The variables that remain at the conclusion of the analysis determine the functions which help explain group differences, which in turn predict group membership. Of the 17 variables included in the analysis, all but one (perceived adequacy of preparation in preparing and using instructional media) were significantly correlated to at least one of the three discriminant functions extracted from the analysis. The canonical correlation coefficients that were calculated for each of the three functions indicate that the first function differentiated between the groups with the greatest precision and contributed the most to group classification. The first function essentially discriminated between the two groups who planned to enter teaching the following academic year (T/T and T/NT) and the two groups who did not plan to enter teaching (NT/T and NT/NT). Those who planned to enter teaching the academic year following graduation tended to be female, certified to teach at the elementary level, and to feel more adequately prepared in preparation areas that beginning teachers report as most problematic (motivating and disciplining students and preparing and delivering instruction) than did those who did not plan to enter teaching.

They were more likely to report that they would again choose teaching as a career and to be more satisfied with teaching as a career on the basis of their student teaching experience. Since nearly three-fourths (74%) of those who planned to teach actually entered teaching and nearly two-thirds (62%) of those who did not plan to enter teaching did not, this explains in part why the functions were most accurate in identifying those whose actual employment at one year matched their employment plans of the previous year (the T/T and NT/NT groups). While the second and third functions contributed less to group separation and classification, each was helpful in promoting understanding of the factors that influence the first-year career paths of those who were not following their intended career paths.

The discriminant analysis correctly identified the One Year Career Path group of 71 percent of the teacher education graduates from Sample One. The results of the analysis, which included variables from the four major Career Path Model areas of personal and background characteristics, preparation program factors, employment factors, and indicators of career satisfaction, suggest that both personal and situational factors influenced the first-year career paths of the ISU teacher education graduates. Satisfaction with teaching as a career on the basis of the student teaching experience appeared to have a particularly salient influence on the career decisions of teacher education graduates, with graduates who were the least satisfied with their student teaching experience the least likely to plan to and actually enter teaching.

Hypothesis 2

The second hypothesis posited that there were significant differences among the four One Year Career Path groups when compared on Career Path Determinant variables in the four major Career Path Model areas measured at one year following graduation. The results of the testing of this hypothesis, in which the four One Year Career Path groups from Sample One were compared on 31 variables, revealed that the hypothesis was partially supported.

Significant differences among the four groups emerged on twelve of the variables. These included variables from preparation program factors, employment factors, and indicators of career satisfaction. There were no significant differences on personal and background characteristics, which in this case only compared the groups on marital status. Below is a summary of the differences in the other areas.

There were significant differences among the four groups on three of the 12 variables within preparation program factors.

1. Those in the NT/NT group perceived that they were less adequately prepared in assessing and dealing with learning problems than did those in the T/T or T/NT groups.

2. Those in the T/T group perceived that they were more adequately prepared in preparing and using instructional media than did those in the NT/NT group.

3. Those in the T/NT group perceived that they were more adequately prepared in monitoring student work and achievement than did those in the T/T and NT/NT groups.

The four One Year Career Path groups differed significantly on eight of the 16 employment factors.

1. Those in the NT/NT group reported that the jobs they held at one year following graduation provided more money, prestige, and opportunity for advancement than did those in the T/T and NT/T groups.

2. Those in the T/T and NT/T groups reported greater opportunity to use special abilities and aptitudes in the jobs they held at one year than did those in the T/NT group.

3. Those in the NT/NT group reported that the jobs they held at one year provided significantly less opportunity to exercise leadership and assume responsibility than did those in the T/T or NT/T groups.

4. Those in the T/NT group reported significantly less opportunity in their jobs at one year to help and serve others than did those in the T/T and NT/T groups.

5. Those in the T/T group reported more autonomy in the jobs they held at one year than did those in the NT/NT group.

6. Compared to those in the NT/NT group, those in the T/T group reported less dissonance regarding the extent to which their jobs at one year provided them with autonomy (compared to what they expected at the time of graduation).

7. Those in the T/T and NT/T group reported less dissonance than those in the T/NT and NT/NT groups regarding the extent to which their jobs at one year provided the opportunity to exercise leadership and assume responsibility.

8. Those in the T/NT group reported more dissonance than those in the two teaching groups (T/T, NT/T) regarding the extent to which their jobs at one year provided the opportunity to help and serve others.

The four One Year Career Path groups were compared on indicators of career satisfaction. There were significant differences among the groups on one of the two variables on which comparisons were made.

1. Those in the NT/NT group were the least likely of the four groups to report that if they had it to do over, they would again prepare to be a teacher.

While there were significant differences among the four One Year Career Path groups on preparation program factors, the findings were not revealing. However, the differences regarding employment factors and indicators of career satisfaction are worthy of mention. The contention that those who are not teaching receive more money, prestige, and opportunity for advancement was substantiated. It was somewhat surprising, however, to find that those who did not teach had less opportunity to exercise leadership and assume responsibility in their jobs. It was encouraging to find that those who did teach reported that their jobs provided greater opportunity to use special abilities and aptitudes and help and serve others, greater autonomy, and also reported less dissonance in the extent to which they were able to exercise leadership and assume responsibility and were able to help and serve others in their jobs. It also was encouraging to find that, with the exception of those in the NT/NT group, the teacher education graduates did

not appear to regret their choice of teaching as a career, as indicated by their willingness to choose teaching again if they had it to do over.

Hypothesis 3

The third hypothesis stated that the combined effects of variables measured at the time of graduation (Time 1) and at one year following graduation (Time 2) would predict the Five Year Career Path group of the teacher education graduates from Sample One. The results of the testing of this hypothesis, which included 19 variables in the analysis, indicated support for the hypothesis. Ten of the 19 variables contributed significantly to the prediction of Five Year Career Path group. These ten variables included variables from three of the four Career Path Model areas and variables measured at Time 1 and Time 2. The two variables included in personal and background characteristics did not contribute to the prediction of Five Year Career Path group. The step at which each of the ten predictor variables entered the analysis and the time at which each was measured is as follows: (1) intention to teach (Time 1); (2) satisfaction with student teaching (Time 1); (3) employment dissonance in opportunity to use special abilities and aptitudes (Time 2); (4) perceived adequacy of preparation in student motivation and discipline (Time 2); (5) total income (Time 2); (6) self-evaluation as a teacher (Time 1); (7) perceived quality of preparation program (Time 2); (8) perceived adequacy of preparation in planning and delivering instruction (Time 2); (9) employment dissonance in money, prestige, advancement (Time 2); and (10) employment dissonance in leadership and responsibility (Time 2). Nine variables did not contribute significantly to the prediction of Five Year

Career Path group: (1) gender; (2) GPA--admission; (3) satisfaction with student teaching cooperating teacher (Time 1); (4) perceived adequacy of preparation in interpersonal relations (Time 2); (5) perceived adequacy of preparation in monitoring student achievement (Time 2); (6) employment dissonance in helping and serving others (Time 2); (7) teacher certification level; (8) choose teaching again (Time 2); and (9) job satisfaction (Time 2).

Of the 19 variables included in the Five Year Career Path discriminant analysis, only one, gender, was not significantly related to at least one of the three functions yielded by the analysis. The first function, as indicated by the canonical correlation coefficients, provided the greatest group separation and contributed the most to group classification. This function in general discriminated between the three groups who taught during the five years following graduation and the group who never taught. Those who never taught were more likely to be prepared for secondary level teaching. At the time of graduation, those who never taught tended to rate their teaching ability lower and were less satisfied with their student teaching cooperating teachers and with teaching as a career on the basis of the student teaching experience. They also were less likely to plan to enter teaching the academic year following graduation. At one year following graduation, they had larger discrepancies regarding the extent to which they were able to exercise leadership and assume responsibility in their jobs and they were less likely to indicate that if they had it to do over, they would again prepare to be a teacher. While the other two functions had considerably

less discriminating power, they also contributed to group classification. The three functions were considerably more accurate in identifying those who entered and stayed in teaching and those who never taught than those who entered and left and those who taught intermittently.

Overall, 62 percent of the graduates from Sample One were correctly classified into their Five Year Career Path groups by the discriminant functions. The measures in the three Career Path Model areas of preparation program factors, employment factors, and indicators of career satisfaction contribute to the understanding of the factors that influence the five-year career paths of the ISU teacher education graduates. The intention to enter teaching the academic year following graduation was the strongest predictor of Five Year Career Path and satisfaction with teaching as a career on the basis of the student teaching experience was the second strongest predictor. Those who never taught were the least likely to report at the time of graduation that they planned to enter teaching the following year. They also were likely to be the least satisfied with their student teaching experiences.

Hypothesis 4

The results of the testing of the fourth hypothesis, which posited that significant differences existed among the four Five Year Career Path groups when compared on Career Path Determinant variables measured at five years, revealed that the hypothesis was partially supported. Of the 30 variables in the four major Career Path Model areas on which the groups were compared, the groups differed significantly on six variables which were included in two areas, employment factors and indicators of career

satisfaction. On the one variable (marital status) in personal and background characteristics and the 11 variables related to preparation program factors (perceived quality of the preparation program and perceived adequacy of preparation in ten areas), there were no significant differences among the four groups. Below is a summary of the differences in employment factors and indicators of career satisfaction.

The four Five Year Career Path groups were compared on 16 employment factors. Significant differences emerged on five of the variables.

1. Those who taught intermittently and those who entered and stayed in teaching reported that they were receiving less money, prestige, and opportunity for advancement in their jobs at five years than were those who entered and left teaching and those who never taught.

2. Those who entered and left teaching reported that they had less opportunity to effect social change in their jobs at five years than did those who entered and stayed in teaching or those who never taught.

3. Those who entered and stayed in teaching reported less dissonance than those who entered and left teaching and those who taught intermittently regarding the extent to which their jobs at five years provided the opportunity to effect social change. Those who never taught reported less dissonance on this dimension than those who entered and left.

4. Those who entered and stayed in teaching, compared to those who entered and left and those who never taught, reported less dissonance in the extent to which the jobs they held at five years provided the

opportunity to use special abilities and aptitudes (compared to what they expected at the time of graduation).

5. Those who never taught, those who taught intermittently, and those who entered and left teaching tended to be employed in larger communities than those who entered and stayed in teaching, and those who never taught were the least likely of the four groups to be employed in communities with a population of less than 2,500.

There were significant differences among the four Five Year Career Path groups on one of the two indicator of career satisfaction variables.

1. Those who entered and stayed in teaching were significantly more likely than those in the other three groups to indicate that if they had it to do over, they would again choose teaching as a career.

The findings regarding preparation program factors are worthy of note in that they suggest that the effects of the preparation program on the career paths of the teacher education graduates appear to have disappeared by five years. The findings regarding employment factors are particularly noteworthy in that those who left or never entered teaching reported receiving more money, prestige, and advancement in their jobs than did those who entered and stayed or those who taught intermittently. It is also noteworthy that those who entered and stayed in teaching, compared to those who left or never taught, reported less dissonance regarding the extent to which their jobs provided the opportunity to use special abilities and aptitudes. Regarding indicators of career satisfaction, it was not encouraging to find that of the four groups, only those who

entered and stayed in teaching reported the greatest likelihood of choosing the career of teaching again if they had it to do over.

Hypothesis 5

The fifth hypothesis stated that the predictor variables and their relative contribution to the prediction of One Year Career Path group with one sample of ISU teacher education graduates would be supported when tested with a second sample of graduates. The results of the testing of the hypothesis generally supported both the usefulness and the accuracy of the model for predicting One Year Career Path.

Six of the ten variables that contributed significantly to the prediction of One Year Career Path group with Sample One contributed to the prediction of One Year Career Path group with Sample Two. These six variables were from each of the four major Career Path Model areas. The six variables and the order in which they entered the discriminant analysis with Sample Two were: (1) satisfaction with student teaching, (2) high school rank, (3) teaching certification level, (4) GPA, (5) marital status, and (6) self-evaluation as a teacher. The four variables that did not significantly contribute to the prediction of One Year Career Path of Sample Two were employment expectations in: (1) leadership and responsibility, (2) power, and (3) money, prestige, and advancement; and (4) willingness to choose teaching again.

As in the testing with Sample One, correct group classification, although somewhat less with Sample Two than with Sample One (62% compared to 71%), was greatest for those whose actual employment at one year matched their previous year's employment plans. The strongest predictor

of One Year Career Path group for Sample Two, as for Sample One, was satisfaction with student teaching.

The results of the cross-validation testing, while providing support for the model, suggest that the ten variables selected for inclusion in the model and subsequently used for analysis with Sample Two need further testing. Because discriminant analysis depends on the use of intercorrelations, each variable selected for analysis has a powerful effect on results. The model and the ten variables should be utilized in predicting the career paths of other graduates and attention paid to the extent of accuracy and relative contribution of variables. At some point, it seems obvious that some variables may need to be eliminated and others added to the core variables.

CHAPTER V. SUMMARY, DISCUSSION, AND RECOMMENDATIONS

This chapter presents a summary of the study. The major findings of the study are presented and discussed. The discussion includes implications for educational practice and research. Finally, suggestions for future research are presented.

Summary

Due to the need to enhance teacher retention, there was a need for increased understanding of the factors that influence teacher education graduates to enter and remain in teaching. The purpose of the study was to develop and test a longitudinal model that examined the influence of various factors on the career paths of ISU teacher education graduates. Because teacher attrition is greatest during the period immediately following certification and during the early years following entry, the Career Path Model was developed to examine the career paths of the teacher education graduates at one and five years.

The review of literature revealed that few studies have systematically examined teacher retention. The limited research on teacher retention has suffered from a number of shortcomings that have done little to promote understanding about teacher retention. These shortcomings include (1) failure to differentiate between different types of teacher attrition; (2) research designs that have not allowed for the examination of changes in the individual over time or for the examination of a significant number of variables; and (3) lack of a comprehensive

framework to allow for the systematic examination of teacher retention/attrition.

The model developed for the study drew upon both theory and empirical research. Career choice and development theory, particularly that of Super, provided the framework for the model and supported the need to include personal and situational factors in the model. Teacher retention and satisfaction models based upon the career choice and development theories of Holland and Krumboltz were helpful in identifying the major components, or areas, included in the Career Path Model. These four major areas included personal and background characteristics, preparation program factors, employment factors, and indicators of career satisfaction.

The research on teacher retention and satisfaction provided the rationale for the specific factors, or Career Path Determinants, included in each of the four major areas. Personal and background characteristics included four Career Path Determinants: (1) gender, (2) marital status, (3) socio-economic status of parental family, and (4) academic ability/achievement. The three Career Path Determinants included in preparation program factors were (1) student teaching, (2) sense of efficacy, and (3) perceived quality of preparation program. Employment factors were comprised of six Career Path Determinants: (1) salary, (2) employment expectations, (3) employment reality, (4) employment dissonance, (5) size of employment community, and (6) teaching level. Indicators of career satisfaction included four Career Path Determinants:

(1) choosing teaching again as a career, (2) job satisfaction, (3) satisfaction with student teaching, and (4) intention to teach.

The Career Path Model developed for the study is longitudinal and allows for both predictive and comparative analyses. The model includes three measurement points: (1) graduation from the preparation program (Time 1), (2) one year following graduation (Time 2), and (3) five years following graduation (Time 3). Career Path Determinants in each of the four major areas are measured at each of these points. Five theoretical hypotheses were formulated to test the portions of the Career Path Model selected for examination in the study. The first two hypotheses are related to One Year Career Path while the third and fourth are related to Five Year Career Path. A fifth theoretical hypothesis was formulated to cross-validate the portion of the model that predicted One Year Career Path. These five hypotheses, which were translated from the theoretical to the empirical level for testing, are presented below.

1. There is a significant relationship between Career Path Determinants measured at the time of graduation from the preparation program (Time 1) and the career path followed by the teacher education graduates the year following graduation (One Year Career Path).

2. There is a significant difference in the Career Path Determinants measured at one year following graduation (Time 2) of teacher education graduates following differing career paths at one year (One Year Career Path).

3. There is a significant relationship between the combined effects of Career Path Determinants measured at the time of graduation from the preparation program (Time 1) and one year following graduation (Time 2) and the career path followed by teacher education graduates five years following graduation (Five Year Career Path).

4. There is a significant difference in the Career Path Determinants measured at five years following graduation (Time 3) of teacher

education graduates following differing career paths at five years (Five Year Career Path).

5. The relationships between Career Path Determinants and One Year Career Path do not differ when the model is tested using a different sample of ISU teacher education graduates.

The study utilized data collected from a comprehensive longitudinal research project conducted by the ISU Research Institute for Studies in Education for the purpose of evaluating the ISU teacher preparation program. This project, which was initiated in 1980, uses survey research to collect data from students and graduates of the preparation program at various stages in their preparation and careers. The teacher education graduates who provided data for this study graduated in Spring, 1980, and the 1980/1981 and 1982/1983 academic years. From this population of graduates, two samples were selected to test the hypotheses. Sample One, which was used to test the first four hypotheses, was comprised of the 246 Spring, 1980, and 1980/1981 academic year graduates who provided data at each of the following three measurement points: (1) graduation, (2) one year following graduation, and (3) five years following graduation. Sample Two, which was used to test the fifth hypothesis, consisted of the 179 1982/1983 academic year graduates who provided data at both the time of graduation and at one year following graduation.

Descriptive information about the teacher education graduates in each sample revealed that the majority in Sample One and Sample Two were female (83% and 81%, respectively). At one year following graduation, 66 percent of those from Sample One and 64 percent of those from Sample Two were teaching. At five years following graduation, 52 percent of those from Sample One were teaching. Teacher education graduates who are or have

been employed in a full-time, part-time, or substitute capacity in a traditional or nontraditional setting or classroom at the preschool, elementary, and/or secondary level were defined as teachers for the purpose of this study.

In testing the hypotheses related to One Year Career Path (Hypotheses 1, 2, and 5), the graduates from both Samples One and Two were classified into four groups: (1) those who reported at the time of graduation that they planned to enter teaching the following academic year and did (T/T); (2) those who reported at the time of graduation that they planned to enter teaching the following academic year, but did not (T/NT); (3) those who reported at the time of graduation that they did not plan to enter teaching the following academic year, but did (NT/T); and (4) those who reported at the time of graduation that they did not plan to enter teaching the following academic year and did not (NT/NT).

The hypotheses related to Five Year Career Path (Hypotheses 3 and 4) were tested by classifying the graduates from Sample One into the following four groups: (1) those who entered teaching the first year following graduation and left before five years and did not reenter (entered and left); (2) those who entered teaching either the first, second, or third year following graduation and continued to teach through five years (entered and stayed); (3) those who either entered, left, and reentered teaching during the five years or those who entered the fourth or fifth year and continued to teach through five years (taught intermittently); and (4) those who never taught during the five years following graduation (never taught).

Empirical measures for each of the Career Path Determinants were described in Chapter III. The Career Path Determinants and empirical measures operationalized for testing each of the hypotheses also were identified in this chapter. Theory and preliminary statistical procedures were used a priori to eliminate variables not likely to be useful in testing the predictive portions of the model (Hypotheses 1 and 3). The statistical procedures used included Pearson Correlation, chi-square, single classification ANOVA, and discriminant analysis. The first, third, and fifth hypotheses were tested using discriminant analysis procedures. In testing these three hypotheses, a step-wise method (Wilks') was used in which the variables selected for analysis were allowed to enter one at a time, with an F to enter $\geq$ 1.0 and an F to remove $\leq$ 1.0. These values, which are the SPSSX program default values, correspond to a significance level of about .50. Wilks' Lambda, which is a statistic that takes into account both the differences between groups and the homogeneity within groups, was used to determine the point at which the entry of an additional variable would not significantly change the F-approximation. Because Wilks' Lambda is an inverse statistic, the variable with the smallest lambda is selected for each step. Since by default the SPSSX discriminant analysis program assumes equal probabilities for group membership when classifying cases, prior probabilities were incorporated into the classification procedure to improve the accuracy of correct classification. Single classification ANOVA and chi-square were used to test the second and fourth hypotheses. Duncan's Multiple Range Test was

used to identify the groups that significantly differed when the ANOVA procedure yielded an F-ratio significant at the .05 level.

The results presented in the previous chapter indicate that the Career Path Model helps to explain the factors that influence the career paths of teacher education graduates, but that it may need to be modified somewhat. Presented below are the conclusions, followed by a brief discussion of their implications for practice and further research.

1. The model was relatively effective at predicting the one- and five-year career paths of the teacher education graduates. The prior probabilities of correctly classifying the teacher education graduates into four career path groups at one and five years were exceeded. The accuracy of prediction of One Year Career Path with Sample One was 71 percent and with Sample Two 62 percent. The model predicted Five Year Career Path with 62 percent accuracy.

2. The model was more accurate in identifying the career paths of some teacher education graduates than others at both the one- and five-year measuring points. For example, the model was more accurate in identifying those whose employment at one year matched their employment plans of the previous year than those who did not follow their intended career paths. At five years, the model was more accurate in identifying those who never taught and those who entered and stayed in teaching than it was in identifying those who entered and left teaching and those who taught intermittently.

3. Variables in the four major Career Path Model areas predicted One Year Career Path, while variables from three of the four areas predicted

Five Year Career Path. Variables representing personal and background characteristics, preparation program factors, employment factors, and indicators of career satisfaction contributed significantly to the prediction of One Year Career Path in the testing with both Samples One and Two. Variables from two measurement points (graduation and one year following graduation) representing preparation program factors, employment factors, and indicators of career satisfaction contributed significantly to the prediction of Five Year Career Path, while personal and background characteristics did not.

4. The results of the cross-validation testing of the One Year Career Path portion of the model with Sample Two suggest that further testing of the model is needed. Four of the ten variables that contributed significantly to the prediction of One Year Career Path with Sample One did not contribute significantly to the prediction of One Year Career Path with Sample Two and there was a slight decline in accuracy of prediction. The six variables that appeared in the prediction equation with both Samples One and Two were (1) satisfaction with the student teaching experience, (2) high school rank, (3) teaching level, (4) GPA, (5) marital status, and (6) self-evaluation as a teacher.

5. Two of the six common variables in the analysis of both One Year Career Path and Five Year Career Path contributed significantly to the prediction equations at both measuring points, two of the common variables contributed to the prediction of One Year Career Path but not to Five Year Career Path, and two contributed to neither. The two variables that contributed significantly to the prediction of career path at both one and

five years were satisfaction with the student teaching experience and self-evaluation as a teacher. The two variables that contributed significantly to the prediction of One Year Career Path but not to Five Year Career Path were GPA and teaching level. The two variables that did not contribute significantly to the prediction of either One Year Career Path or Five Year Career Path were gender and satisfaction with student teaching cooperating teacher.

6. Perception of the student teaching experience appeared to have a very powerful influence on the career paths chosen by the teacher education graduates at one and five years. Satisfaction with the student teaching experience was the strongest predictor of One Year Career Path with both Samples One and Two and the second strongest predictor of Five Year Career Path. The most powerful predictor of Five Year Career Path was the graduates' reported intention to enter or not enter teaching the academic year following graduation. Three other factors appeared likely to be associated with the career paths of the teacher education graduates. These factors, which emerged in the comparative analysis at one and five years, include (1) money, prestige, and opportunity for advancement; (2) opportunity to use special abilities and aptitudes; and (3) willingness to choose teaching again.

Discussion

This section provides an opportunity to discuss major findings and their implications. The discussion centers around the conclusions, highlighting probable cause for major findings and implications for those who have interest in teacher retention.

The Career Path Model developed for use in this study was the first to use Super's Theory of Career Development as the basis for a comprehensive examination of the factors that influence the career paths of teacher education graduates. It is important to note that the model, which also drew upon the career choice and development theories of Holland and Krumboltz, as well as previous teacher satisfaction and retention models of Chapman and others, was generally supported. Not only was the predictive power of the model relatively high at one and five years, all four of the major areas included in the model were useful in predicting One Year Career Path as were three of the four areas for predicting Five Year Career Path.

It should be pointed out that one of the difficulties in predicting career path revolved around a tendency of some groups to be very similar on the characteristics measured by the model. This phenomenon occurred in both of the analyses at one year and in the analysis at five years. In the examination of One Year Career Path, the model far exceeded the probability of accurately predicting the career path of graduates in three of the four groups; the exception was the graduates who planned to but did not enter teaching. While the accuracy of prediction for those who planned to but did not enter teaching slightly exceeded the probability, their measured characteristics were so similar to those who planned to enter teaching and did enter, that it is likely that this affected the results. In the cross-validation testing, the model far exceeded the probability of accurately predicting those who planned to enter teaching and did teach and those who did not plan to teach and did not. Those who

planned to enter teaching but did not, however, tended to be similar to those who planned to enter teaching and did, while those who did not plan to enter teaching but did were more like those who did not plan to enter teaching and did not. As a result, the accuracy of prediction for those who planned to enter teaching but did not and for those who did not plan to enter teaching but did, was lower.

In the examination of Five Year Career Path, although the model exceeded the probability of accurately predicting the career path of all four groups, it far exceeded the probability for those who entered and stayed in teaching and for those who never taught. The model measured graduates' characteristics at graduation, one year, and at five years and used those measured at graduation and at one year to predict Five Year Career Path. This appears to be a shortcoming. In the study, for example, those who entered and left teaching and those who taught intermittently tended to be similar at one year to those who entered and stayed in teaching. Characteristics of the graduates after one year that might have influenced Five Year Career Path are unknown. Therefore, the predictive equation suffered not only from groups that were not sufficiently discrete, but probably from a lack of data reflecting changes in the graduates from year one to year five. The latter could be remedied by providing for an additional measurement point in the model. Year three would seem logical.

The results of the Five Year Career Path analysis reflect the longitudinal assessment of teacher retention and are worthy of discussion. Preparation program factors, employment factors, and indicators of career

satisfaction all contributed to the prediction of Five Year Career Path; personal and background characteristics did not. Of the four preparation program factors which were found to be predictive of Five Year Career Path, three reflected graduates' perceptions the year following graduation. This suggests that the effects of the preparation program continue to influence the career paths of teacher education graduates beyond the preparation period. A strange thing apparently happens to those perceptions. When the respondents were asked to rate aspects of their preparation program five years after graduation, there were no significant differences among the four groups. While the data from the comparative analysis of preparation program factors at five years are not presented in this study, the results indicate that those who entered and stayed and those who taught intermittently tended to rate their adequacy of preparation lower at five years than at one year, while those who entered and left and those who never taught tended to rate it higher. Although the reason for this is unclear, it may be that experiences during the five years had caused them to change their view, or that with the passage of time, their perceptions of the preparation program became somewhat blurred and they tended to view it in a different manner.

Employment factors, while contributing to the prediction of Five Year Career Path, did not contribute as much as might be expected. While four of the ten variables included in the prediction equation of Five Year Career Path were employment factors, two appeared to contribute little to the prediction. These two variables, which were the last to enter the equation, were differences between what they expected and what they

achieved in their jobs with respect to money, prestige, and advancement, as well as in leadership and responsibility. Desire to use special abilities and aptitudes and total family income were more powerful predictors; they entered the equation at the third and fifth steps, respectively.

The most powerful predictors of Five Year Career Path, however, were two indicators of career satisfaction--intention to enter teaching the academic year following graduation and satisfaction with the student teaching experience. The former is of little help in retaining teachers since it seems likely that it entered the equation first because those who had no intention to enter teaching the academic year following graduation were the most likely to have never taught during the five years. Satisfaction with student teaching, then, appears to be the most powerful variable over which we have any control. It seems that it must, by necessity, be the object of further attention.

It was, at first blush, surprising that personal and background characteristics did not contribute significantly to the accuracy of prediction of Five Year Career Path. Why would personal and background characteristics contribute significantly to the prediction of One Year Career Path but not to the prediction of Five Year Career Path? While it is purely supposition, two explanations seem logical. First, it should be pointed out that four factors from this area were used for prediction of One Year Career Path (high school rank, GPA, gender, and marital status) and only two for prediction of Five Year Career Path (gender and GPA). Gender did not appear to affect the career paths of the graduates. This

may be due to the fact that the majority (83%) of the teacher education graduates were female. The small number of males makes analysis difficult and may explain why gender, which also did not contribute significantly to the prediction of One Year Career Path, was not included in the prediction equation of Five Year Career Path. GPA is another matter. GPA contributed significantly to the prediction of One Year Career Path, with those who entered teaching tending to have higher GPAs. But GPA was not a predictor of Five Year Career Path. The only plausible explanation is that other factors become more pervasive after the graduates enter teaching. Once again, the addition of an intermediate measuring point between the first and fifth years might help to further identify the factors affecting teacher retention.

While it is helpful in a theoretical sense to identify the factors associated with teacher retention, depth of understanding and precision of prediction are predicated upon our ability to operationally define, measure, and analyze the variables related to teacher retention. Seventeen variables were utilized in the analysis to predict One Year Career Path and 19 variables were used to predict Five Year Career Path. The cross-validation testing used the ten variables that contributed significantly to the prediction of One Year Career Path with Sample One to determine their usefulness and accuracy of prediction with Sample Two. Six of the 17 variables used in the One Year Career Path analysis with Sample One were used in the Five Year Career Path analysis.

Some results strongly supported the efficacy of the model, while those that did not are perplexing and difficult to explain. First, the

supporting evidence. Four of the variables that contributed significantly to the prediction of One Year Career Path with both samples entered the prediction equation at either the same step (satisfaction with the student teaching experience (Step 1), GPA (Step 4), and marital status (Step 5)) or at approximately the same step (self-evaluation as a teacher (Steps 7 and 6)). It was not surprising that the two variables that entered the prediction equation last with Sample One (willingness to choose teaching again (Step 9) and employment expectations in money, prestige, and advancement (Step 10)) dropped out of the equation that resulted from the cross-validation testing with Sample Two. There is, however, no plausible explanation why employment expectations in leadership/responsibility and in power, the two variables that were the second and third strongest predictors of One Year Career Path with Sample One, did not enter the prediction equation with Sample Two. It also is difficult to explain why high school rank and teaching level, which were the sixth and eighth strongest predictors with Sample One, became the second and third strongest predictors with Sample Two. It seems that the variables were sensitive to the Spring, 1980 and 1980/1981 graduates in Sample One but not to the 1982/1983 graduates in Sample Two. While the results of the cross-validation testing indicate that six variables are important for the prediction of One Year Career Path (satisfaction with the student teaching experience, GPA, marital status, self-evaluation as a teacher, high school rank, and teaching level), further testing of the model is needed.

Satisfaction with the student teaching experience and self-evaluation as a teacher were included in the prediction equation of One Year Career

Path with Samples One and Two and of Five Year Career Path. This has important implications for preparation programs. Satisfaction with the student teaching experience was the strongest predictor of One Year Career Path with both Samples One and Two and the second strongest predictor of Five Year Career Path. Self-evaluation as a teacher was not a strong predictor in any of the three analyses. Those who were the least satisfied with teaching as a career on the basis of the student teaching experience were the least likely to enter teaching. This seems logical. This mini-employment experience typically occurs during the stage in the career development process which, according to Super, is marked by indecision and uncertainty. As a result, it is likely that the student teaching experience provides the teacher education students with important information for career decision making. For example, they may find that they do not enjoy working with children or in schools. They also may find that they do not have the skills or abilities necessary for success in teaching. Support for this contention is provided by the fact that those who never taught had lower teacher self-evaluation ratings at the time of graduation from the preparation program than did those who taught at some point during the five years. While further research is needed to determine which factors within the student teaching experience contribute to the decisions of teacher education graduates to enter or not enter teaching, it seems likely that improving the student teaching experience may enhance teacher retention.

Employment factors also appear to be related to teacher retention. Those who never taught and those who entered and left teaching reported

that their nonteaching jobs provided more money, prestige, and opportunity for advancement than did those who entered and stayed in teaching or those who taught intermittently. This suggests that for many teacher education graduates, the inability of the teaching profession to provide sufficient money, prestige, and opportunity for advancement acts as a deterrent to entering and remaining in teaching.

It appears that somewhere between the second and fifth years, many of the teacher education graduates either become "turned off" or are attracted to other careers, since at five years following graduation those who entered and stayed were the most likely of the four groups to report that they would again prepare to be a teacher. Once again, expanding the model to include collection of data at a midpoint during the five years following graduation might provide an increased understanding of the factors that cause graduates to leave teaching.

In summary, the study provided for a comprehensive examination of the factors that influence teacher education graduates to enter and remain in teaching. It addressed many of the shortcomings of previous teacher retention studies. The career choice and development theories of Super, Holland, and Krumboltz provided the conceptual framework for the model that was developed in the study. The results of the testing of the model indicate that those theories provide a workable framework for examining teacher retention. It was one of the first longitudinal models to be successfully utilized for analyzing data reflecting factors influencing teacher retention. The Career Path Model appears to have merit for explaining the career paths of teacher education graduates over time.

The model's major purpose was to identify the factors that influence or predict career paths of teacher education graduates at one and five years. The accuracy of prediction at one year, with the cross-validation testing, and at five years indicates that the model has great promise. Results also indicate that satisfaction with the student teaching experience was the most powerful factor influencing the career paths of the teacher education graduates at one and five years. Given the apparent importance of this factor in the career paths of teacher education graduates, it seems as though this is an important area for further research.

It appears, however, that the model must be tested further and perhaps refined. Further testing of the model is needed to determine the validity of the predictor variables that were identified in each of the One Year Career Path and Five Year Career Path analyses. Consideration also needs to be given to including additional variables in the model. The study was limited to the variables included in the RISE longitudinal studies, and not all factors that are likely to influence teacher retention were examined. For example, the literature suggested that teachers who lack the skills and abilities necessary for success in teaching are more apt to leave teaching. Since the available data set did not include a measure of performance, it was not possible to include performance variables in the model. In addition, the reduction of variables prior to the testing of the model may not have resulted in the selection of the best predictor variables for inclusion in the analysis. Further testing of the model using the RISE or other data is needed.

Finally, consideration should be given to expanding the model to include an additional measurement point. Results suggest that the model would be strengthened by collecting additional data from the graduates at some point between the first and fifth years.

Nevertheless, the results of the testing of the model provided valuable insight into the factors that influence the career paths of teacher education graduates. Those who planned to enter teaching the academic year following graduation were more likely to report greater satisfaction with the student teaching experience, to indicate that they would again choose teaching if they had it to do over, and to be certified to teach at the elementary level than were those who did not plan to enter teaching. Those who never taught during the five years following graduation, compared to those in the three groups who did teach, were more likely to indicate that they did not plan to enter teaching the academic year following graduation, to express less satisfaction with the student teaching experience, to assign lower teacher self-evaluation ratings, and to be certified to teach at the secondary level.

Recommendations for Further Study

Research is an ongoing activity. While the study addressed many of the shortcomings of previous research, it also exposed methodological issues which must be addressed and opened up areas for further study. The suggestions for research provided below are designed to strengthen the methodology, provide answers to questions generated by this study, and provide further insight into the factors that influence teacher education graduates to enter and remain in teaching.

1. Continue testing the Career Path Model with other samples of teacher education graduates to determine the validity of the ten variables that contributed significantly to the prediction of One Year Career Path and the ten variables that contributed significantly to the prediction of Five Year Career Path.

2. Consider including different variables from the model in the discriminant analysis of One Year Career Path and Five Year Career Path.

3. Consider using as many of the ten variables which emerged in the One Year Career Path discriminant analysis prediction equation as possible in the Five Year Career Path discriminant analysis. The lack of common variables made it difficult to interpret the results.

4. Consider adding to the model other important variables that may influence teacher retention. For example, measures of performance and factors affecting job and career satisfaction related to current practices and issues in schools are currently lacking in the model.

5. Consider changing the significance level which determines entry and removal of variables from the discriminant analysis equation. The SPSSX program default values of approximately .50 are appropriate in the initial model building stages, but at some point these levels should be raised to at least the .25 level.

6. Revise the Career Path Model to include an additional measurement point between the first and fifth years.

7. Test the model with teacher education graduates from other institutions and/or states.

8. Systematically examine the student teaching experience, perhaps through the use of structured interviews, to determine the specific factors that contribute to the teacher education graduates' satisfaction with the student teaching experience.

9. Consider an in-depth study of the factors which affect undergraduates' attitudes about teaching as a career from entry into the preparation program to graduation.

BIBLIOGRAPHY

Abramowitz, S. (1976). The effects of mini-school size on the organization and management of instruction. Washington, DC: Rand Corporation.

Adams, R. D., & Martray, C. R. (1980). Correlates of teacher perceived problems. Paper presented at the 9th annual conference of the Mid-South Educational Research Association, New Orleans. (ERIC ED 195 567)

Adams, R. D., & Martray, C. R. (1981, April). Teacher development: A study of factors related to teacher concerns for pre, beginning, and experienced teachers. Paper presented at the annual meeting of the American Educational Research Association, Los Angeles.

Adams, R. D., Hutchinson, S., & Martray, C. (1980, April). A developmental study of teacher concerns across time. Paper presented at the annual meeting of the American Educational Research Association, Boston, MA.

Arcy, D., Jacobs, L. C., & Razavich, A. (1972). Introduction to research in education. New York: Holt, Rinehart and Winston, Inc.

Ashton, P. T., Webb, R. B., & Doda, N. (1983). A study of teachers' sense of efficacy. (Report No. 400-79-0075). Gainesville, FL: University of Florida. (ERIC ED 231 833)

Benton, C. J. (1984). An analysis of predictor variables for occupational persistence: A comparison of teachers and five other professional groups. Dissertation Abstracts International, 45, 1721A.

Bentzen, M. M., Williams, R. C., & Heckman, P. A. (1980). A study of schooling: Adult experiences in schools. Phi Delta Kappan, 61, 394-397.

Benz, C. R., & Newman, I. (1985, October). Seventeen teaching competencies: Perceptions of first-year teachers. Paper presented at the Midwestern Educational Research Association Annual Meeting, Chicago, IL.

Blaser, J. W. (1965). Factors contributing to the problem of men graduates from the University of Idaho (1951-1960) leaving the teaching profession. Dissertation Abstracts, 27, 341A.

Bledsoe, J., and others. (1967). Comparisons between selected characteristics and performance of provisionally and professionally certified beginning teachers. Athens, GA: Georgia University. (ERIC ED 015 553)

Bloland, P. A., & Selby, T. J. (1980). Factors associated with career change among secondary school teachers: A review of the literature. Educational Research Quarterly, 5(3), 13-24.

Bogard, C. M. (1983). The process of deciding "not" to become a teacher. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada. (ERIC ED 230 515)

Borg, W. R., & Gall, M. E. (1979). Educational Research (3rd ed.). New York: Longman Inc.

Bridge, R. G., Judd, C. M., & Moock, P. R. (1979). The determinants of educational outcomes: The impact of families, peers, teachers, and schools. Cambridge, MA: Ballinger Publishing Co.

Brown, M., & Williams, A. (1977). A lifeboat ethics and the first year teacher. The Clearing House, 51, 73-75.

Browning, C. (1963). How to tackle the problem of teacher turnover. School Management, 7, 80-82.

Burkhead, J., Fox, T. G., & Holland, J. W. (1967). Input and output in large city schools. Syracuse, NY: Syracuse University Press.

Cairns, R. B. (1979). Social development. The origins and plasticity of interchanges (Chapter 19). San Francisco: W. H. Freeman and Company.

Campbell, L. P., & Williamson, J. A. (1973). Practical problems in the student teaching cooperative teacher relationships. Education, 94, 168-169.

Chapman, D. W. (1983a). Career satisfaction of teachers. Educational Research Quarterly, 7(3), 40-50.

Chapman, D. W. (1983b). A model of the influences on teacher retention. Journal of Teacher Education, 35(5), 43-49.

Chapman, D. W. (1984). Teacher retention: The test of a model. American Educational Research Journal, 21(3), 645-658.

Chapman, D. W., & Hutcheson, S. M. (1982). Attrition from teaching careers: A discriminant analysis. American Educational Research Journal, 19(1), 93-105.

Chapman, D. W., & Lowther, M. A. (1982). Teachers' satisfaction with teaching. Journal of Educational Research, 75(4), 241-247.

Charters, W. W., Jr. (1967). Stability and change in the communication structure of school faculties. Educational Administration Quarterly, 3, 15-38.

Charters, W. W., Jr. (1970). Some factors affecting teacher survival in school districts. American Educational Research Journal, 7(1), 1-27.

Chen, K. C. (1982). Characteristics associated with university teacher education program applicants, graduates, and practicing teachers. Unpublished doctoral dissertation, Iowa State University, Ames, IA.

Chiu, L. H. (1975). Influence of student teaching on perceived teaching competence. Perceptual and Motor Skills, 40, 872-874.

Christensen, J., Burke, P., Fessler, R., & Hagstom, D. (1983). Stages of teachers' careers: Implications for professional development (Clearinghouse No. SP 021 495). Washington, DC: ERIC Clearinghouse.

Counts, G. E. (1978). Senior teachers: An endangered species. (ERIC ED 159 132)

Cresap, McCormick, & Paget. (1984). Teacher incentives: A tool for effective management. Reston, VA: The National Association of Secondary School Principals.

Darling-Hammond, L. (1984). Beyond the commission reports. The coming crisis in teaching. Santa Monica: The Rand Corporation.

Darling-Hammond, L., Wise, A. E., & Pease, S. R. (1983). Teacher evaluation in the organizational context: A review of the literature. Review of Educational Research, 53, 285-328.

Dillman, D. A. (1978). Mail and telephone surveys: The total design method. New York: Wiley.

Dillon-Peterson, E. (1982, March). Sameness drives me up a wall. Beginning teacher induction--Five dilemmas: The proceedings from a public forum (pp. 53-66). Presented at the annual meeting of the American Educational Research Association, New York.

Dunn, K. (1961). Do you know why teachers resign? Overview, 2, 32.

Dussault, G. (1970). A theory of supervision in teacher education. New York: Teachers College Press, Columbia University.

Dworkin, A. (1980). The changing demography of public school teachers: Some implications for faculty turnover in urban areas. Sociology of Education, 53, 65-73.

Elliot, P., & Steinkellner, L. (1979). Weaknesses in inservice and preservice teacher training. The Clearinghouse, 52, 421-423.

Engelking, J. L. (1986). Teacher job satisfaction and dissatisfaction. ERS Spectrum, 4(1), 33-38.

Erickson, E., Jacobs, W., & Robin, S. (1968). Teacher mobility, teacher dropout, and the expectations of family and friends (Project No. 6-8968). Washington, DC: Health, Education, and Welfare. (ERIC ED 021 785)

Feistritzer, C. E. (1984). The making of a teacher. A report on teacher education and certification. Washington, DC: National Center for Education Information.

Feldvebel, A. M. (1968). Teacher satisfaction. The Clearing House, 43, 44-48.

Festinger, L. (1957). A theory of cognitive dissonance. Stanford, CA: Stanford University Press.

Fetters, W. B., Collins, E. F., & Smith, J. W. (1968, March 12). Characteristics differentiating under- and overachieving elementary schools (Technical Note No. 63). Washington, DC: Division of Data Analysis and Dissemination, National Center for Education Statistics. (ERIC ED 021 318)

Fletcher, R. K., Jr., & Dotson, J. R. (1976, October). Attitudinal changes pre-to-post on the evaluation of program requirement prerequisites to the student teaching experience. Paper presented at the Southeast Regional Meeting of the Association of Teacher Educators, Mobile, Alabama.

Fuller, F. F., & Bown, O. H. (1975). Becoming a teacher. In K. Ryan (Ed.), Teacher education (Seventy-fourth Yearbook of the National Society for the Study of Education). Chicago: University of Chicago Press.

Gaede, O. F. (1978). Reality shock: A problem among first-year teachers. The Clearing House, 51, 405-409.

Gallup, A. (1984). The Gallup Poll of teachers' attitudes toward the public schools. Phi Delta Kappan, 66(2), 97-107.

Gallup, G. H. (1983). The 15th annual Gallup Poll of the public's attitudes toward the public schools. Phi Delta Kappan, 65(1), 33-47.

Gallup, G. H. (1984). The 16th annual Gallup Poll of the public's attitudes toward the public schools. Phi Delta Kappan, 66(1), 23-38.

Garde, O. (1978). Reality shock: A problem among first year teachers. The Clearing House, 51, 405, 409.

Gideonse, H. D. (1984). State education policy in transition: Teacher education. Phi Delta Kappan, 66(3), 205-208.

Glassman, N. S., & Biniaminov, I. (1981, Winter). Input-output analyses of schools. Review of Educational Research, 51, 509-539.

Goodlad, J. I. (1984). A place called school. New York: McGraw-Hill Book Company.

Goodlove, J. A. (1980, Spring). Teachers wanted! Iowa's teacher shortage: Schools and industry compete. Professional Educator, 4, 7-8.

Gosnell, J. W. (1977). The relationship between work experience and occupational aspiration and attrition from teaching. The Clearing House, 51, 176-179.

Greenberg, D. H., & McCall, J. (1973). Theories of teacher mobility. Santa Monica, CA: Rand Corporation. (ERIC ED 088 848)

Greenfield, W. D. (1982). Career dynamics of educators: Research and policy issues. Paper presented at the annual meeting of the American Educational Research Association, New York City, NY.

Griffin, G. A. (1982, March). Induction--An overview. Beginning teacher induction--Five dilemmas: The proceedings from a public forum (pp. 5-14). Presented at the annual meeting of the American Educational Research Association, New York.

Gupta, N. (1979). Some school and classroom antecedents of student achievement. Austin, TX: Regional Planning Council, Southwest Regional Development Laboratory.

Guthrid, J. W., & Zusman, A. (1982). Teacher supply and demand in mathematics and science. Phi Delta Kappan, 64(1), 28-32.

Gysbers, N. C. (1984). Major trends in career development theory and practice. Vocational Guidance Quarterly, 33(1), 15-25.

Hakel, M. D., Hollmann, T. D., & Dunnette, M. D. (1968). Stability and change in the social status of occupations over 21 and 42 year periods. Personnel and Guidance Journal, 46(8), 762-764.

Harmon, L. W., & Farmer, H. S. (1983). Current theoretical issues in vocational psychology. In W. B. Walsh & S. H. Osipow (Eds.), Handbook of Vocational Psychology: Volume 1 Foundations (pp. 39-77). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Harris, L. (1979, February 15). Most recommend a profession for young person starting out. ABC News Harris Survey.

Harris, L. & Associates, Inc. (1985). The Metropolitan Life survey of former teachers in America. New York: Metropolitan Life Insurance Company.

Hays, W. L. (1982). Satisfaction with the student teaching experience: A multiple regression approach. (ERIC ED 223 571)

Heffley, R. C. (1983). Factors affecting teacher turnover in Kansas. Unpublished doctoral dissertation, University of Kansas, Lawrence, Kansas.

Herman, R. W. (1978). Now inevitable: A substantial and lengthy teacher shortage. Phi Delta Kappan, 59(10), 693.

Hilton, T. L., Levin, H., & Leiderman, G. F. (1957). Studies of teacher behavior. Journal of Experimental Education, 26, 81-96.

Hodge, K. W., Siegel, P. M., & Rossi, P. H. (1964). Occupational prestige in the United States, 1925-63. American Journal of Sociology, 70(3), 290-293.

Holdaway, E. A. (1978). Facet and overall satisfaction of teachers. Educational Administration Quarterly, 14(1), 30-47.

Holland, J. L. (1973). Making vocational choices: A theory of careers. Englewood Cliffs, NJ: Prentice-Hall.

Holland, J. L. (1983). Vocational preferences. In M. D. Dunnette (Ed.), Handbook of Industrial and Organizational Psychology (pp. 521-570). New York: John Wiley and Sons.

Holland, J. L., & Gottfredson, G. D. (1976). Using a typology of persons and environments to explain careers: Some extensions and clarifications. The Counseling Psychologist, 6(3), 20-29.

Howe, T. G., & Gerlovich, J. A. (1981). National study of the estimated supply and demand of secondary science and math teachers. Iowa City, IA: University of Iowa, Science Education Center.

Hoy, W. K., & Miskel, C. G. (1978). Educational administration: Theory, research, and practice (2nd ed.). New York: Random House, Inc.

Isaacson, L. E. (1978). Career information in counseling and teaching (3rd ed.). Boston, MA: Allyn and Bacon, Inc.

Kane, P. R. (1984, April). A teacher institute for beginning teachers. Paper presented at the meeting of the American Educational Research Association, New Orleans, LA.

Katzman, M. T. (1971). The political economy of urban schools. Cambridge, MA: Harvard University Press.

Keith, P. M., Warren, R. D., & Dilts, H. E. (1983). Teacher education graduates. Sex, career plans, and preferences for job factors. Urban Education, 18(3), 361-375.

Klecka, W. R. (1980). Discriminant analysis. Series: Quantitative Applications in the Social Sciences (No. 07-019). Beverly Hills, CA: Sage Publications.

Kominski, R. (1975). Discriminant analysis: An introduction. Unpublished manuscript.

Krumboltz, J. (1979). A social learning theory of career decision making. In A. M. Mitchell, G. B. Jones, & J. D. Krumboltz (Eds.), Social Learning and Career Decision Making (pp. 19-49). Cranston, RI: Carroll.

Krumboltz, J. D., Mitchell, A. M., & Jones, G. B. (1976). A social learning theory of career selection. The Counseling Psychologist, 6(1), 71-81.

Lambert, S. M. (1956). Beginning teachers and their education. Journal of Teacher Education, 7, 347-351.

Levin, H. (1970). A new model of school effectiveness. In A. Mood (Ed.), Do teachers make a difference? Washington, DC: U.S. Government Printing Office.

Lieberman, A., & Miller, L. (1984). Teachers, their world, and their work. Alexandria, VA: Association for Supervision and Curriculum Development.

Little, J. W. (1984). Organizing for quality: Good teaching and good teachers. Journal of Children in Contemporary Society, 16(3-4), 71-84.

Lortie, D. C. (1975). Schoolteacher: A sociological study. Chicago: University of Chicago Press.

Lowther, M. A., Gill, S. G., & Coppard, L. C. (1981). Worklife issues of teachers and other professionals. In R. Hill, E. Nuller, & M. Lowther (Eds.), Adult career transitions. Current research perspectives (pp. 79-186). Ann Arbor: University of Michigan, Division of Research, Graduate School of Business Administration. (Michigan Business Papers #66).

Mark, J. H., & Anderson, B. D. (1978). Teacher survival rates--a current look. American Educational Research Journal, 15(3), 379-383.

McCormick, E. J., & Ilgen, D. R. (1980). Industrial Psychology (7th ed.). Englewood Cliffs, NJ: Prentice-Hall.

McLaughlin, M. W., Pheifer, R. S., Swanson-Owens, D., & Yee, S. (1986). Why teachers won't teach. Phi Delta Kappan, 67(6), 420-426.

Miller, H. E., & Terborg, J. R. (1979). Job attitudes of parttime and fulltime employees. Journal of Applied Psychology, 64, 380-386.

Mobley, W. H. (1977). Intermediate linkages in the relationship between job satisfaction and employee turnover. Journal of Applied Psychology, 62, 237-240.

Mobley, W. H., Horner, S. O., & Hollingsworth, A. T. (1978). An evaluation of precursors of hospital employee turnover. Journal of Applied Psychology, 63, 408-414.

Moracco, J. C., et al. (1983). Comparison of perceived occupational stress between teachers who are contented and discontented in their career choices. Vocational Guidance Quarterly, 32(1), 44-51.

Muchinsky, P. M. (1983). Psychology applied to work: An introduction to industrial and organizational psychology. Homewood, IL: The Dorsey Press.

Mueller, D. (1976). Where the graduates are. St. Louis: Harris Teachers College. (ERIC ED 115 631)

Murphy, J. F. (1982). Why teachers drop out. Illinois Schools Journal, 61(1-4), 35-41.

Musemeche, R., & Adams, S. (1978). The coming teacher shortage. Phi Delta Kappan, 59(10), 691-693.

Napier, R. W., & Gershenfeld, M. K. (1981). Groups Theory and Experience (2nd edition). Boston, MA: Houghton Mifflin Company.

National Education Association. (1960). Some whys and wherefores of teacher turnover. Research Memo, 8, 24.

National Education Association. (1980). Teacher opinion poll: Job satisfaction. Today's Education, 69(4), 8.

National Education Association. (1981). Teacher supply and demand in public schools, 1980-81. Washington, DC: Author.

National Commission on Excellence in Education. (1983). A nation at risk. (Stock No. 065-000-00177-2). Washington, DC: U.S. Government Printing Office.

Nelson, F. H. (1985). New perspectives on the teacher quality debate: Empirical evidence from the national longitudinal survey. Journal of Educational Research, 78(3), 133-140.

Neuman, K. (1980). Stages in an unstaged occupation. Educational Leadership, 37(6), 514-516.

Oaklander, H. (1969). Some unanticipated effects of advanced education on a critical professional manpower resource, the inservice teacher. Unpublished doctoral dissertation, Columbia University. (ERIC ED 044 350)

Osipow, S. H. (1983). Theories of career development (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall, Inc.

Page, F. M., & Page, J. A. (1982). Perceptions of teaching that may be influencing current shortages of teachers. College Student Journal, 16(4), 308-311.

Page, J., Page, F., & Million, S. (1983, April). Teacher education curricula: Perceptions of first-year teachers. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada. (ERIC ED 229 364)

Pavalko, R. (1965). Aspirants to teaching: Some differences between high school boys and girls planning on a career. Sociology and School Research, 50, 47-62.

Pavalko, R. (1970). Recruitment to teaching: Patterns of selection and retention. Sociology of Education, 43, 340-353.

Phillips, B. N., & Lee, M. (1980). The changing role of the American teacher: Current and future sources of stress. In C. L. Cooper & J. Marshall (Eds.), White collar and professional stress (pp. 93-111). London: John Wiley.

Pigge, F. L. (1985). Teacher education graduates: Comparisons of those who teach and do not teach. Journal of Teacher Education, 36(4), 27-28.

Pollack, S. (1979). Alternative careers for teachers. Harvard, MA: The Harvard Common Press, Inc.

Research Institute for Studies in Education. (1985). Profile V: Teacher education students (RISE Research Report No. 13). Ames, IA: Iowa State University.

Rhodes, S. R., & Doering, M. (1983). An integrated model of career change. Academy of Management Review, 8(4), 631-639.

Robbins, J. H. (1975). A summary of selected major studies which associate input and process variables with various measures of school quality as output. (ERIC ED 114 954)

Roberson, S. D., Keith, T. Z., & Page, E. B. (1983). Now who aspires to teach? Educational Researcher, 12(6), 13-21.

Rosenberg, M. (1957). Occupations and values. Glencoe, IL: Free Press.

Roth, R. A. (1981). Teacher supply and demand: A model for data collection and quotas for student teachers. Phi Delta Kappan, 63(2), 120-121.

Rotter, J. B. (1982). The development and application of social learning theory. Selected papers. New York: Praeger Publishers.

Rutter, M., Maughan, B., Mortimore, P., & Ouston, J. (1979). Fifteen thousand hours. Secondary schools and their effects on children. Cambridge, MA: Harvard University Press.

Ryan, K., Applegate, J., Flora, V., Jr., Johnston, J., Lasley, T., Mager, G., & Newman, K. (1979). "My teacher education program...": First year teachers reflect and react. Peabody Journal of Education, 56, 267-271.

Salzillo, F., & Van Fleet, A. (1977). Student teaching and teacher education: A sociological model for change. Journal of Teacher Education, 28(1), 27-31.

Scarpello, V., & Campbell, J. P. (1983). Job satisfaction: Are all the parts there? Personnel Psychology, 36(3), 577-600.

Schalock, D. (1983). Methodological considerations in future research and development in teacher education. In K. P. Howey & W. E. Gardner (Eds.), The Education of Teachers: A Look Ahead (pp. 38-73). New York: Longman.

Schlechty, P. C., & Vance, S. V. (1981). Do academically able teachers leave education? The North Carolina case. Phi Delta Kappan, 63, 106-112.

Sergiovanni, T. (1966). Satisfaction and dissatisfaction of teachers (Final Report No. BR-5-8394). Urbana, IL: University of Illinois. (ERIC ED 011 089)

Silverman, M. J. (1957). Principals--What are you doing to teacher morale? Educational Administration and Supervision, 43, 204-210.

Super, D. E. (1957). The psychology of careers. New York: Harper & Row.

Super, D. E. (1980). A life-span, life-space approach to career development. Journal of Vocational Behavior, 16, 282-298.

Super, D. E. (1983). The history and development of vocational psychology: A personal perspective. In W. B. Walsh & S. H. Osipow (Eds.), Handbook of Vocational Psychology. Volume 1. Foundations (pp. 5-37). Hillsdale, NJ: Lawrence Erlbaum Associates.

Super, D. E., & Hall, D. T. (1978). Career development: Exploration and planning. Annual Review of Psychology, 29, 333-372.

Sweeney, J. D. (1984). Perceived adequacy of new teachers in Iowa. Oakdale, IA: The University of Iowa, The Institute of Urban and Regional Research.

Sweeney, J. E. (1980). Principals versus teachers: Where will we bury the victims? Clearing House, 53, 309-311.

Sweeney, J. E. (1981a). Professional discretion and teacher satisfaction. The High School Journal, 65(1), 1-7.

Sweeney, J. E. (1981b). Teacher dissatisfaction on the rise: Higher level needs unfulfilled. Education, 102(2), 203-207.

Taylor, J. K., & Dale, I. R. (1971). A survey of teachers in their first year of service. Bristol: University of Bristol, Institute of Education.

Teacher opinion poll: Job satisfaction. (1980). Today's Education, 69(4), 8.

Thompson, A. D., Warren, R. D., Dilts, H. E., & Blaustein, M. H. (1983, April). First year job characteristics of teacher education graduates: Occupational realities vs. expectations. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Thorndike, R. L., & Hagen, E. (1960). Characteristics of men who remained in and who left teaching. New York, NY: Columbia University. (ERIC ED 159 132)

Tinsely, H. E., & Heesacker, M. (1984). Vocational behavior and career development, 1983: A review. Journal of Vocational Behavior, 25(2), 139-190.

Turk, D. C., & Litt, M. D. (1982, June). Stress, dissatisfaction, and intention to leave teaching among experienced Connecticut high school teachers. Hartford, CT: Connecticut Department of Education.

Urban teachers report more stress. (1980). The Interstate for Education Compact, 14(1), 1-4.

Vance, V. S., & Schlechty, P. C. (1982). The distribution of academic ability in the teaching force: Policy implications. Phi Delta Kappan, 64(1), 22-27.

Veenman, S. (1984). Perceived problems of beginning teachers. Review of Educational Research, 54(2), 143-178.

Villeme, M. G., & Hall, B. (1980). Preservice grades don't predict career success in teaching. Phi Delta Kappan, 62(2), 145.

Villeme, M. G., & Hall, B. (Winter, 1983-84). Higher ability education graduates: Do they enter and plan to stay in teaching? The Teacher Educator, 19(3), 11-15.

Walsh, D. (1979). Classroom stress and teacher burnout. Phi Delta Kappan, 61, 253.

Wanberg, E. G., Metzger, D. J., & Levitov, J. E. (1982). Working conditions and career options lead to female elementary teacher job dissatisfaction. Journal of Teacher Education, 33(5), 37-40.

Weaver, W. T. (1977). Educators in supply and demand: Effects on quality. Paper presented at the meeting of the American Educational Research Association, New York, NY. (ERIC ED 143 145)

Weaver, W. T. (1984). Solving the problem of teacher quality, part 1. Phi Delta Kappan, 66(2), 108-115.

Whitener, J. E. (1965). An actuarial approach to teacher turnover. Dissertation Abstracts, 26, 4412.

Williams, M. A. (1985). A prediction of student teaching satisfaction of the Iowa State teacher education graduates using a combination of selected variables. Unpublished doctoral dissertation, Iowa State University, Ames, IA.

Wolf, W., & Wolf, W. C. (1964). Teacher dropouts: Still a dilemma. School and Society, 92, 193-194.

Wood, C. L. (1968). The principal and faculty morale. Journal of Secondary Education, 43, 353-358.

Yankelovich, D. (1981). New rules. New York: Random House.

Zaccaria, J. S. (1970). Theories of occupational choice and vocational development. Boston, MA: Houghton Mifflin Company.

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APPENDIX A.

SURVEY INSTRUMENTS AND COVER LETTERS

Iowa State University *of Science and Technology* *Ames, Iowa 50011*

Research Institute for Studies in Education
College of Education
The Quadrangle
Telephone 515-294-7009

April 7, 1986

Dear Teacher Education Graduate:

Congratulations on completing your program in teacher preparation at Iowa State University!

We hope that your teaching and learning experiences in the program have been rewarding and have provided the basis for continuing professional and personal development. We appreciate your participation in the program and the contributions you have made through course work and other activities to the total program.

We need your opinions and observations to assist in improving present programs and developing new programs. Your voluntary participation in evaluating the programs at Iowa State University in terms of quality, effectiveness and adequacy is requested. You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes and data analysis. Your name will not be placed on the questionnaire. The information provided will be analyzed in terms of group summarizations.

Return postage on the questionnaire has been prepaid, so you need only to drop the completed questionnaire in a mailbox.

If you have questions about this study, please contact the Office of Research Institute for Studies in Education, or call 515-294-7009.

Thank you for your assistance in completing the questionnaire which provides us with your insights about program strengths and weaknesses.

We wish you success in all your future activities.

Sincerely,

Virgil S. Lagomarcino
Dean

Richard D. Warren, Director
Research Institute for Studies
in Education

Enclosure

FIRST, we would like information about your teacher preparation program.

1. How long did you student teach? (check one).

   ___ 8 weeks or less

   ___ 12 weeks

   ___ 16 weeks

   ___ Other (Please specify ---> _____).

2. Based on the length of your student teaching experience, should student teaching have been longer or shorter?

   How many weeks?

   ___ Longer ---> _____

   ___ Shorter ---> _____

   ___ About right

3. At what level did you student teach?

   ___ Preschool/Kindergarten (N-K)

   ___ Elementary (K-6)

   ___ Secondary (7-12)

   ___ K-12

4. In what teaching area(s) of specialization do you expect to get teaching approval?

   (a) Preschool/Kindergarten Level
   ___ Preschool/Kindergarten ___ Other (Specify _____)

   (b) Elementary Level
   ___ Elementary ___ Other (Specify _____)

   (c) K-12 Level
   ___ Art ___ Health ___ Music ___ P.E.

   (d) Secondary Level

___ Agriculture	___ Health	___ Physical Science
___ Art	___ Home Economics	___ Physics
___ Biology	___ Industrial Arts	___ Psychology
___ Chemistry	___ Journalism	___ Safety Education
___ Earth Science	___ Mathematics	___ Social Science
___ English	___ Music	___ Speech
___ Foreign Language	___ Physical Education	___ Other (Specify)
___ General Science		

If you checked more than one, what is your major area? _____

5. Using the rating scale below indicate how satisfied you were with aspects of your student teaching experience.

Very Satisfied. . . . 5
Satisfied 4
Neutral 3
Dissatisfied. 2
Very Dissatisfied . . 1

		Please circle your response				
a.	Getting your choice of geographical location for your student teaching assignment.	5	4	3	2	1
b.	Your cooperating teacher.	5	4	3	2	1
c.	Your university supervisor.	5	4	3	2	1
d.	Based on your student teaching experience, what is your reaction to teaching as a career for you?	5	4	3	2	1

6. At what age did you decide to become a teacher? _____ years old.

7. If you had it to do over again, would you prepare to become a teacher?

___ Yes

___ No

___ Undecided

8. Do you feel you will be ...

___ ... an excellent teacher?

___ ... a better than average teacher?

___ ... an average teacher?

___ ... a below average teacher?

___ ... an inadequate teacher?

9. How would you rate on a scale of 0 to 10 the quality of the Teacher Preparation Program at Iowa State University? (Please circle the appropriate number.)

Very Poor 0 1 2 3 4 5 6 7 8 9 10 Very High

10. In what ways did the program provide the most valuable professional preparation for you?

(1) _____

(2) _____

(3) _____

11. In what ways should the program have offered more preparation?

(1) _____

(2) _____

(3) _____

12a. Please indicate how adequate your professional education preparation program was in the following areas. Use the following response categories.

Very Adequate . . . 5
Adequate. 4
Neutral 3
Inadequate. 2
Very Inadequate . . 1
Not Applicable. . . N

Please circle your response

1)	Planning units of instruction and individual lessons.	5	4	3	2	1	N
2)	Preparing and using media.	5	4	3	2	1	N
3)	Maintaining student interest	5	4	3	2	1	N
4)	Understanding and managing behavior problems in the classroom.	5	4	3	2	1	N
5)	Teaching basic skills.	5	4	3	2	1	N
6)	Consultation skills in interacting with other professionals.	5	4	3	2	1	N
7)	Developing student-student relationships . . .	5	4	3	2	1	N
8)	Referring students for special assistance. . .	5	4	3	2	1	N
9)	Skills for mainstreaming handicapped students.	5	4	3	2	1	N
10)	Methods of working with children with learning problems	5	4	3	2	1	N
11)	Assessing learning problems.	5	4	3	2	1	N
12)	Developing tests	5	4	3	2	1	N
13)	Interpreting and using standardized tests. . .	5	4	3	2	1	N
14)	Content preparation in your area of specialization	5	4	3	2	1	N
15)	Professional ethics and legal obligations. . .	5	4	3	2	1	N
16)	Psychology of learning and its application to teaching.	5	4	3	2	1	N
17)	Evaluating and reporting student work and achievement	5	4	3	2	1	N
18)	Relating activities to interests and abilities of students	5	4	3	2	1	N

Very Adequate . . . 5
Adequate. 4
Neutral 3
Inadequate. 2
Very Inadequate . . 1
Not Applicable. . . N

Please circle your response

19)	Locating and using materials and resources in your specialty area	5	4	3	2	1	N
20)	Evaluating your own instruction	5	4	3	2	1	N
21)	Individualizing instruction.	5	4	3	2	1	N
22)	Selecting and organizing materials	5	4	3	2	1	N
23)	Using a variety of instructional techniques. .	5	4	3	2	1	N
24)	Understanding teachers' roles in relation to administrators, supervisors and counselors . .	5	4	3	2	1	N
25)	Working with parents	5	4	3	2	1	N
26)	Working with other teachers.	5	4	3	2	1	N
27)	Assessing and implementing innovations	5	4	3	2	1	N
28)	Appreciating and understanding individual and intergroup differences in values and lifestyles	5	4	3	2	1	N
29)	Using community resources.	5	4	3	2	1	N
30)	Techniques of curriculum construction.	5	4	3	2	1	N
31)	Influence of laws and policies related to schools	5	4	3	2	1	N
32)	Techniques of infusing multicultural learning	5	4	3	2	1	N
33)	Using written communication effectively.	5	4	3	2	1	N

12b. In rank order (1 highest rank) please list from the above items the corresponding numbers for the three areas of preparation with highest adequacy.

	1	2	3
Adequacy of Preparation	___	___	___

13. What are your employment plans for the 1986/87 school year?

___ Have obtained a teaching position for 1986/87 school year.

___ Currently seeking or plan to seek a teaching position.

___ Currently seeking or plan to seek a non-teaching position.

___ Graduate study (Please specify area ---> _____).

___ Other (Please specify ---> _____).

14. What is your long-range career plan? (Please check the most appropriate response. Check only one.)

___ Teaching ---> **skip to Q. 16**

___ Employment in education other than teaching ---> **skip to Q. 16**

Please specify ---> _____

___ Employment outside the field of education ---> **please answer Q. 15**

Please specify ---> _____

_____

___ Other ---> **please answer Q. 15**

Please specify ---> _____

_____

15. **(Non-teaching)** Why do you plan not to enter the field of education? Check as many as apply.

___ Lack of teaching positions available.

___ Greater career opportunities in nonacademic jobs.

___ Higher salaries and benefits in nonacademic jobs.

___ Marriage/family obligations.

___ Had not planned to enter education.

___ Decided not to work in education because of experiences in student teaching.

___ Other (Please specify ---> _____).

16. **(All respondents)** How important is it that a job provide you with the following characteristics? Please circle one number for each characteristic. Use the following response categories.

Very Important . . . 5
Important. 4
Neutral. 3
Unimportant. 2
Very Unimportant . . 1

		Please circle your response				
a.	Opportunity to be creative and original. . .	5	4	3	2	1
b.	Opportunity to use special abilities or aptitudes.	5	4	3	2	1
c.	Opportunity to work with people rather than things.	5	4	3	2	1
d.	Opportunity to earn a good deal of money . .	5	4	3	2	1
e.	Social status and prestige	5	4	3	2	1
f.	Opportunity to effect social change.	5	4	3	2	1
g.	Relative freedom from supervision by others.	5	4	3	2	1
h.	Opportunity for advancement.	5	4	3	2	1
i.	Opportunity to exercise leadership	5	4	3	2	1
j.	Opportunity to help and serve others	5	4	3	2	1
k.	Adventure.	5	4	3	2	1
l.	Opportunity for a relatively stable and secure future.	5	4	3	2	1
m.	Fringe benefits (health care, retirement benefits).	5	4	3	2	1
n.	Variety in the work.	5	4	3	2	1
o.	Responsibility	5	4	3	2	1
p.	Control over what I do	5	4	3	2	1
q.	Control over what others do.	5	4	3	2	1
r.	Challenge.	5	4	3	2	1

17a. During your academic program at Iowa State University, have you done any work with computers or had training with applications of computers to teaching?

___ No --->go to Q. 18

___ Yes ---> please answer parts b through d

b. If yes, please check all experiences that apply.

___ 1. Introductory lecture(s)/demonstrations on computers and educational applications

___ 2. Viewing available Computer Assisted Instruction (CAI) materials

___ 3. Selecting and evaluating Computer Assisted Instruction (CAI) materials

___ 4. Using computers to manage instruction (grades, attendance, etc.)

___ 5. Entire course(s) in educational computing or computer science

___ 6. Word processing

___ 7. Computer programming

___ 8. Using microcomputers (Apples, Pets, etc.)

___ 9. Using minicomputers (VAX)

___ 10. Using mainframe computers through terminal and batch processing

___ 11. Other (Please specify ---> _____).

Please specify courses in which you have had the experiences checked above.

_____

_____

c. Please list courses (if any) where a portion of the course content was taught using Computer Assisted Instruction (CAI) _____

_____.

d. Please estimate time spent on in classroom computer activities while at ISU.

_____ hours (total number)

Please estimate time spent on outside classroom computer activities (including work assignments and preparation) while at ISU.

_____ hours (total number)

NOW we would like to ask you some general questions about yourself and your family.

18. Up to the present, where have you spent the majority of your life?
___ ... on a farm?
___ ... in a non-farm country home?
___ ... in a town with population less than 2,500?
___ ... in a town with population between 2,500 and 5,000?
___ ... in a town with population between 5,000 and 10,000?
___ ... in a town with population between 10,000 and 25,000?
___ ... in a town with population between 25,000 and 50,000?
___ ... in a city with population between 50,000 and 100,000?
___ ... in a city with population over 100,000?

19. Sex
___ Female
___ Male

20. Marital status
___ Single
___ Married, no children
___ Married, one or more children
___ Other

21. What was your father's occupation most of the time while you were living at home? Please be specific.

_____

22. What was your mother's occupation most of the time while you were living at home? Please be specific.

_____

23. Please think about the best elementary or secondary teacher you know or have known. What were the characteristics that made that teacher outstanding?

(1)_____

(2)_____

(3)_____

The College of Education and the Research Institute for Studies in Education appreciate the time you have taken to complete this questionnaire.

Postage for the questionnaire is prepaid, so all you need do is tape it and drop it in a mailbox.

Iowa State University of Science and Technology Ames, Iowa 50011

Research Institute for Studies in Education
College of Education
The Quadrangle
Telephone 515-294-7009

March 17, 1986

Dear Teacher Education Graduate:

In an effort to improve and update the current Teacher Preparation Program at Iowa State University, we are seeking information from you about the program and your activities since graduation. We need your opinions, observations, and employment history in order to modify our current program and to develop new programs.

Many of you participated in a similar evaluation project last year at the time of your graduation. We now seek updated information from you after your year's experiences since graduating from Iowa State. In order to ensure that the results are representative of Iowa State graduates with one year of experience, it is important that each questionnaire is completed and returned. Your voluntary participation in this phase of our study would be appreciated.

We ask that you complete the enclosed questionnaire and place it in a mailbox (no stamp required).

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing and matching purposes. Your name will not be placed on the questionnaire. The information provided will be analyzed and reported in terms of group summarizations, not individual responses.

We thank you in advance for your cooperation in completing the questionnaire and for your continuing role in helping to shape and improve the Teacher Preparation Program at Iowa State University.

We wish you success in all your future activities.

Sincerely,

Virgil S. Lagomarcino

Virgil S. Lagomarcino, Dean
College of Education

Richard D. Warren

Richard D. Warren, Director
Research Institute for Studies in Education

RDW:ss
Enclosure

FIRST, we would like to ask you questions about your current employment.

1. What is your current employment situation?

___ Teaching ---> Please answer PART A, then skip to page 2, PART C.

___ Nonteaching ---> Please skip to PART B, page 2.

PART A (Teaching)

(a) What level do you teach?

___ Preschool/Kindergarten

___ Elementary (Grades 1-6)

___ Secondary (Grades 7-12)

___ K-12

(b) Are you teaching ...

___ ... Full time?

___ ... Part time?

___ ... Substitute?

___ ... Other?

(c) At the present, what subject area(s) do you teach? _____

_____

(d) What are your plans for next year?

___ Remain in same position.

___ Seek similar position in different school.

___ Accepted similar position in different school.

___ Employment in education other than teaching.

Please specify----->_____

___ Employment outside education

Please specify----->_____

PART B (Nonteaching)

(a) What is your current occupation?

_____

(b) What are your reasons for not teaching? Check as many as apply.

___ Graduate study. (Please specify area _____).

___ Could not find a teaching position in location I wanted.

___ Could not find a teaching position anywhere.

___ Better salaries in nonacademic jobs.

___ Marriage/family obligations.

___ Had not planned to teach.

___ Decided not to teach because of experiences in student teaching/teacher preparation.

___ Other. (Please specify _____).

(c) What are your employment plans for next year?

___ Have obtained a teaching position for next year.

___ Currently seeking or plan to seek a teaching position.

___ Do not plan to teach.

PART C (Teaching and Nonteaching)

(a) Please describe your long range career plan.

_____

_____

_____

_____

NOW, we would like information about your Teacher Preparation Program.

2. Based on the length of your student teaching experience, should student teaching have been longer or shorter?

	How many additional weeks?	How many fewer weeks?	Total suggested weeks
___ Longer --->	_____	xxxxxxxxxx	_____
___ Shorter --->	xxxxxxxxxx	_____	_____
___ About right	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx

3. At what level did you student teach?

___ Preschool/Kindergarten (N-K)

___ Elementary (K-6)

___ Secondary (7-12)

___ K-12

4. In what teaching area of specialization(s) do you have teaching approval?

(a) Preschool/Kindergarten Level
___ Preschool/Kindergarten ___ Other (Specify _____.)

(b) Elementary Level
___ Elementary ___ Other (Specify _____.)

(c) K-12 Level
___ Art ___ Health ___ Music ___ P.E. ___ Other (Specify _____.)

(d) Secondary Level

___ Agriculture	___ Health	___ Physical Science
___ Art	___ Home Economics	___ Physics
___ Biology	___ Industrial Arts	___ Psychology
___ Chemistry	___ Journalism	___ Safety Education
___ Earth Science	___ Mathematics	___ Social Science
___ English	___ Music	___ Speech
___ Foreign Language	___ Physical Education	___ Other (Specify_____.)
___ General Science		

If you checked more than one, which is your major area? _____

If you indicated that you are currently employed in a teaching or non-teaching position, please answer Q. 5 - Q. 9. If you are not currently employed, skip to Q. 10 on page 8.

5a. We would like you to rate your Teacher Preparation Program in specific areas: first, rate the adequacy of preparation; second, indicate how important the area is to your present position.

	Very Adequate. . 5 Adequate . . . . 4 Neutral. . . . . 3 Inadequate . . . 2 Very Inadequate. 1 Not Applicable . N						Very Important . 5 Important. . . . 4 Neutral. . . . . 3 Unimportant. . . 2 Very Unimportant 1 Not Applicable . N					
1) Planning units of instruction and individual lessons	5	4	3	2	1	N	5	4	3	2	1	N
2) Preparing and using media. . . .	5	4	3	2	1	N	5	4	3	2	1	N
3) Maintaining student interest . .	5	4	3	2	1	N	5	4	3	2	1	N
4) Understanding and managing behavior problems in the classroom	5	4	3	2	1	N	5	4	3	2	1	N
5) Teaching basic skills.	5	4	3	2	1	N	5	4	3	2	1	N
6) Consultation skills in interacting with other professionals.	5	4	3	2	1	N	5	4	3	2	1	N
7) Developing student-student relationships.	5	4	3	2	1	N	5	4	3	2	1	N
8) Referring students for special assistance	5	4	3	2	1	N	5	4	3	2	1	N
9) Skills for mainstreaming handicapped students.	5	4	3	2	1	N	5	4	3	2	1	N
10) Methods of working with children with learning problems	5	4	3	2	1	N	5	4	3	2	1	N
11) Assessing learning problems. . .	5	4	3	2	1	N	5	4	3	2	1	N
12) Developing tests	5	4	3	2	1	N	5	4	3	2	1	N
13) Interpreting and using standardized tests	5	4	3	2	1	N	5	4	3	2	1	N
14) Content preparation in your area of specialization	5	4	3	2	1	N	5	4	3	2	1	N
15) Professional ethics and legal obligations.	5	4	3	2	1	N	5	4	3	2	1	N
16) Psychology of learning and its application to teaching. . .	5	4	3	2	1	N	5	4	3	2	1	N
17) Evaluating and reporting student work and achievement	5	4	3	2	1	N	5	4	3	2	1	N

		ADEQUACY						IMPORTANCE					
18)	Relating activities to interests and abilities of students. . . .	5	4	3	2	1	N	5	4	3	2	1	N
19)	Using written communication effectively.	5	4	3	2	1	N	5	4	3	2	1	N
20)	Locating and using materials and resources in your specialty area	5	4	3	2	1	N	5	4	3	2	1	N
21)	Evaluating your own instruction.	5	4	3	2	1	N	5	4	3	2	1	N
22)	Individualizing instruction. . .	5	4	3	2	1	N	5	4	3	2	1	N
23)	Selecting and organizing materials.	5	4	3	2	1	N	5	4	3	2	1	N
24)	Using a variety of instructional techniques	5	4	3	2	1	N	5	4	3	2	1	N
25)	Understanding teachers' roles in relation to administrators, supervisors, and counselors. . .	5	4	3	2	1	N	5	4	3	2	1	N
26)	Working with parents	5	4	3	2	1	N	5	4	3	2	1	N
27)	Working with other teachers. . .	5	4	3	2	1	N	5	4	3	2	1	N
28)	Assessing and implementing innovations.	5	4	3	2	1	N	5	4	3	2	1	N
29)	Appreciating and understanding individual and intergroup differences in values and lifestyles	5	4	3	2	1	N	5	4	3	2	1	N
30)	Using community resources. . . .	5	4	3	2	1	N	5	4	3	2	1	N
31)	Techniques of curriculum construction	5	4	3	2	1	N	5	4	3	2	1	N
32)	Influence of laws and policies related to schools	5	4	3	2	1	N	5	4	3	2	1	N
33)	Techniques for infusing multicultural learning	5	4	3	2	1	N	5	4	3	2	1	N

5b. Using the areas of preparation listed above (numbered from 1 to 33), select three areas in which you feel most adequately prepared. Rank them 1st, 2nd, and 3rd and record the corresponding number below. Do likewise for the three areas with most importance to your present position.

	1st	2nd	3rd
Adequacy of Preparation	___	___	___
Importance to Position	___	___	___

6. How important were each of the following factors in your decision to accept your present position? Please circle one number for each factor. Use the following response categories.

Very Important . . . 5
Important. 4
Neutral. 3
Unimportant. 2
Very Unimportant . . 1
Not Applicable . . . N

		Please circle your response					
a.	Desirable location	5	4	3	2	1	N
b.	Salary offered	5	4	3	2	1	N
c.	Type of position	5	4	3	2	1	N
d.	Size of organization	5	4	3	2	1	N
e.	Reputation of school, firm or organization	5	4	3	2	1	N
f.	Liked people with whom I interviewed . . .	5	4	3	2	1	N
g.	Spouse has a job in the community.	5	4	3	2	1	N
h.	Only job I was offered	5	4	3	2	1	N

7. How would you rate on a scale of 0 to 10 your general satisfaction with your current job?

Very Low Very High

0 1 2 3 4 5 6 7 8 9 10

8. What is the population of the community where you are currently employed?

___ Under 1,000
___ 1,000 - 2,499
___ 2,500 - 4,999
___ 5,000 - 9,999
___ 10,000 - 24,999
___ 25,000 - 50,000
___ Over 50,000

9. To what extent does your present job provide you with the following characteristics? Please circle one number for each characteristic. Use the following response categories.

All of the Time 5
Most of the Time 4
Some of the Time 3
Seldom 2
Never 1

		Please circle your response				
a.	Opportunity to be creative and original. . .	5	4	3	2	1
b.	Opportunity to use special abilities or aptitudes.	5	4	3	2	1
c.	Opportunity to work with people rather than things.	5	4	3	2	1
d.	Opportunity to earn a good deal of money . .	5	4	3	2	1
e.	Social status and prestige	5	4	3	2	1
f.	Opportunity to effect social change.	5	4	3	2	1
g.	Relative freedom from supervision by others.	5	4	3	2	1
h.	Opportunity for advancement.	5	4	3	2	1
i.	Opportunity to exercise leadership	5	4	3	2	1
j.	Opportunity to help and serve others	5	4	3	2	1
k.	Adventure.	5	4	3	2	1
l.	Opportunity for a relatively stable and secure future.	5	4	3	2	1
m.	Fringe benefits (health care, retirement benefits).	5	4	3	2	1
n.	Variety in the work.	5	4	3	2	1
o.	Responsibility	5	4	3	2	1
p.	Control over what I do	5	4	3	2	1
q.	Control over what others do.	5	4	3	2	1
r.	Challenge.	5	4	3	2	1

NOW we would like all respondents to evaluate the Teacher Preparation Program.

10. How would you rate on a scale of 0 to 10 the quality of the Teacher Preparation Program at Iowa State University? Please circle the appropriate number.

Very Poor Very High

0 1 2 3 4 5 6 7 8 9 10

11. In what three ways did the program provide the most valuable professional preparation for you?

(1) _____

(2) _____

(3) _____

12. In what three ways should the program have offered more preparation?

(1) _____

(2) _____

(3) _____

13. If you had it to do over again, would you prepare to become a teacher?

___ Yes

___ No

___ Undecided

14. What program improvements would you suggest for easing the transition from student to first-year teacher?

_____

_____

_____

_____

NOW we would like to ask you some general questions about yourself and your family.

15. Marital status

___ Single (never married)

___ Married

___ Divorced, separated, or widowed

16. Do you have any children?

___ Yes ---> How many? ____

___ No

17. Which of the following categories best describes your total income during last year? (If married, include spouse's income)

___ less than $ 9,999

___ $10,000 to $14,999

___ $15,000 to $19,999

___ $20,000 to $24,999

___ $25,000 to $29,999

___ $30,000 to $49,999

___ $50,000 and over

18. Please think about the best elementary or secondary teacher you have had. What were the characteristics that made that teacher outstanding?

(1)_____

(2)_____

(3)_____

The College of Education and the Research Institute for Studies in Education appreciate the time you have taken to complete this questionnaire.

Postage for the questionnaire is prepaid, so all you need to do is tape it and drop it in a mailbox.

Iowa State University of Science and Technology Ames, Iowa 50011

Research Institute for Studies in Education
College of Education
The Quadrangle
Telephone 515-294-7009

February 10, 1986

Dear Teacher Education Graduate of 1980/1981:

In an effort to improve and update the current Teacher Preparation Program at Iowa State University, we are seeking information from you about the program and your activities since graduation. We need your opinions, observations, and employment history in order to modify our current program and to develop new programs.

Many of you participated in similar evaluation projects five years ago at the time of your graduation and one year after that. We now seek updated information from you about your experiences since graduating from Iowa State. In order to ensure that the results are representative of Iowa State graduates with five years of experience, it is important that each questionnaire is completed and returned. Your voluntary participation in this phase of our study would be appreciated.

We ask that you complete the enclosed questionnaire and place it in a mailbox (no stamp required).

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing and matching purposes. Your name will not be placed on the questionnaire. The information provided will be analyzed and reported in terms of group summarizations, not individual responses.

We thank you in advance for your cooperation in completing the questionnaire and for your continuing role in helping to shape and improve the Teacher Preparation Program at Iowa State University.

We wish you success in all your future activities.

Sincerely,

Virgil S. Lagomarcino

Virgil S. Lagomarcino, Dean

Richard D. Warren

Richard D. Warren, Director
Research Institute for Studies in Education

RDW/pjd
Enc.

FIRST, we would like to ask you questions about your current employment.

1. What is your current employment situation?

___ Teaching ---> Please answer PART A, then skip to page 2, PART C.

___ Nonteaching ---> Please skip to PART B, page 2.

PART A (Teaching)

(a) What level do you teach?

___ Preschool/Kindergarten

___ Elementary (Grades 1-6)

___ Secondary (Grades 7-12)

___ K-12

(b) Are you teaching ...

___ ... Full time?

___ ... Part time?

___ ... Substitute?

___ ... Other?

(c) At the present, what subject area(s) do you teach? _____

_____

(d) What are your plans for next year?

___ Remain in same position.

___ Seek similar position in different school.

___ Accepted similar position in different school.

___ Employment in education other than teaching.

Please specify---->_____

___ Employment outside education

Please specify---->_____

PART B (Nonteaching)

(a) What is your current occupation?

_____

(b) What are your reasons for not teaching? Check as many as apply.

___ Graduate study. (Please specify area _____).

___ Could not find a teaching position in location I wanted.

___ Could not find a teaching position anywhere.

___ Better salaries in nonacademic jobs.

___ Marriage/family obligations.

___ Had not planned to teach.

___ Decided not to teach because of experiences in student teaching/teacher preparation.

(c) What are your employment plans for next year?

___ Have obtained a teaching position for next year.

___ Currently seeking or plan to seek a teaching position.

___ Do not plan to teach.

PART C (All Respondents)

(a) Please list your employment history (jobs) for the last five years, starting with your current position.

DATE (From month/year to month/year)	POSITION (Title)	LOCATION (State or Country)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

(b) Please describe your long range career plan.

_____

_____

_____

ALL RESPONDENTS

2. How would you rate on a scale of 0 to 10 your general satisfaction with your current (most recent*) job?

Very Low Very High

0 1 2 3 4 5 6 7 8 9 10

*Note: If you are currently unemployed, please answer questions 2, 3, and 4 as they pertained to your most recent position.

3. How important were each of the following factors in your decision to accept your most recent position? Please circle one number for each factor. Use the following response categories.

Very Important . . . 5
Important. 4
Neutral. 3
Unimportant. 2
Very Unimportant . . 1
Not Applicable . . . N

		Please circle your response					
a.	Desirable location	5	4	3	2	1	N
b.	Salary offered	5	4	3	2	1	N
c.	Type of position	5	4	3	2	1	N
d.	Size of organization	5	4	3	2	1	N
e.	Reputation of school, firm or organization	5	4	3	2	1	N
f.	Liked people with whom I interviewed . . .	5	4	3	2	1	N
g.	Spouse has a job in the community.	5	4	3	2	1	N
h.	Only job I was offered	5	4	3	2	1	N

4. To what extent does (did) your most recent job provide you with the following characteristics? Please circle one number for each characteristic. Use the following response categories.

All of the Time 5
Most of the Time 4
Some of the Time 3
Seldom 2
Never 1

		Please circle your response				
a.	Opportunity to be creative and original. . .	5	4	3	2	1
b.	Opportunity to use special abilities or aptitudes.	5	4	3	2	1
c.	Opportunity to work with people rather than things.	5	4	3	2	1
d.	Opportunity to earn a good deal of money . .	5	4	3	2	1
e.	Social status and prestige	5	4	3	2	1
f.	Opportunity to effect social change.	5	4	3	2	1
g.	Relative freedom from supervision by others.	5	4	3	2	1
h.	Opportunity for advancement.	5	4	3	2	1
i.	Opportunity to exercise leadership	5	4	3	2	1
j.	Opportunity to help and serve others	5	4	3	2	1
k.	Adventure.	5	4	3	2	1
l.	Opportunity for a relatively stable and secure future.	5	4	3	2	1
m.	Fringe benefits (health care, retirement benefits).	5	4	3	2	1
n.	Variety in the work.	5	4	3	2	1
o.	Responsibility	5	4	3	2	1
p.	Control over what I do	5	4	3	2	1
q.	Control over what others do.	5	4	3	2	1
r.	Challenge.	5	4	3	2	1

NOW we would like you to evaluate the Teacher Preparation Program.

5. How would you rate on a scale of 0 to 10 the quality of the Teacher Preparation Program at Iowa State University? (Please circle the appropriate number.)

Very Poor Very High

0 1 2 3 4 5 6 7 8 9 10

6. In what three ways did the program provide the most valuable professional preparation for you?

(1) _____

(2) _____

(3) _____

7. In what three ways should the program have offered more preparation?

(1) _____

(2) _____

(3) _____

8. If you had it to do over again, would you prepare to become a teacher?

___ Yes

___ No

___ Undecided

9. What program improvements would you suggest for easing the transition from student to first-year teacher?

_____

_____

_____

_____

10. We would like you to rate your Teacher Preparation Program in specific areas: first, rate the adequacy of preparation; second, indicate how important the area is (was) to your most recent position.

	Very Adequate . . 5 Adequate . . . . 4 Neutral . . . . . 3 Inadequate . . . 2 Very Inadequate . 1 Not Applicable . N	Very Important . 5 Important . . . . 4 Neutral . . . . . 3 Unimportant . . . 2 Very Unimportant 1 Not Applicable . N
1) Planning units of instruction and individual lessons	5 4 3 2 1 N	5 4 3 2 1 N
2) Preparing and using media	5 4 3 2 1 N	5 4 3 2 1 N
3) Maintaining student interest . .	5 4 3 2 1 N	5 4 3 2 1 N
4) Understanding and managing behavior problems in the classroom	5 4 3 2 1 N	5 4 3 2 1 N
5) Teaching basic skills	5 4 3 2 1 N	5 4 3 2 1 N
6) Consultation skills in interacting with other professionals.	5 4 3 2 1 N	5 4 3 2 1 N
7) Developing student-student relationships	5 4 3 2 1 N	5 4 3 2 1 N
8) Referring students for special assistance	5 4 3 2 1 N	5 4 3 2 1 N
9) Skills for mainstreaming handicapped students	5 4 3 2 1 N	5 4 3 2 1 N
10) Methods of working with children with learning problems	5 4 3 2 1 N	5 4 3 2 1 N
11) Assessing learning problems . . .	5 4 3 2 1 N	5 4 3 2 1 N
12) Developing tests	5 4 3 2 1 N	5 4 3 2 1 N
13) Interpreting and using standardized tests	5 4 3 2 1 N	5 4 3 2 1 N
14) Content preparation in your area of specialization	5 4 3 2 1 N	5 4 3 2 1 N
15) Professional ethics and legal obligations	5 4 3 2 1 N	5 4 3 2 1 N

		ADEQUACY						IMPORTANCE					
16)	Psychology of learning and its application to teaching. . .	5	4	3	2	1	N	5	4	3	2	1	N
17)	Evaluating and reporting student work and achievement	5	4	3	2	1	N	5	4	3	2	1	N
18)	Relating activities to interests and abilities of students. . . .	5	4	3	2	1	N	5	4	3	2	1	N
19)	Using written communication effectively.	5	4	3	2	1	N	5	4	3	2	1	N
20)	Locating and using materials and resources in your specialty area	5	4	3	2	1	N	5	4	3	2	1	N
21)	Evaluating your own instruction.	5	4	3	2	1	N	5	4	3	2	1	N
22)	Individualizing instruction. . .	5	4	3	2	1	N	5	4	3	2	1	N
23)	Selecting and organizing materials.	5	4	3	2	1	N	5	4	3	2	1	N
24)	Using a variety of instructional techniques	5	4	3	2	1	N	5	4	3	2	1	N
25)	Understanding teachers' roles in relation to administrators, supervisors, and counselors. . .	5	4	3	2	1	N	5	4	3	2	1	N
26)	Working with parents	5	4	3	2	1	N	5	4	3	2	1	N
27)	Working with other teachers. . .	5	4	3	2	1	N	5	4	3	2	1	N
28)	Assessing and implementing innovations.	5	4	3	2	1	N	5	4	3	2	1	N
29)	Appreciating and understanding individual and intergroup differences in values and lifestyles	5	4	3	2	1	N	5	4	3	2	1	N
30)	Using community resources. . . .	5	4	3	2	1	N	5	4	3	2	1	N
31)	Techniques of curriculum construction	5	4	3	2	1	N	5	4	3	2	1	N
32)	Influence of laws and policies related to schools	5	4	3	2	1	N	5	4	3	2	1	N
33)	Techniques for infusing multicultural learning	5	4	3	2	1	N	5	4	3	2	1	N

NOW we would like to ask you about your professional development in the last five years.

11. Have you completed any academic work beyond your bachelor's degree?

___ Yes ---> Degree Program ____ Yes _____ Number of semester hours
____ No _____ Number of semester hours

___ No

If yes, please check major purpose (goal)

___ Prepare for a different type position (Please indicate type)

___ in education--teaching
___ in education--nonteaching
___ outside education

___ Certification, recertification, job requirement

___ General professional development

___ Personal development (avocational)

12. Please briefly describe the "inservice activities" (workshops, conferences, on-the-job training) and/or academic preparation since graduation that has (have) been most helpful to you in your present position:

(1) _____

_____

(2) _____

_____

(3) _____

_____

13. As you plan the continuance of your career, what specific professional growth and training experiences would you like to have?

_____

_____

_____

_____

NOW we would like to ask you some general questions about yourself and your family.

14. Marital status

___ Single (never married)

___ Married

___ Divorced, separated, or widowed

15. Do you have any children?

___ Yes ---> How many? _____

___ No

16. What is the population of the community where you are currently or were most recently employed?

___ Under 1,000

___ 1,000 - 2,499

___ 2,500 - 4,999

___ 5,000 - 9,999

___ 10,000 - 24,999

___ 25,000 - 50,000

___ Over 50,000

17. Which of the following categories best describes your total income during last year? (If married, include spouse's income)

___ less than $ 9,999

___ $10,000 to $14,999

___ $15,000 to $19,999

___ $20,000 to $24,999

___ $25,000 to $29,999

___ $30,000 to $49,999

___ $50,000 and over

The College of Education and the Research Institute for Studies in Education appreciate the time you have taken to complete this questionnaire.

Postage for the questionnaire is prepaid, so all you need do is staple or tape it and drop it in a mailbox.

APPENDIX B. TABLES

Table 46. Preparation area categories--results of factor analysis using data collected at time of graduation from Spring, 1980 through Spring, 1985 graduates

Preparation area categories/items	Alpha[a]
Planning and Delivering Instruction	.83
Planning units of instruction and individual lessons	
Knowledge of materials and resources in speciality area	
Evaluating your own instruction	
Individualizing instruction	
Selecting and organizing materials	
Using a variety of instructional techniques	
Techniques of curriculum construction[b]	
Interpersonal Relationships	.82
Consultation skills in interacting with other professionals[b]	
Developing student-student relationships[b]	
Understanding teachers' roles in relation to administrators, supervisors, and counselors	
Skill in working with parents	
Skill in working with other teachers	
Student Motivation and Discipline	.71
Maintaining student interest in classroom activities	
Understanding and managing behavior problems in the classroom	
Relating activities to interests and abilities of students	

[a]Reliability coefficient alpha is only applicable to preparation area categories comprised of two or more items.

[b]Denotes preparation area items not included in this study.

Table 46. Continued

Preparation area categories/items	Alpha
Assessing and Dealing with Learning Problems	.86
Referring students for special assistance[b]	
Skills for mainstreaming handicapped students[b]	
Methods of dealing with learning problems	
Assessing learning problems	
Monitoring Student Achievement	.75
Skill in developing tests	
Interpreting and using standardized tests	
Evaluating and reporting student work and achievement	
Understanding the Profession	.75
Comprehension of professional ethics and legal obligations	
Influence of laws and policies related to schools[b]	
Understanding Individual Differences	.64
Appreciating and understanding individual and intergroup differences in values and lifestyles[b]	
Techniques for infusing multicultural learning[b]	
Ability to Prepare and Use Instructional Media	
Teaching Basic Skills[b]	
Content Preparation in Area of Specialization	
Assessing and Implementing Innovations	
Using Community Resources[b]	
Using Written Communication Effectively[b]	
Psychology of Learning and its Application to Teaching	

Table 47. Job characteristics--results of factor analysis using data collected at time of graduation from Spring, 1980 through Spring, 1985 graduates

Job characteristics	Alpha[a]
Money, Prestige, Advancement	.74
Opportunity to earn a good deal of money	
Social status and prestige	
Opportunity for a relatively stable and secure future	
Fringe benefits (health care, retirement benefits)	
Opportunity for advancement	
Opportunities to Use Special Abilities and Aptitudes	.63
Opportunity to be creative and original	
Opportunity to use special abilities and aptitudes	
Leadership and Responsibility	.65
Opportunity to exercise leadership	
Responsibility	
Control over what I do	
Helping and Serving Others	.66
Opportunity to work with people rather than things	
Opportunity to help and serve others	
Variety in the work	
Challenge	
Adventure	
Opportunity to Effect Social Change	
Opportunity to effect social change	

[a]Reliability coefficient alpha is only applicable to job characteristics comprised of two or more items.

Table 47. Continued

Job characteristics	Alpha
Autonomy	
Relative freedom from supervision	
Power	
Control over what others do	

Table 48. Summary table of Career Path Determinant variables used in study

Career Path Model area/ Career Path Determinant	Empirical measure	Measurement source or time	System file name
Personal and Background Characteristics			
Gender	Gender	PRC[a]	NSEX
Marital status	Marital status	Time 1[b]	MS
		Time 2[c]	AMS
		Time 3[d]	NNMS
Socio-economic status of parental family	Father's occupation	Time 1	FO
	Mother's occupation	Time 1	MO1
Academic ability/ achievement	a) ACT score	PRC	ACT
	b) GPA--admission	PRC	AGPA
	c) GPA--graduation	PRC	GGPA
	d) HSR	PRC	HSR
Preparation Program Factors			
Student teaching	a) Number of weeks spent student teaching	Time 1	TL

[a]Permanent record card.

[b]At time of graduation from the teacher preparation program.

[c]At one year following graduation from the teacher preparation program.

[d]At five years following graduation from the teacher preparation program.

Table 48. Continued

Career Path Model area/ Career Path Determinant	Empirical measure	Measurement source or time	System file name
	b) Perceived adequacy of length of student teaching at time of graduation	Time 1,2	CH,LST
	c) Perceived satisfaction with location of student teaching	Time 1	TA1
	d) Perceived satisfaction with cooperating teacher	Time 1	TA2
	e) Perceived satisfaction with university supervisor	Time 1	TA3
Sense of efficacy	a) Self-evaluation as a teacher	Time 1	T7
	b) Perceived adequacy of preparation in planning and delivering instruction	Time 1,2,3	GINSTR, OINSTR, FINSTR
	c) Perceived adequacy of preparation in interpersonal relations	Time 1,2,3	GPERSON, OPERSON, FPERSON
	d) Perceived adequacy of preparation in student motivation and discipline	Time 1,2,3	GCLASS, OCLASS, FCLASS
	e) Perceived adequacy of preparation in assessing and dealing with learning problems	Time 1,2,3	GLRNG, OLRNG, FLRNG
	f) Perceived adequacy of preparation in monitoring student achievement	Time 1,2,3	GSTWORK, OSTWORK, FSTWORK
	g) Perceived adequacy of preparation in understanding the profession	Time 1,2,3	TB15, OAI21, OPA21

Table 48. Continued

Career Path Model area/ Career Path Determinant	Empirical measure	Measurement source or time	System file name
	h) Perceived adequacy of preparation in preparing and using instructional media	Time 1,2,3	TB2, OAI3, OPA3
	i) Perceived adequacy of preparation in content preparation in area of specialization	Time 1,2,3	TB14, OAI19, OPA19
	j) Perceived adequacy of preparation in assessing and implementing innovations	Time 1,2,3	TB27, OAI45, OPA45
	k) Knowledge of psychology of learning and its application to teaching	Time 1,2,3	TB16, OAI23 OPA23
Perceived quality of preparation program	Perceived quality of preparation program	Time 2,3	QT QTP
Employment Factors			
Salary	Total income	Time 2,3	INC, TOTINC
Employment expectations	a) Money, prestige, advancement	Time 1	GMONEY
	b) Opportunity to use special abilities and aptitudes	Time 1	GSPECAB
	c) Leadership and responsibility	Time 1	GLEADER
	d) Helping and serving others	Time 1	GSERVE
	e) Opportunity to effect social change	Time 1	TD6

Table 48. Continued

Career Path Model area/ Career Path Determinant	Empirical measure	Measurement source or time	System file name
	f) Autonomy	Time 1	TD7
	g) Power	Time 1	TD17
Employment reality	a) Money, prestige, advancement	Time 2,3	OMONEY FMONEY
	b) Opportunity to use special abilities and aptitudes	Time 2,3	OSPECAB FSPECAB
	c) Leadership and responsibility	Time 2,3	OLEADER FLEADER
	d) Helping and serving others	Time 2,3	OSERVE FSERVE
	e) Opportunity to effect social change	Time 2,3	OC6,JC6
	f) Autonomy	Time 2,3	OC7,JC7
	g) Power	Time 2,3	OC17, JC17
Employment dissonance	a) Money, prestige, advancement	Time 2,3	ODMONEY FDMONEY
	b) Opportunity to use special abilities and aptitudes	Time 2,3	ODSPECAB FDSPECAB
	c) Leadership and responsibility	Time 2,3	ODLEADER FDLEADER
	d) Helping and serving others	Time 2,3	ODSERVE FDSERVE
	e) Opportunity to effect social change	Time 2,3	ODIS6 FDIS6

Table 48. Continued

Career Path Model area/ Career Path Determinant	Empirical measure	Measurement source or time	System file name
	f) Autonomy	Time 2,3	ODIS7 FDIS7
	g) Power	Time 2,3	ODIS17 FDIS17
Teaching level	Teaching certification level	PRC	TLEVEL
Size of employment community	Size of employment community	Time 2,3	PL,PC
Indicators of Career Satisfaction			
Choose teaching again	Choose teaching again	Time 1,2,3	T6,DOA, BET
Satisfaction with student teaching	Satisfaction with teaching as a career on basis of student teaching experience	Time 1	TA4
Intention to teach	Plan to enter teaching the academic year following graduation	Time 1	FP
Job satisfaction	Job satisfaction	Time 2,3	GS,JS