

RELATIONSHIP BETWEEN SELECT VARIABLES AND TEACHER RETENTION

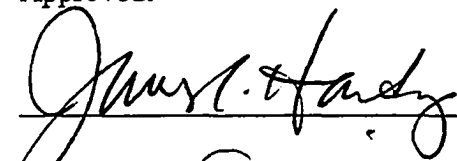
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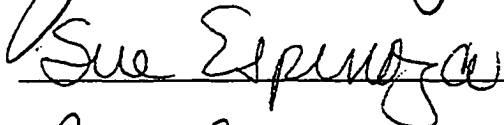
CONNIE SUE GREINER

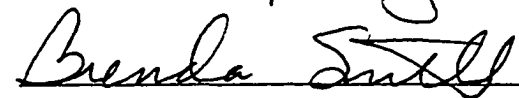
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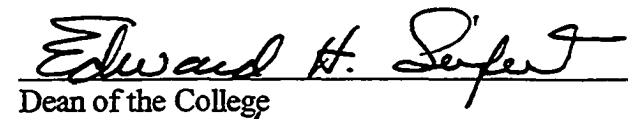
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Approved:


_____ Adviser






_____ Dean of the College


_____ Dean for Graduate Studies and Research

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ABSTRACT

RELATIONSHIP BETWEEN SELECT VARIABLES AND TEACHER RETENTION

Connie Sue Greiner, Ed.D.
Texas A&M University-Commerce, 2003

Advisor: James Hardy, Ph.D.

The major purpose of this study, conducted during the spring and summer semesters of 2003, was to determine the relationship between the following variables and teacher retention: Professional Development Examination for the Certification of Educators in Texas (PD ExCET) scores, Texas Academic Skills Program (TASP) reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average.

The quantitative study identified students from a single Texas senior-level university who passed the PD ExCET between September 1, 1996 and August 30, 2000. Five research questions were developed for the study. Research questions number one and two addressed descriptive characteristics of PD ExCET successful students who completed the field-based teacher education program and chose to enter the teaching profession and those who chose not to enter the teaching profession. Research questions number three and four addressed descriptive characteristics of PD ExCET successful students who completed the field-based teacher education program and returned to the

profession for a second year and those who chose not to return to the profession for a second year. Research question number five addressed the relationship between the following variables and teacher retention: PD ExCET scores, TASP reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average.

An attempt was made to develop a logistic regression equation predicting teacher retention. The Statistical Package for Social Sciences (SPSS) for Windows Release 11.5 was used to conduct the statistical analyses. However, an acceptable overall model could not be developed. Instead, a point-biserial correlation coefficient was used to determine the relationship between the following variables and teacher retention: PD ExCET scores, age, TASP reading scores, and GPA; and a phi coefficient was used to determine the relationship between the following variables and teacher retention: ethnicity, teacher education program completed and gender.

The results of the study show that there is no relationship between the selected variables and teacher retention.

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CHAPTER 1

Introduction

Teaching is a practical art, not an abstract science, and is best learned by students of great teachers and best taught by example (Kopff & Watt, 1990). Schlechty and Vance (1983) found that concern about the competence of classroom teachers was nothing new in America. The authors referred to Ichabod Crane as a “pathetic figure” who spent class time trimming quill pens and conveying the perceived image of a typical male teacher of that era. They also cited Willard Waller who, in 1932, characterized teaching as an occupation made up of unmarried women and unmarketable men; and the 1963 publication of J.D. Koerner’s book, *Miseducation of American Teachers*, which contained strong criticism of the qualities and characteristics of America’s teachers. The authors concluded that the reform movement in American education in the 1960s resulted from the belief that a new breed of better-trained teachers was needed and the assumption was that those who had college degrees were better qualified to teach.

Research by Schlechty & Vance (1983) revealed that increasing the quality of teachers during the 1950s to 1970s meant primarily increasing the quantity of college graduates ready and willing to accept teaching positions. The assumption was that those who had college degrees were better qualified to teach than those who did not. From the early 1970s on, discussions of teacher quality became more clearly focused on selecting the best-qualified applicants from an apparently overabundant pool of college-educated recruits. Currently, colleges do not have enough students to meet the demand for certified teachers. The teacher shortage, combined with demands for accountability and

fiscal cutbacks, make discussions of personal or institutional quality threatening to the job security of people and to the survival of institutions.

Teacher certification has become the method of choice used by the states to evaluate the credentials of prospective teachers to ensure that they meet the professional standards set by individual state education agencies. The process is closely linked to state teacher education program approval and institutional effectiveness. Certification also ratifies the quality of teachers' competence in a specific subject area, educational methodology, teaching skills, and potential classroom management ability, and provides evidence of advanced standing in a profession demonstrated through additional study and/or exemplary professional performance (Roth & Mastain, 1984). According to research by Kopff and Watt (1990), certification fails to provide enough good teachers for the following reasons:

1. Certification comes from the political process and is tied to organized interest groups.
2. The education establishment, professional groups, and the National Education Association, along with other interest groups, function as labor unions and lobbyists to protect jobs, not to promote excellence.
3. Education schools that favor methodology and process in teaching control certification.
4. Certification cuts off the public school system from competition, a proven system of excellence in other fields.

Since 1990, at least 36 states have used some type of competency testing as a requirement for teacher licensure. This accountability system began, in part, as a result

of the 1983 report from the National Commission on Excellence in Education, entitled *A Nation at Risk*, and focused on strategies for reforming teacher education (Chambers, Munday & Sienty, 1999). The federal “No Child Left Behind” Act of 2001 put states and districts under new pressure to guarantee a skilled teacher in every classroom. The act required states to ensure that all teachers of the core academic subjects – English, reading or language arts, mathematics, science, foreign languages, civics and government, economics, history, geography, and the arts – are “highly qualified” in every subject they teach by the end of the 2005-06 school year (Price, 2003).

In Texas, certification for teachers requires successful completion of comprehensive examinations in specialized teaching fields and in professional knowledge. The Professional Development (PD) portion of the Examination for Certification of Educators in Texas (ExCET) is made up of criterion-referenced, multiple-choice questions developed around an established set of domains (understanding learners, enhancing student achievement, and understanding the teaching environment) and competencies spelled out in the ExCET Preparation Manual. The tests are intended to assess each candidate’s knowledge of the competencies, rather than the candidate’s performance in relation to the performance of other candidates (Chambers, Munday, & Sienty, 1999). Test takers who score 70% or better on the PD ExCET and a passing score on specialized teaching field tests meet the state-established criterion for passing and obtaining certification.

In the fall of 2002, the State Board for Educator Certification (SBEC) implemented a new teacher certification examination program that replaced the Examination for the Certification of Educators in Texas (ExCET), which has been the

state's teacher certification exam since 1986. The new certification examination program is called the Texas Examinations of Educator Standards (TExES) and is the result of the evolution of public education in Texas (State Board of Educator Certification, 2003).

Since 1998, Texas has been on the forefront of a national movement to improve education and advance student learning by improving the way school curriculum is aligned from grade to grade, from kindergarten through college. SBEC, working in conjunction with the Texas Education Agency and Texas Higher Education Coordinating Board, developed the K–16 Initiative, which is designed to promote a seamless system of education. The redesign of the educator certification structure was an integral part of the K–16 Initiative. The first step in this process was the development of new standards for beginning Texas public school teachers. These standards are based on the state's required curriculum for public school students, the Texas Essential Knowledge and Skills (TEKS). Developing the new standards and introducing new teacher certificates has been a cooperative process involving numerous committees, each comprised of as many as 25 experts from all educational arenas, from classroom teachers to deans of education, as well as interested citizens. The work of these committees guided the development of the new TExES testing program, which is based on the new standards. Twenty-five new standards-based certificates were introduced in the fall of 2002. SBEC has a goal of replacing all existing ExCET tests and certificates by 2005 (State Board of Educator Certification, 2003).

According to Leibbrand (2000), The National Council for Accreditation of Teacher Education (NCATE) recommended multiple measures to assess candidate

performance in the classroom and recognized that paper and pencil examinations do not provide adequate evaluation information. The Council supported performance-based licensing systems that yield comprehensive assessments of candidate and new teacher performance. Research by Westerman (1989) indicated that a positive relationship existed between the correlation of characteristics of effective teachers to the state departments of education minimum standards when the state lists the effective teacher characteristics as required demonstrated competencies within the professional studies of teacher education programs.

Darling-Hammond (1996) reported that even though institutions with high quality teacher education programs were graduating record numbers of teachers, a nation-wide teacher shortage still existed. Kopff and Watt (1990) suggested that this situation was a direct result of the state-mandated certification process. Bradshaw and Hawk (1996) concurred that national teacher shortages had been predicted for some time and had been magnified by low salaries and by increasing career opportunities outside the field of education for women and minorities. Further research indicated that early career attrition for those who do teach was at an all-time high (Bradshaw & Hawk, 1996). In 2002, Jorissen stated “teachers are leaving the profession at an alarming rate.” First and second year teachers left the profession at an annual rate of 15%, and approximately 10% of third year teachers left. During the first seven years of their careers, 40% to 50% of all beginning teachers left.

Literature also supported the fact that the greater the preparation of a teacher (e.g., having earned a higher degree and being certified in multiple areas), the more likely the teacher would leave the profession (Westling & Whitten, 1996). Research conducted

by Chapman and Green (1986) supported mounting evidence that the most able students do not pursue a teaching career and that many of the most able teachers tend to leave teaching. The researchers also discovered that academically stronger high school graduates tend not to enter the teaching profession, and of those high school graduates that do enter teacher training, the academically more able students are more likely to switch to another career. Additional research by Chapman and Green (1986) concluded that approximately one of every four students who complete a teacher-training program never begin a teaching career, or leave teaching within the first five years.

Research by Jorissen (2002) suggested increasing new-teacher satisfaction and retention by:

1. hiring teachers who have substantial experience working with children and youth;
2. assigning new teachers to the grade level/subject for which they are licensed;
3. limiting preparations, traveling, and duties;
4. developing a culture of collaborative problem solving;
5. assigning a qualified mentor;
6. relying on mentors to assist in dealing with first year culture shock;
7. establishing and maintaining a positive relationship;
8. involving new teachers in decision making;
9. facilitating professional integration; and
10. recognizing ways in which teachers are making a difference in their students.

Passing a state mandated licensing exam does not guarantee that a teacher will remain in the profession. Despite best efforts by school districts, some teachers leave because of family situations or better offers from another district (Jorissen, 2002).

School districts often lose the best candidates because of inefficient and cumbersome hiring practices, barriers to teacher mobility, and inattention to teacher qualifications. Those who do get hired are typically given the most difficult assignments and provided little support. Isolated behind classroom doors with little feedback or help, many new teachers merely learn to cope rather than to teach well (Darling-Hammond, 1996). Teachers who remain in the profession beyond the three-year probationary period do so because of effective strategies implemented by their districts that increase their level of satisfaction and address needs for identity, competency, and efficacy (Jorissen, 2002).

Statement of the Problem

Even with all the emphasis on accountability and high quality teacher education programs, teachers are leaving the profession at a high rate. Little is known about the relationship between teacher licensure competency test scores and teacher retention.

Purpose of the Study

The overall purpose of this investigation was to determine the relationship between the following variables and teacher retention: Professional Development Examination for the Certification of Educators in Texas (PD ExCET) scores, Texas Academic Skills Program (TASP) reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average.

Research Questions

The following research questions guided the study.

1. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, and undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose to enter the teaching profession?
2. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, and undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose not to enter the teaching profession?
3. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and returned to the profession for a second year?
4. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose not to return to the profession for a second year?
5. What is the relationship between the following variables and teacher retention: PD ExCET scores, TASP reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average?

Significance of the Study

In Texas, a person who wants to earn a teaching certificate must pass state-adopted, state-mandated examinations that cover content and professional development areas. The tests, called the Examination for the Certification of Educators in Texas (ExCET), are competency-based. Universities and colleges prepare students to successfully pass the tests by implementing undergraduate teacher education programs that are competency-based and aligned with the standards and framework of the ExCET.

Mastering competency-based instruction and passing state-mandated teacher certification tests does not ensure that teachers will remain in the profession. Various models have been devised to explain the factors influencing attrition from the teaching profession (Pigge & Marso, 1996). Holland's (1973) Theory of Vocational Choice stated that vocational satisfaction, stability, and achievement depend on the connection between a person's personality and his or her working environment. The theory suggests that career changes may be related to changes in personality, environment, or overall perception of what is involved in teaching. Teachers who rate themselves higher in skills and abilities, values, and professional accomplishments than their peers should exhibit more career satisfaction.

Krumboltz' (1979) Social Learning Theory of Career Selection identified four factors that influence the nature of a career decision. These factors include genetic endowment and special abilities (race, gender, physical appearance, and physical characteristics), environmental conditions and events (social, cultural, political or monetary factors), learning experiences (responding to the environment to produce consequences, and learning by reacting to external stimuli and observation), and task

approach skills (performance standards, work habits, and symbolic rehearsing). The basis for the theory is educational and occupational preference and how these influence career selection. Krumboltz believed that understanding these factors could help answer the question of why individuals change occupations throughout their lives.

Chapman (1984) expanded on Holland's and Krumboltz' theories and developed a Public School Teacher Retention/Attrition Model. The multi-factor model suggested that teacher retention is a function of six related factors:

1. teachers' personal characteristics, including gender and age;
2. educational preparation (quality of teacher preparation program, student performance, and degree obtained);
3. initial commitment to teaching;
4. quality of first teaching experience;
5. social and professional integration into teaching that measures a teacher's values, skills and abilities, and accomplishments; and
6. external influences

Weaver (1983) stated that an individual's marketability in our society is the foremost influence upon both teacher attrition and recruitment. Teachers with more marketable talents are less likely to be attracted to teaching initially and are more likely to be attracted to employment outside the profession. Increased career opportunities in recent years for talented women and minorities, along with the declining attraction of schools as work places, is having a major impact upon the quality of available teachers.

Other researchers have found race, subject specialty, elementary or secondary assignment, salary, and state-mandated test scores to be related to attrition from teaching.

In 1989, Murnane, Singer, and Willet's research found that teachers with higher National Teacher Examination (NTE) scores were more likely to leave teaching and identified much higher attrition rates for teachers with subject specialties valued by business and industry. Secondary teachers were found to leave the profession more frequently during the first three years of teaching. These researchers also found that white teachers are more likely to leave the profession than their black peers, and teachers with higher salaries were more likely to remain in teaching. Further research reported similar relationships between gender, salary, teacher marketability, and teacher attrition in New York.

Similar trends in teaching attrition were identified in North Carolina, Michigan, and Colorado. One of the less positive findings related to teacher mobility and attrition in North Carolina was that the more capable teachers and those more attractive to industry and business were less likely to remain in the profession. In Michigan, 15% of the new teachers left teaching before completing two years in the classroom, another 9% left before completing three years, and only 56% were teaching six years after they began teaching. The two primary reasons given for leaving the teaching profession were low salaries and dissatisfaction with teaching. Other reasons included inadequate support from administrators, homemaking/child rearing responsibilities, retirement, employment by private business or government, and self-employment (Pigge & Marso, 1996). In Colorado, turbulence had been created in the field of teacher licensure with the debate over standards and assessment and the use of performance-based assessments in teacher licensure (Cobb, Shaw, & Millard, 1999).

The existing research literature suggested that attrition from teaching is influenced by a variety of factors, including, but not limited to, death, alternative career, sabbatical, illness, maternity/paternity/adoption, personal reasons, professional growth, and staff reduction. The large number of people leaving the teaching profession each year for reasons other than retirement is alarming because principals rate many of these teachers as “highly effective” or “effective” in the classroom (Hare & Nathan, 1999).

Definition of Terms

The following terms are defined in accordance with their relevancy to this investigation:

1. *Certification* – process by which the state evaluates the credentials of prospective teachers to ensure that they meet the professional standards set by the state education agency (ERIC, 1986).
2. *Competency-based instruction* – model that focuses on what the learner can do as a result of the learning experience, rather than what the learner knows (Maricopa Advanced Technology Education Center, 2001).
3. *Competencies* – major skills or abilities needed to perform tasks effectively (Maricopa Advanced Technology Education Center, 2001).
4. *Criterion-referenced questions* – assessment questions that are based on skills (criteria) necessary for successful performance.
5. *Domains* – spheres of knowledge, influence or activity.
6. *Emergency permit teacher education program* – prepares students with an undergraduate or post-baccalaureate degree to become certified as teachers.

Aspiring teachers will engage in focused, practical training through graduate-level coursework leading to certification.

7. *Field-based teacher education program* – preparation program through which prospective teachers spend one or two semesters working and learning in public school classrooms while earning degrees and teaching certificates.
8. *Licensure* – certifies that minimum professional competencies have been met and entitles the individual to enter professional practice (Bradshaw & Hawk, 1996).
9. *Minority* – for the purpose of this study, minority is used to identify the following ethnic groups: African-American, Native American, Hispanic, and Asian.
10. *Non-minority* – for the purpose of this study, non-minority is used to identify Anglo participants.
11. *Performance-based assessment* – student-centered assessment approach that focuses on simulated real-life situations.
12. *Retention* – teachers who return to the classroom for a second year are considered retained.
13. *Professional knowledge* – knowledge teachers need to help students think critically, create, solve complex problems, and master ambitious subject-matter content.

Limitations and Delimitations

The current study will be limited and delimited in the following ways:

1. The population of this study was limited to education students who successfully completed a teacher education program at a single Texas senior-level university and had reported PD ExCET scores of 70+ between September 1, 1996 and August 30, 2000.
2. Those students who completed all requirements for Texas teacher certification, but never taught in a Texas public school were excluded from the final data analysis.
3. Those students who completed all requirements for Texas teacher certification, but were hired to teach in a Texas public school for the years 2001 and 2002 were excluded from the final data analysis.
4. Only those students who taught in a Texas public school for at least one year were included in the final data analysis.

Basic Assumptions

The following assumptions are made for this study:

1. Pertinent, valid, and reliable data do exist and can be obtained;
2. Student records provided by the Texas single-level university are accurate;
3. Records provided by SBEC are accurate;
4. The TASP reading score is a reliable and valid measure of student competency in reading.

Organization of Dissertation Chapters

Chapter 2 of this study includes a detailed review of the literature related to the variables of the study (state-mandated teacher certification examinations, teacher education programs, ethnicity, standardized test scores, and age and gender) as predictors of teacher retention, an explanation of the interrelationships among the variables, and a summary of the literature review. Chapter 3 includes descriptions of the method of procedure, collection and treatment of the data, and a summary. Chapter 4 includes a presentation and analysis of the data for the purpose of testing the stated research questions, descriptive characteristics of the participants, and a summary. Chapter 5 contains a summary of the study and the findings, conclusions, implications for practice, and recommendations for further study.

CHAPTER 2

Literature Review

In this literature review, the author will examine studies and literature associated with state-mandated teacher certification examinations, teacher education programs, ethnicity, standardized test scores, and age and gender as related to long-term employment in public education in relationship to teacher retention. An examination of each of these concepts is followed by highlights of research that provides insight into their interrelationships. The chapter concludes with an explanation of the interrelationship among the variables and a summary of the literature review.

Teacher Retention

Statistics reveal that up to 50% of beginning teachers exit the teaching profession within their first five years of service. With fewer people entering the profession, rising retirement numbers, and the growth of school age populations, teacher shortages have become a concern nationwide (Eggen, 2001).

Teachers who remain in the profession period do so because of effective strategies implemented by their districts that increase their level of satisfaction and address needs for identity, competency and efficacy (Jorissen, 2002).

State-mandated Teacher Certification Examinations

School boards, state education agencies and the Federal government have two responsibilities in the education of children. First, they must provide quality school

environments (physical plant, equipment, supplies and materials, support services, and school leadership). Second, they must provide teachers who meet appropriate academic and professional standards (Hillard, 1986).

School-age children of a state are entitled to at least as much consumer protection as its citizens receive in other professional areas. The public school system does not operate as a “free market” like other professions. If a person is dissatisfied with a physician or attorney, they can take their business elsewhere. Parents and school children do not have this option. Therefore, states not only have the right, but the obligation, to assure that school children within their jurisdiction have teachers who 1) have the basic knowledge of the subject they plan to teach; and 2) can demonstrate adequate skills in communication, literacy, and mathematics necessary to instruct children in elementary or secondary classrooms (Goodison, 1986). Promoting higher educational standards in United States public schools has become identified with high-stakes testing. Politicians have played out the accountability card repeatedly and effectively as a tool for leveraging school reform. Many states are looking at teacher certification tests as the tool to raise teacher standards. The argument is that if a rigorous test is used as the hurdle for entry into the profession, then standards will go up. Many see the testing option as a mechanism that is being used to exercise control over the teacher education curriculum and as a path for allowing anyone with a college degree and sufficient knowledge and test-taking skills to pass (Price, 2003).

The major common element in most educational reform activities around the United States is the teacher competency test. There are two basic types of teacher certification tests currently being used: 1) generic (professional knowledge) tests, and 2)

subject-matter (content) tests. Both tests use the multiple-choice format. Subject-matter teacher certification tests assess knowledge specific to particular certification areas and are based on the assumption that to teach effectively, one must have at least a minimal command of the subject matter. Generic, or professional knowledge, teacher certification tests assume that there is a body of knowledge, vocabulary, and skills that all teachers must master in order to be minimally competent in the classroom (Madaus & Pullin, 1987).

Teacher certification testing programs are generally used at three distinct levels: 1) prior to acceptance into teacher education, 2) prior to state certification, and 3) prior to certificate renewal. Tests that are required prior to acceptance into a teacher education program are generally administered at the end of a student's sophomore year and assess either basic skills and/or general knowledge. Tests that are required prior to obtaining a state teaching certificate are administered when the applicant has completed or has nearly completed a preparation program, or during the first year of teaching, and assess both pedagogy and content knowledge. The reward for passing the test is a valid state teaching certificate. Because the teachers' organizations and unions around the country are against the testing of practicing teachers, there is not much activity at the level of administering tests prior to certificate renewal (Flippo, 1986).

Hillard's 1986 research cited four reasons competency tests are being used for teacher certification:

1. The tests are cheap to produce – using paper/pencil multiple-choice tests that can be machine scored.
2. The minimum score requirements can be shifted up or down with ease.

3. The tests have “face validity”, the least rigorous type of validity.
4. Because the tests are controversial and generate confused discussions, fundamental scientific problems can become obscure.

Also according to Hillard, the idea of requiring that professional educators demonstrate an acceptable level of expertise is entirely appropriate. However, the method of that demonstration must be rational, meaningful, and valid. For example, since there is no universal or common agreement on the elements that make up the content of traditional academic subjects in high school, it is absurd to believe that currently used tests are measuring the academic knowledge that a teacher needs to be licensed. Hillard went on to explain that unless the public school curriculum, the college curriculum, and the content of an academic competency test overlap, the test is not a valid measure of academic competency. Hillard also cited the absurdity of the use of tests to measure professional knowledge, since a common knowledge base in professional education has yet to be identified or supported by the majority of professional educators. Hillard concluded his argument against teacher-competency tests by stating that by allowing paper-and-pencil tests to become the filter that determines who will be allowed to teach, these tests do not guarantee standards of excellence.

As a result of his research, Hillard developed a list of criteria that should be met by any valid assessment approach to allow teachers to demonstrate academic and professional competencies that includes:

1. The approach must be based on the existence of a clearly defined body of academic content that is agreed upon by all users.

2. The approach must be based on the existence of a clearly defined body of professional content that is agreed upon by all users.
3. The approach must be based on the existence of a clearly defined body of professional skills that is agreed upon by all users.
4. There must be a substantial, empirically verifiable match between academic and professional program content and the test.
5. There must be substantial, empirically demonstrated criterion-related validity for each component of the assessment process.
6. A valid and comprehensive set of measures for child outcomes must exist.

An analysis of the findings of a study by Bolton in 1984 led to the following conclusions concerning teacher competency testing. (1) The benefits of teacher testing to state agencies, schools of education, school districts, and society outweigh the disadvantages of increased budgets and larger educational bureaucracies and the possibility of teacher shortages. (2) Teacher competency testing procedures are used primarily for entrance to and graduation from teacher education programs and for certification purposes. (3) Characteristics of a comprehensive teacher competency-testing program include a written assessment of acquired knowledge, procedures for evaluating an applicant during student teaching, a probationary period prior to permanent certification, additional training or assistance for teachers, and provisions for retaking of failed examinations. (4) Evidence indicates that although state-created tests are desirable, locally created and nationally developed tests are utilized in testing programs. (5) Legal problems will be encountered by testing programs in the areas of minority discrimination and cutoff scores, and political opposition from teacher organizations will continue.

In Texas, prospective teachers are required to pass a minimum of two state-mandated certification tests – one professional knowledge test and one content area test – to receive a valid teaching certificate. This certificate requirement was first mandated in 1981 by the Texas Legislature both as a quality assurance measure for the general public, and as a way of demonstrating that teaching was indeed a profession, since other professions required the successful completion of an examination prior to entry (Ishler, 1985). The test has evolved from the Texas Examination of Current Administrators and Teachers (TECAT), a test of basic literacy; to the Examination for Certification of Educators in Texas (ExCET), a test made up of criterion-referenced, multiple-choice questions developed around an established set of domains (understanding learners, enhancing student achievement, and understanding the teaching environment) and competencies that is intended to assess the candidate's knowledge of the competencies, rather than the candidate's performance in relation to the performance of other candidates; to the Texas Examination of Educators Standards (TEXES), a test based on new standards for beginning Texas public school teachers. These standards are based on the state's required curriculum for public school students, the Texas Essential Knowledge and Skills (TEKS).

Can quality in teaching really be improved by certification testing? Research from some states indicated that it can, but their evidence usually consisted of rising test scores. When the data and the circumstances surrounding the issues are better understood, it becomes evident that rising test scores indicate that more persons are able to pass the tests, but the rising scores do not indicate that the quality of teacher certification applicants has improved (Flipppo, 1986). Furthermore, according to

Goodison (1986), no empirical relationship between basic competency test scores and actual job performance or attrition has been established. For this reason, test scores should not be used for ranking examinees for selection and should never be used as the sole criterion in any decision process regarding job retention, tenure, or dismissal. The Educational Testing Service has stated its position that putting an experienced, fully certified teacher's professional career on the line solely on the basis of a one-time basic skills test is an injustice to the teacher and a misuse of the test. In no other occupation requiring licensure or state certification does such a requirement occur.

No one questions the state's authority to require that before a person is allowed to practice a profession or occupation, such as law, medicine or dentistry, he or she must demonstrate on a test requisite knowledge to practice the chosen profession. As with teacher competency testing, a medical exam, bar exam, or other licensure exam does not predict how well a physician or attorney will perform. Even though there are incidents of malpractice and shoddy legal advice, no one would say those are reasons to abandon licensing exams for doctors and attorneys. When it comes to teachers, the argument has been that without predictive validity, teacher competency tests should be abandoned. It is not reasonable to place a heavier burden on teacher tests than on other professional licensure tests. Licensure tests only assure that the individuals who are licensed or certified have at least mastered the knowledge and skills necessary to perform competently in their chosen profession (Goodison, 1986).

According to research conducted by Flippo (1986), consideration should be given to the following potential problem areas for certification tests that are used to mandate the quality and products of teacher education programs:

1. Strained university and state relationships – Since the pass rates on the state-mandated teacher certification tests are used to measure the quality of a university, their faculties, and their teacher education programs, testing graduates puts the universities on the defensive. The colleges and universities assert that their graduates are competent, but the system often leads to adverse or hostile relationships between the colleges/universities and the state department of education. Results from the tests are compared by indicating pass/fail rates for each institution. These comparisons are often unfair because different populations of students attend various institutions within the state.
2. Teaching toward the test becomes a solution when university faculties realize that their programs are being compared or that their students' abilities to pass the test reflect on program images. In some colleges and universities in states implementing certification testing, courses have been developed on how to pass the test. Minimum competencies become the curriculum and the courses focus on the objectives or content of the tests.
3. Excellent programs with deceptive test results – University teacher education programs that stress creativity and excellence can be punished by low pass rates. Sometimes those who know more may read more into the questions. Their knowledge of the most recent research and literature can cause them to see that item choices, in addition to the correct one, are possible. This results in mediocrity being rewarded and excellence being punished.
4. Programs with low pass rates – Should these programs be put on probation or shut down? Should more pressure be put on programs to get students to pass the tests?

Should remediation be required? Because of the large amount of money states have invested into current testing programs for teacher certification, results cannot be ignored, but should be looked at very seriously, since the programs in question could be in colleges and universities with large minority populations.

5. Rising test scores are a direct result of the availability of questions, objectives and content. Because the purpose of the testing should be to screen out persons who are not competent enough to teach in public schools, tests with known questions or content become less effective at screening the more they are administered.
6. Remediation may become a necessity for those persons who repeatedly take the test and never pass. Some of these examinees blame the colleges and universities for their failures, while others request specific assistance from the state department of education. Study guides have been developed to remove some of the pressure from the state department of education and colleges/universities. The study guides give examinees tips on how to take the tests, how to study for them, and provide sample questions and references to use in order to prepare for the objectives or content being tested. The problem with study guides, besides the enormous cost for developing, is that if they are well constructed and appropriately developed, students' test scores might rise without actually improving students' skills.

While tests cannot measure patience and love of children and learning, and cannot identify those who have personal warmth, empathy, drive, and dedication to the teaching profession, they can provide reliable information about the basic competencies of a pool of applicants. Good quality standardized tests indicate what students have learned, and

show how well students are able to apply learning to what tests ask of them (Gifford, 1986).

Teacher Education Programs

There cannot be an assumption that the objectives and content of teacher-training curricula reflect the proficiency areas or levels passed by capable entry-level teachers (Gifford, 1986). A teacher education program emphasizing quality should include performance-based and competency-based components. If professional competency is achieved by the accomplishment of stated objectives that strive to describe learning that should take place, it is necessary to translate such objectives into performance criteria when possible (Brubaker, 1976). A model for selection and retention in teacher education was developed by Brubaker that included administrative organization, roles of student personnel services in the selection-retention program, criteria for admission to the program, introduction to teacher education, provisions for probationary status, performance components in the laboratory experience, and feedback concerning program success.

In order to decrease the number of teachers who are leaving the profession, Colbert and Wolff (1992) described in their article *Surviving in Urban Schools: A Collaborative Model for a Beginning Teacher Support System* a teacher retention program developed collaboratively between the Los Angeles Unified School District (LAUSD) and the California State University, Dominguez Hills (CSUDH). Two regions in the school district were selected to implement the program because the schools were

located in low socioeconomic inner-city areas characterized by annual teacher attrition that had been higher than 50%.

The university and the school district agreed upon the major goal for the project and the way they would achieve the goal. The goal was to retain as many beginning teachers as possible in inner-city classrooms by developing and implementing a model for providing them with systematic support and assistance and reducing their feelings of isolation through cooperative team planning. The project included beginning teachers (first or second year of teaching) and emergency credentialed teachers (earning a credential while teaching full-time) who were teamed with experienced teachers who had demonstrated excellence in teaching and leadership qualities at their schools and who were recognized as nurturing and nonjudgmental. Teams of two to four beginning teachers and one lead teacher were formed at each identified school. The teams met weekly for cooperative planning, problem solving and assistance. Lead teachers were trained in methods of classroom observation and coaching, and beginning and lead teachers enrolled together in university classes designed for program participants, which included university-staffed telephone helplines available for additional support. Participants also enrolled in classroom management and cooperative learning courses. Feedback from beginning teachers, emergency credentialed teachers, and lead teachers identified the classes as vital for teachers in their initial classroom experience. The collaboration between the university's school of education and the school district was a critical aspect of the project. Following the three-year project, the university and district personnel learned to value each other's contributions and expertise, and recognized that neither could do the job alone with the same success (Colbert & Wolff, 1992).

The conclusion to Colbert and Wolff's research is that beginning teacher support must become a high priority for school districts and university teacher education programs. The authors' research recommended five steps to accomplish this important conclusion:

1. Design and implement a collaborative training program between school districts and university schools of education of administrators and experienced teachers in classroom observation and peer coaching strategies.
2. Develop creative and flexible scheduling to provide release time to peer coaches and beginners to provide opportunities to build trusting relationships that can contribute to increased career satisfaction and retention of beginning teachers.
3. Encourage experienced teachers to participate in the professional growth of new teachers.
4. University schools of education must collaborate with local school districts and welcome them as equal partners in the education business, including matching school district and university calendars to prevent conflicts between activities at the schools and in the support system.
5. Collaboration between universities, school districts, state departments of education, and teacher credentialing commissions must continue to develop, regardless of the availability of external funding.

Research by Chapman (1984) found that student teaching was an important part of preservice teacher preparation. Among the participants in his research who entered teaching, the quality of a first teaching experience was more strongly related to subsequent attrition than was their academic performance or the perceived adequacy of

their educational program. Actual classroom experience provided important information for career decision-making not contained in academic training. Since the single strongest predictor of retention was initial commitment to teaching, Chapman concluded that teacher preparation programs might be able to exercise influence on future teachers through efforts to reinforce and encourage commitment to teaching, or to encourage those who were unsure about teaching to seek other career alternatives.

A collaborative project of the Texas Education Agency, the Texas Higher Education Coordinating Board, the State Board for Educator Certification, Region XX Education Service Center, and the Texas Center for Educational Research resulted in a report entitled *Texas Teacher Recruitment and Retention Study*. The report recommended the following:

1. Texas teacher training programs need to expand their capacity and emphasize recruitment of qualified candidates who are already thinking about a career in teaching.
2. Certification programs based at higher education institutions supply the largest number of incoming teachers for Texas schools. There are no specific techniques associated with educator preparation programs and only isolated direct efforts to target students who might make good teachers. Intense, mandated recruitment techniques should be initiated.
3. Alternative certification programs should focus their recruiting efforts within the communities served by the school districts that are their partners.
4. School districts should participate in recruitment activities that involve their communities and higher education institutions.

5. The effectiveness of induction programs for novice teachers should be increased.

According to a study of the teacher attrition rate in Texas done by Marshall & Marshall in 2003, teachers who were surveyed recommended the following changes in teacher education programs at higher education institutions: increase the amount of time education students spend in field-based classroom activities, start education students in field-based classroom activities earlier than their junior year, and require courses on classroom management that are approached through a practical perspective rather than a theoretical approach.

In addition, Price (2003) listed five areas relevant to educators, teacher educators, administrators and policy-makers that should be considered in negotiating the challenges of improving teacher preparation: cost, commitment, content, continuity, and control. Policy makers should scrutinize carefully the money dedicated by state legislatures to the preparation of teachers to be sure it is reaching the intended programs, and that the tuition and fees students pay for their preparation to teach is going to the programs in which they are enrolled. Colleges of Education need to examine their commitment to teacher preparation; encourage quality, experienced, full-professors to teach in the undergraduate teacher education programs; and align their mission and commitment to the university's. Serious consideration should be given to what is being taught and how, ensuring that knowledge is transformed into principles that can guide action through systematic and rigorous self-study. Conversations and deliberations over teacher preparation should bridge into a life-long learning-to-teach model that attracts and supports the best teachers. Autonomy should be attained within a framework of accountability.

Putting control of the content of teacher preparation in the hands of the state bureaucrats instead of in the hands of academics who thrive on autonomy is like giving hospitals or HMOs the responsibility for medical education, giant law firms the responsibility for legal education, and multi-national corporations the responsibility for the education of engineers. These are not effective ways to prepare knowledgeable, reflective professionals. Effective teachers are creative, responsible and knowledgeable. University-based teacher preparation programs are not there to train teachers, but to educate them (Price, 2003).

Ethnicity

Job opportunities for women and minorities have opened up in career fields where salaries and future opportunities have exceeded those of teachers in classrooms. Traditionally, teaching had been one of the most attractive career options for women and minorities. The fact that the most able have many other choices is having an adverse effect on the quality of entrants into the teaching profession (Anrig, Goertz, & Clark, 1986).

In Texas, during the 2000-2001 school year, there was a 58% minority representation in the student population, but only 27% in the teaching population. If there is not an increase of the supply of teachers, specifically minority teachers, the students in Texas will be at risk (Marshall & Marshall, 2003).

According to research, the National Education Agency opposed the use of tests as a criterion for teacher certification evaluation and promotion because standardized exams are biased against those who are economically disadvantaged, or who are culturally and

linguistically different. Individuals and groups concerned with the dissimilar impact of standardized examinations on prospective teachers from minority backgrounds are reluctant to endorse the use of the exams as a criterion for certification (Gifford, 1986).

In California, the highest failure rate on the California Basic Educational Skills Test (CBEST) in 1983 was among Blacks. For other minority groups, the test results were not much better. Only 39% of Hispanics and 50% of Asian-Americans passed the test. In comparison, the pass rate among Whites was 76%. The pass rates were similar in other areas of the United States. Of a total of 5,500 teachers certified in Florida in 1981, only 200 were Black. The Florida Teacher Competency Examination, administered for the first time in 1983, resulted in similar low numbers. While 90% of White candidates passed the examination, only 35% of Black candidates, 51% of Hispanic candidates, and 63% of Asian candidates passed (Gifford, 1986).

The first administration of the Texas testing program for prospective teachers eliminated 84% of the Black candidates and 65% of the Hispanic candidates on the basis of the mathematics examination. Also, 87% of the Black candidates and 65% of the Hispanic candidates failed the reading test, and 80% of the Black candidates and 56% of the Hispanic candidates failed the writing test (Gifford, 1986).

The problems associated with these high minority failure rates are made all the more serious by the increasing need for qualified Black, Hispanic, and Asian-American teachers at a time of rapid demographic change. The combination of high minority failure rates on teacher examinations and high minority pupil enrollment rates could result in a high degree of tension between minority parents and a largely non-minority

teaching staff. A conflict between communities and schools could ensue (Gifford, 1986).

According to Gifford (1986), the rates of failure on teacher examinations by minority teacher candidates reflect two gloomy trends. First, interest in teaching on the part of many well-educated students, especially talented minority students, has declined sharply in the last fifteen years. As new career opportunities outside education open up, the best and brightest minority and women students, who earlier might have entered teaching, have chosen other fields. Second, colleges and universities are failing to guarantee that their graduates, both minority and non-minority, can read with comprehension, write literately, and perform routine mathematical computations. The result is a decline in the supply of talented, well-educated minority teachers. Gifford attributes this second trend to the lack of a commitment by higher education institutions to the improvement of the attractiveness of the teaching profession.

In Florida, where applicants for teacher-training programs must score a minimum of 840 on the Scholastic Aptitude Test (SAT), some predict that future teachers from minority groups could become a vanishing breed. In Texas, where candidates for certification must pass state-mandated certification tests, researchers estimate that high numbers of Black and Hispanic candidates will be denied permission to teach on the basis of their reading tests alone. These findings have a devastating effect on young adults who have a strong desire to build a career for themselves by educating children, and minority groups who are denied access to successful role models. The extended fallout is that minority youth, upon learning that many prospective minority teachers are judged

not good enough to teach, will lose confidence in their own abilities and conclude that higher education is off limits to them (Gifford, 1986).

Many insights into the need for proficiency testing are gained by analyzing the arguments advanced by sociologist Harry Edwards of the University of California at Berkley regarding Rule 48 of the National Collegiate Athletic Association (NCAA). Passed in 1986, the rule required freshmen who wanted to participate in sports at any of the nation's Division I colleges and universities to have attained a minimum combined SAT score of 700 or a composite score of 15 on the American College Test (ACT) examination. Another requirement was to achieve a C average in eleven specific high-school courses, including English, mathematics, social sciences, and physical sciences. Many minority educators disagreed with the rule, claiming that the SAT and ACT were racist diagnostic tests, biased in favor of White students, and that the proposed cutoffs imposed unfair penalties on Black athletes. However, Edwards argued for the rule on the basis that by not supporting the rule, he would be sending a message to Black youth across America that he did not believe that they had the capacity to achieve the minimum scores (Gifford, 1986).

The rule was updated at the NCAA annual convention in the summer of 1995. The new standards strengthened the requirements for freshman eligibility and mandated that student athletes must make faster progress toward their degrees. The number of core courses that high school students must take to be eligible for intercollegiate athletics increased from eleven to thirteen. Other changes included raising GPA requirements from 2.0 to 2.5, raising the minimum SAT score to 800, and raising the minimum ACT score to 19 (Steenkamer, 1992). Support of minimum-competency rules were coupled

with insistence that minority students received a sufficiently high-quality education necessary to enable them to score competitively on standardized tests, including state-mandated teacher examinations (Gifford, 1986).

Test bias can be difficult to substantiate, and the elimination of test bias can be equally problematic. According to Gifford (1986), a class-action suit was filed in 1981 against the Alabama State Board of Education on the grounds that the state's teacher-competency testing program discriminated against Blacks and violated their constitutional and statutory civil rights. One provision of the consent decree in favor of the plaintiffs required the state to delete test questions that showed Black/White performance differentials of more than 15%. However, the consent decree was vacated in 1986 because the remedy would have resulted in the deletion of a large number of test items, which would have removed race bias, but would have also distorted the job relatedness of the testing program. The argument of test bias extends to scholastic aptitude tests, used by many colleges and universities to accept and reject applicants on the basis of merit. For many students these tests may be more of a reflection of their social class than of their potential for accomplishment inside or beyond the classroom. Research indicates that the major differential among SAT test scores is not between Black and White students, but between students from well-off families and students from poor families (Gifford, 1986).

The present pattern is clear: substantially larger proportions of Whites than Blacks or Hispanics are passing teacher-competency tests. What is unclear are the reasons for this trend. According to Anrig, Goertz, and Clark (1986), the three most common reasons – or myths – that have been used to explain differential pass rates are:

1. qualifying scores that have been established at the precise point that eliminates a majority of Black and Hispanic candidates, but permits the majority of White candidates to pass;
2. predominately White institutions are more effective at promoting student achievement than predominately Black institutions; and
3. failure rates reflect “bad” teacher education programs.

In reality, raising or lowering the qualifying score will affect percentages of Whites, Blacks, and Hispanics who pass the test. It will not, however, eliminate the problem of differential pass rates, or the fact that Blacks and Hispanics will be underrepresented among those who pass. Regarding myth #2, the pass rates among Blacks in predominately White institutions are not significantly higher than the pass rates for Blacks in predominately Black institutions in the same state. Whites in predominately Black institutions tend to achieve at rates that are comparable to or better than the rates of their counterparts in predominately White institutions. The overall pass rates for an institution may or may not be representative of the pass rates for the racial/ethnic groups within that institution. As for myth #3, accountability for teacher education should rest with the entire college or university, since approximately 40% of a teacher education program consists of general language arts coursework, and 35 to 40% is in the field of specialization to be taught. Research shows that perspective teachers, particularly Blacks and Hispanics, perform better on tests of pedagogy than on tests of general knowledge. Success or failure may be in education generally, rather than teacher education in particular (Anrig, Goertz, & Clark, 1986).

The question remains – how can the cycle of minority failure on state-mandated teacher certification tests be stopped? Research indicates that the reason minority applicants fare worse on the tests than Whites is that minority students are victims of inferior schooling. Instead of blaming the victim for the failure on examinations, focus must be put on the reform of the educational institutions that prepare future teachers. An underlying cause of the low minority pass rates on teacher-competency tests is inequities in the resources devoted to teacher-training institutions, particularly historically Black colleges. When higher-education institutions are strengthened, then the skills and knowledge of future teachers are advanced (Gifford, 1986).

Gifford (1986) suggested a comprehensive proposal to ensure students in teacher education programs at colleges and universities are taught all of the skills and understanding that they will need to function well in the contemporary world and to be prepared to make the best adaptations and choices in their lives as they move into the future. The proposal consisted of three steps: 1) the early recruitment and intensive training of minority and low-income students who have a commitment to teaching, 2) the implementation of improved teacher selection policies, and 3) the identification and reward of outstanding teachers. All of the knowledge and skills that are tested in competency examinations are learnable. Students can achieve acceptable test scores if they are taught what they need to know.

Research by Drew (2001) concerning the shortage of minority teachers in the teaching profession revealed several factors that have influenced African-American teachers to remain in teaching. Three themes emerged from the data, which Drew suggested might help educational leaders as they seek to recruit and retain African-

American teachers. (1) African-American teachers who exhibit an “ethic of care” practice a culturally relevant pedagogy. They encourage and support their students and demonstrate persistence in meeting the challenges of reluctant learners. (2) African-American teachers who demonstrate a sense of personal accountability feel obligated to their work as teachers. They know their students and their circumstances; and they are committed to helping children experience success in school. (3) Despite the importance of teachers’ personal commitment and ethic of care, there are environmental and work-related factors leaders can practice in seeking to recruit and retain African-American teachers. Drew’s research concluded that the voices of experienced African-American teachers provide the educational community with an opportunity to reflect on their values and beliefs about the teaching profession, and its obligation to help all children experience success in school.

Teaching is one of the most important activities of the human race. It is the one skill whose absence prevents successes and guarantees failures. Without good teaching, genius is struck dumb, poverty is made permanent, power is likely to be brutal, and culture is doomed to be channeled into mind-forged ruts. Lack of good teaching results in squabbling, atomistic tribes, each one pursuing narrow objectives, unable to identify with the aspirations of anyone outside of the group. Good teaching provides society with the tools necessary for self-perpetuation and self-renewal. As admirable and important as is the goal of increasing the ranks of minority teachers, this objective must not be put before the more fundamental objective of securing good teaching for those who need it most (Gifford, 1986).

Standardized Tests

According to research by Chambers, Munday, and Sienty (1999), when the variables grade point average, TASP reading scores, critical thinking ability, reading ability, gender, and age were examined to determine their effects on the scores of the PD ExCET, the result was that all variables were predictors of successful performance. However, when the variables were removed from the full research model and tested separately, only the set of critical thinking subtest scores were meaningful contributors. The conclusion of the research was that critical thinking abilities of the subjects are predictors of successful performance on the PD ExCET scores.

Subsequent research conducted by Dobry, Murphy, and Schmidt (1985) supported the claim that the National Teacher Examination (NTE) of Professional Knowledge did not serve as a predictor for ratings of student teacher competence, but their research did find a significant relationship between student grade point average and the professional knowledge test. Moore, Schurr and Henriksen corroborated this research in 1991 when they compared the relative accuracy of the National Teacher Examination Core Battery subtest scores and college grade point average for predicting teacher effectiveness. The study also evaluated if the subtests improved the prediction of teacher effectiveness over using the grade point average. Passing scores on the subtests of the exam are required for teacher certification in several states and some school personnel consider the scores when hiring new teachers. The conclusion of the research was that there was little evidence that the NTE Core Battery subtest scores provided useful information for predicting the teaching effectiveness of beginning teachers and that college grade point average

provided more accurate predictions of teaching effectiveness than did the core battery subtests.

According to research by Sibert (1989), the American College Testing (ACT) program test was a good predictor of scores on the Pre-Professional Skills Test and the National Teacher Examination of Professional Knowledge. The research concluded that the ACT scores could be used to predict the NTE scores. Villeme (1982) found that the ACT score appeared as the best predictor of success on the Professional Practices tests of the Florida Teacher Certification Examination. Additionally, student background variables (race, sex, education major, and lower level college background) appeared most useful for predicting Florida Teacher Certification Examination Professional Practices performance, with race appearing most consistently as a contributor to prediction. The findings concluded that the colleges of education entry factors (ACT scores and grade point average) were most promising for the prediction of performance on the Florida Teacher Certification Examination.

Research by Dybdahl, Shaw, and Edwards (1997) showed that there has been a lack of correlation between basic competency test scores and effectiveness in the classroom, and that the Pre-Professional Skills Test and the National Teacher Examination of Professional Knowledge were found to be weak predictors of actual classroom performance. Their research concluded that there was a significant relationship between undergraduate grade point average and the National Teacher Examination Core Battery test, and there was no significant correlation between basic competency test scores and various measures of program effectiveness. Notably absent from the research were correlations between the Pre-Professional Skills Test and

achievement in student teaching, employment interview scores, and post graduate employment. There was scant evidence to support the contention that performance on a teacher competency test is correlated with effective teaching.

A 1988 study of 188 education majors who completed course work at West Texas State University conducted by Nance and Kinnison suggested that ACT scores and GPA were reliable predictors of success on the ExCET. The researchers found that students who passed the ExCET scored six points higher on the ACT composite score than students who failed the ExCET, and that grade point averages were a significant factor for students who passed the ExCET. Further research by White, Burke, and Hodges (1994), Simonsson and Poelzer (2000), and Justice and Hardy (2001) supported the findings that SAT scores, ACT scores, TASP reading scores, and GPA are all significant predictors of ExCET success.

The fact is that after more than a decade of teacher testing, research has failed to demonstrate any significant relationship between basic competency tests and other measures of program success, including success in teaching. Rationale for teacher competency testing that assumes predictive validity is probably misleading (Dybdahl, Shaw, & Edwards, 1997).

Age and Gender

Important findings have shown that teachers' decisions whether to stay or leave the teaching profession are highly influenced by their age. The relationship between teachers' age and their departure has been found to follow a U-shaped curve. Younger

teachers have very high rates of departure. The rates decline through the mid-career period and then rise again in the retirement years. Because the distribution of age in the teaching force is skewed upward – older teachers significantly outnumber younger teachers – many analysts have concluded that retirement due to a rapidly graying teaching workforce is the most significant factor behind teacher attrition, teacher shortages, and school staffing problems (Ingersoll, 1997).

Research by Cohen (1990) found that five to six years after completing teacher certification, only 46% of traditional college-age students remained in the teaching force, whereas 85% of nontraditional or returning students were still teaching. Nontraditional, returning students begin their professional preparation in education with a background of realistic experiences with children. They make a commitment to education at a point in the life span when they have attained competence on a wide spectrum of adult concerns. Consequently, they are more likely to enter and remain in the profession than younger students. Traditional age teacher education candidates, in contrast, are considering career entry as they confront the challenges of young adulthood in the realms of family, finances, and long-term security. They are less likely to commit to the profession and may well need more guidance and direction from their professional preparation experiences in order to assess their interests, strengths, and career choices. In terms of future career planning, the nontraditional teachers intend to remain in classroom teaching positions while the traditional teachers are more inclined to set goals to move outside of the classroom into administrative or service positions (Cohen, 1990).

Research by Grissmer and Kirby (1993) also supported the theory that suggested a U-shaped relationship between age and attrition, with the probability of attrition likely to

be much higher during the early stages of the career, very low during mid-career, and high as the teacher approached retirement. This pattern holds true not only for a single group of teachers, but over time as well. Grissmer and Kirby found that annual attrition rates among young teachers, those aged 20-24, tended to be high – 23% in 1965 and 13% in 1985. The attrition rate fell with age, being the lowest for teachers aged 45-54 years. Then, not unexpectedly, attrition was higher for those aged 55 and over – the group approaching retirement.

Grissmer and Kirby's 1993 research discovered a surprising trend over time in terms of the age profile of new teachers. New teachers tended to be somewhat older than in the 60s and 70s. Three-quarters of new teachers then were younger than 25. By 1985, fewer than half were younger than 25, with almost a third being between 25 and 29 years, and the remaining 27% being 30 years or older. Older teachers tended to stay in teaching much longer than younger teachers. Those who entered at age 24 or younger appeared to be at the greatest risk of leaving. At the end of two years, about a third of those teachers had separated from teaching as compared to only 20% of those over 30. Grissmer and Kirby concluded that new graduates are postponing teaching, perhaps to stay in school longer or to try other occupations, and individuals are entering teacher education programs at older ages.

Studies show that attrition differs markedly for different demographic groups, especially between men and women. Men have much lower rates of attrition than women. Two years after entry, 28% of men drop out as compared to almost 35% of women. By the fourth year, well over half of the women have left teaching at least once, while the corresponding number for men is only 43%. However, the differences are

much smaller when permanent attrition is examined – only 2 to 3 percentage points. The conclusion is that women tend to drop out more frequently than men, but tend to return more frequently as well (Grissmer & Kirby, 1993).

Additional research by Bloland & Selby (1980) concluded that male teachers were more likely to change professions than females, with single males being the most mobile. Single males tended to move out of the profession altogether, while married male job changers more frequently aspired to higher level and better paid counseling or administrative positions within education. Single women tended to leave teaching more frequently than did married women. For both categories of women, change usually meant moving “out” instead of “up.” The researchers also concluded that as teachers invested more time and energy in acquiring advanced degrees, they were less likely to change professions. However, increased education and professionalization of teachers frequently resulted in intensified conflicts with principals and other administrators, a less harmonious/less satisfying work situation, and an increased willingness by teachers to consider a career change.

Interrelationships Among Variables

Teacher retention has long been of concern because it represents instability in the teaching force and raises the prospect of shortages of qualified replacement teachers. Many theories have tried to pinpoint the reasons teachers leave the profession after working so hard to reach their goal. Several predictors, such as gender and ethnicity, have been reported to be associated with turnover in several studies using state data, but more recent studies with national data have not found evidence that these variables are

related to teacher turnover. Perhaps the most reliable predictor of teacher attrition has been age, with markedly higher rates of attrition reported for both younger teachers, who are leaving the profession at an alarming rate, and older teachers, who are leaving the profession due to retirement (Boe, Bobbitt & Cook, 1997).

Various studies have produced inconsistent findings on the association between the level of teacher certification (regular versus emergency permit) and teacher retention. In contrast, there is considerable evidence that inexperienced teachers were more likely than experienced teachers to leave teaching. In addition, several studies have shown that teachers of high academic ability, as indicated by various test scores and grade point averages at time of graduation, were more likely to leave teaching than teachers of lower ability. Other research suggested, although findings have not been consistent, that there may be linkages between teacher education variables (degree level, degree field, type of teacher training) and teacher turnover (Boe, Bobbitt, & Cook, 1997).

Research by Boe, Bobbitt, and Cook (1997) concluded that higher levels of teacher attrition are characteristic of teachers who are less than 40 years old, who are relatively inexperienced, who earn low salaries, and who lack full certification in their main teaching assignments. They also concluded that a number of variables were not significantly related to teacher attrition, including gender, race/ethnicity, level of highest degree earned, school size, community type, and region of the nation, which the researchers point out should at least temper alarms that are occasionally sounded about the supposed disproportionate loss of male teachers, minority teachers, better educated teachers, and teachers from urban districts.

A desire to help students is not enough for a teacher to remain in the profession. Each year, teachers leave teaching for many reasons. According to Colbert and Wolff (1992), more than 50% of all newly hired teachers leave the profession within five years. Research indicates that the main reasons are dissatisfaction with teaching as a career, specifically inadequate administrative support; devaluing teachers' voices; worsening social conditions; stress and burnout; and money (Natale, 1993).

Many teachers believe school administration to be more detrimental than helpful to the business of teaching, and deficient in two ways: 1) lack of support for the craft of teaching, and 2) lack of support for the teaching profession. The first deficiency is a school-level problem where teachers don't always have people in the building willing or able to address individual students' special needs so the teacher can concentrate on the academic needs of all students in the classroom. The second deficiency is a problem at the district level and beyond – the prevailing perception that teaching and the purposes it serves are not important (Natale, 1993).

Teachers become frustrated when their work is devalued and their qualifications to make decisions about what is best for students are ignored. It is important for teachers to be treated and seen as professionals. The persistent push by legislators for national standards and national tests indicates emphasis is still strong for decision-making outside individual classrooms and schools. Teachers' voices are silent in policymaking. According to the 1993 Metropolitan Life Survey of the American Teacher, 57% of the teachers surveyed say too little decision-making rests with local schools (Natale, 1993).

Social conditions that affect children also affect teaching and have a bearing on some teachers' decisions to leave the profession. In the past, people went into teaching to

address academic and intellectual needs. Current problems are different and have caused a lot of dysfunction in public education. According to a National Center for Educational Statistics (NCES) survey, nearly 18% of those teachers who said career dissatisfaction had something to do with their decision to leave the profession cited poor student motivation to learn as the main reason. The Metropolitan Life Survey of the American Teacher supported the findings and also found new teacher optimism fading. Before they began teaching, 28% of the teachers who were surveyed agreed children came to school with problems that effected their ability to learn; after completing one year of teaching the percentage rose to 47; and after two years of teaching, 50% felt that way. Nearly one-fifth of the teachers in the survey with two years of teaching experience indicated they would be leaving the teaching profession within five years (Natale, 1993).

The stress of dealing with children with so many problems and the lack of administrative support resulted in burnout, a factor to which teachers attribute their feelings of powerlessness and alienation. Research had found that teachers were being trained for the 1930s school while experiencing 1990s students and society (Natale, 1993). The rising incidence of school violence has also contributed to teacher stress and burnout. According to Mike Allen, an 18-year veteran of the Oklahoma City Schools and president of the Oklahoma City Federation of Teachers, teachers walk into classrooms everyday not knowing who has the guns and knives.

The way teachers are paid is another contributing factor of teacher retention. The teaching profession does little to offer the opportunity for financial and professional growth. Rewards such as raises, new responsibilities, encouragement to try a fresh approach with a difficult student, and acknowledging and trusting a teacher's insight and

value are few and far between. Many teachers are driven from the profession in search of higher salaries. In a 1992 Metropolitan Life Survey of the American Teacher, 29% of the new teachers surveyed who said they were thinking of leaving the profession cited the major reason was a desire or need for more money. Money contributes to the way people perceive the teaching profession and their ability to earn a living. Attracting and retaining the most intellectually engaged and socially connected people for the teaching profession requires them to be able to see an economically viable future (Natale, 1993).

The most important rewards for teachers will be intrinsic. As schools become more complex and as students become more challenging to teach, good teachers will demand more from their profession, their administrators, the legislature and the public. Failing to have their demands and requests met will result in good teachers leaving the profession. These losses will be measured every time a student misses an opportunity to learn (Natale, 1993).

Summary of the Literature Review

Teaching is a relatively large occupation representing 4% of the entire civilian workforce. According to the Statistical Abstract of 1998, there were over twice as many K-12 teachers as registered nurses and five times as many teachers as either lawyers or professors. Also, the rate of turnover of teachers appeared to be higher than in many other occupations and was a sizable phenomenon: in 1994-95, over 417,000 teachers from a force of about 3 million departed their teaching jobs (Ingersoll, 1997).

This review of the literature on teacher retention, state-mandated teacher certification examinations, teacher education programs, ethnicity, standardized test

scores, and age and gender as related to long-term employment in public education, revealed a need for continued research in these areas. The sheer number of studies that dealt with teacher retention and attrition indicated their importance. However, studies measuring the relationship between teacher retention and scores on state-mandated teacher certification examinations continue to produce inconclusive and, at times, incompatible results. Even though research by Schlechty and Vance (1981) and the Texas Education Agency in their 1995 report *Texas Teacher Retention, Mobility, and Attrition* stated that a longitudinal study of teachers in North Carolina showed a strong positive relationship between high test scores on the National Teachers Examination and the likelihood of leaving the profession, the TEA report went on to say that in contrast, certified Texas teachers in 1988-89 with higher scores on the ExCET were no more likely to leave the profession in their first five years of teaching than were teachers who had average or lower scores. Certified teachers are in short supply and highly sought after in many school districts around the country. Retention of current faculty is one solution to this crisis. It is, therefore, prudent to identify those factors that predict faculty turnover and attrition and to take steps to alleviate them.

CHAPTER 3

Method of Procedure

This chapter describes the participants, instrument, collection and treatment of data, and the statistical analysis design used in this study. The investigation was concerned with the relationship between the following variables and teacher retention: Professional Development Examination for the Certification of Educators in Texas (PD ExCET) scores, Texas Academic Skills Program (TASP) reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average.

Research Questions

The following research questions guided the study.

1. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, and undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose to enter the teaching profession?
2. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, and undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose not to enter the teaching profession?

3. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and returned to the profession for a second year?
4. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose not to return to the profession for a second year?
5. What is the relationship between the following variables and teacher retention: PD ExCET scores, TASP reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average?

Participants

From the database at the ExCET Office on the campus of a single Texas senior-level university, 503 students who had passed the Professional Development (PD) Examination for Certification of Educators in Texas (ExCET) between September 1, 1996 and August 30, 2000 were identified. Only those students who successfully completed one of the teacher education programs, obtained a passing score (70+) on the PD ExCET between September 1, 1996 and August 30, 2000, and secured a teaching contract at a Texas public school district for at least two consecutive years were used in the study. Those students who successfully completed one of the teacher education

programs, obtained a passing score (70+) on the PD ExCET between September 1, 1996 and August 30, 2000, but never taught in a Texas public school district were included in the descriptive statistics, but were gleaned from the database for final analysis of the data. An additional group of participants were included in the descriptive statistics, but were removed from the database before the final analysis of the data because they were hired to teach in a Texas public school in the year 2001 or 2002 so they did not have an opportunity to complete two consecutive years of teaching when this research was conducted.

Instrumentation

Overview and Purpose. Texas is committed to maintaining a teaching force that will produce enhanced student achievement and meet the changing roles and expectations of professional educators in the dynamic and diverse society of our state. Teacher assessments must ensure that teachers can demonstrate higher-order thinking; that the purposes of instruction relate to real-world outcomes; and that the interdisciplinary nature of the curriculum, rather than isolated skills and knowledge, is the focus of instruction. Teachers must be prepared to use new technologies so that students will be prepared to enter a high-tech world as they leave the school system. Today's teachers must demonstrate flexibility and creativity in solving the problems they face in their classrooms. The teaching role is expanded to communicating within the larger school organization and local community. To this end, the ExCET tests measured an individual's preparedness to deal with changing roles and expectations that teachers face in Texas public schools. The ExCET program was designed to assess subject-matter

knowledge and professional knowledge required of entry-level educators, rather than knowledge gained through professional experience on the job. All the tests in the ExCET program are criterion referenced; that is, they are designed to measure knowledge in relation to an established standard of competence (criterion) rather than in relation to the performance of other candidates. The explicit purpose of the ExCET program was to help identify those candidates who have demonstrated the level of professional and subject-matter knowledge required to perform satisfactorily in their teaching field (State Board of Educator Certification, 2002).

The instrument used for this study was the Professional Development (PD) Examination for Certification of Educators in Texas (ExCET). The test is made up of criterion-referenced multiple-choice questions developed around an established set of domains and competencies. Each content area to be tested is defined by a set of competencies written to correspond to state curriculum guidelines, curriculum materials, and current research on teaching practices. Committees of Texas educators reviewed each competency to ensure that it was appropriate for its certification area. Then a sample of practicing Texas educators participated in a job analysis survey to judge the importance of each competency in relation to the job of a teacher in Texas public schools. Test questions were written to correspond to the competencies. Texas educators reviewed each test question for accuracy of content and elimination of potential bias, and the resulting questions field tested to ensure that they were fair, valid measures of the competencies (State Board of Educator Certification, 2002).

According to the *ExCET Preparation Manual*, there are four types of multiple-choice items: 1) Single Items, 2) Correct Response Set Items, 3) Items with Stimulus

Material, 4) Clustered Items. Single Items are defined as direct questions or incomplete statements that require one answer. Correct Response Set Items are defined as questions that require a set of answers. The questions are geared to emulate a real world situation in which the teacher will be faced with a set of options and will have to choose the best answers among the appropriate options. Items with Stimulus Material are defined as questions that are preceded by some stimulus material (teacher notes, samples of student work, etc.), that require analysis, problem solving, or decision-making. The questions are geared to assess the ability to understand educational contexts and perform as a teacher may perform in various situations. Clustered Items are defined as questions that require the best answer among one or several appropriate options. The questions are organized so that students must demonstrate an understanding of multiple competencies that can be met in any given activity (State Board of Educator Certification, 2002).

The PD ExCET is divided into three domains. A set of competencies defines each domain. Each competency has two major parts – the *competency statement*, which broadly defines the content that an entry-level educator needs to know (this includes a brief topic statement which is underlined), and the *descriptive statement*, which describes in greater detail the types of knowledge and skills covered by the competency (Simonsson & Poelzer, 2000).

The three domains of the PD ExCET are: Understanding Learners – 5 competencies, 33% of the test; Enhancing Student Achievement – 6 competencies, 40% of the test; and Understanding the Teaching Environment – 4 competencies, 27% of the test (Simonsson & Poelzer, 2000).

Reliability and Validity. The ExCET test was the result of a careful process designed to create a valid assessment that produced reliable results for each examinee. The most critical element in the process was the involvement of Texas public school and university educators. The content to be assessed was defined by a set of competencies based on current curriculum guidelines, curriculum materials, input from content-area specialists, and current research on educational practices. Committees of Texas educators participated in the development of the competencies to ensure that they accurately reflected the needs of the job. Then educators from across the state participated in a job analysis survey in which they judged the importance of each competency relative to their specific jobs. Test questions were written to correspond to the validated competencies. Using specific criteria, a committee of Texas educators reviewed each ExCET test question for accuracy of content and fairness to all examinees. Additionally, questions were field tested to ensure that they were reliable, valid measures of the competencies (State Board of Educator Certification, 2002).

Characteristics of the ExCET Tests. According to the State Board of Educator Certification (2002), it is necessary to pass one content area test and one professional knowledge test to earn teacher certification in Texas. The ExCET program includes two professional development tests – one for elementary certification (K-8), and one for secondary certification (7-12).

- The ExCET tests reflect the educator proficiencies as described in *Learner-Centered Schools for Texas: A Vision of Texas Educators*. These proficiencies were adopted by the State Board for Educator Certification to guide teacher education, assessment, and certification.

- Each ExCET test is designed to assess content and professional knowledge required of entry-level educators rather than knowledge gained through professional experience on the job.
- Each ExCET test is criterion-referenced; that is, it is designed to measure understanding and skills in relation to an established standard of competence (criterion) rather than in relation to the performance of other candidates. The State Board for Educator Certification established a passing score that reflects the minimum knowledge required to practice in Texas public schools.
- Most of the ExCET tests consist solely of selected response, or multiple choice, questions. A few of the ExCET tests contain constructed response, or essay-type, questions.

Collection of the Data

All data were collected from the databases located in the ExCET Office and the Office of Planning and Institutional Research at a single Texas senior-level university; and at the State Board of Educator Certification (SBEC), a department of the Texas Education Agency (TEA). Data were collected as follows:

1. The researcher requested from the ExCET office a list of students who had successfully passed the PD ExCET with a score of 70% or better between September 1, 1996 and August 30, 2000. Additional information requested included age at time of testing, gender, ethnicity, and type of certification program completed.

2. The Office of Planning and Institutional Research received a copy of the data file from the ExCET office, added TASP reading scores and undergraduate grade point averages to the data set, and returned the data file to the ExCET office.
3. The State Board of Educator Certification also received a copy of the data file from the ExCET office along with a request to match the names in the data file to public school teaching assignments from 1996 to 2002.
4. SBEC returned the expanded data file to the ExCET office.
5. When the data sets were returned to the ExCET office from the Office of Planning and Institutional Research and SBEC, the two lists were merged together and all identifying information (names and social security numbers) was removed.
6. The ExCET office electronically forwarded the final data file to the researcher.

Treatment of the Data

From the database at the ExCET Office on the campus of a single Texas senior-level university, 503 students who had passed the Professional Development (PD) Examination for Certification of Educators in Texas (ExCET) between September 1, 1996 and August 30, 2000 were identified. Data from the ExCET office were compared to the data from SBEC to determine those students who passed the ExCET test, obtained Texas teacher certification, and were subsequently hired to teach in a Texas public school. Four separate data sets were constructed to answer each of the research questions: (1) PD ExCET successful students who completed the field-based education program and chose to enter the teaching profession, (2) PD ExCET successful students who completed the field-based education program and chose not to enter the teaching

profession, (3) PD ExCET successful students who completed the field-based education program and returned to the profession for a second year, and (4) PD ExCET successful students who completed the field-based education program and chose not to return to the profession for a second year.

To answer research question number five, an attempt was made to develop a logistic regression equation predicting teacher retention in Texas public schools in relationship to each of the following variables: PD ExCET scores, TASP reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average. Logistic regression looks at the relationship between the variables of interest as the core focus of the analysis and uses the concept of the odds ratio as its measure of association (Woldbeck, 1998). The purpose of this type of analysis is to find the best-fitting model to describe the relationship between an outcome variable and a set of independent variables (Westing & Whitten, 1996). An acceptable overall model could not be developed.

Summary

This chapter described the participants of the study. A description of the overview and purpose of the instrumentation was included, followed by an explanation of the reliability and validity of the instrument. The chapter concluded with comments regarding data collection, the treatment of the data, and the statistical analysis design used in this study. A narrative description and descriptive tables of the participants, findings, and analyses of the procedures are presented in Chapter 4.

CHAPTER 4

Presentation and Analysis of Data

The major purpose of this study, conducted during the spring and summer semesters of 2003, was to determine the relationship between the following variables and teacher retention: Professional Development Examination for the Certification of Educators in Texas (PD ExCET) scores, Texas Academic Skills Program (TASP) reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average. A point-biserial correlation coefficient was used to determine the relationship between the following variables and teacher retention: PD ExCET scores, age at time of passing the PD ExCET, TASP reading scores, and undergraduate grade point average. A phi coefficient was used to determine the relationship between the following variables and teacher retention: ethnicity, teacher education program completed and gender. Trends and characteristics of the participants are included. The chapter concludes with a summary.

Participant Trends and Characteristics

From the database at the ExCET Office on the campus of a single Texas senior-level university, 503 students who had passed the Professional Development (PD) Examination for Certification of Educators in Texas (ExCET) between September 1, 1996 and August 30, 2000 were identified. Additional information obtained from the ExCET Office included age at time of testing, gender, ethnicity, and type of teacher

education program completed. Undergraduate grade point averages and TASP reading scores for the participants were obtained from the Office of Planning and Institutional Research at the same university, and place and length of employment in Texas public schools were obtained from the State Board of Educator Certification.

The average age of the 503 participants was 29.38, with a range from 21 through 66. The participants were relatively evenly divided by gender, with 49.1% females and 50.9% males. The majority of the participants, 88.9%, were non-minority, with the remaining 11% minority. Slightly more than 53% of the participants completed the field-based teacher education program, while the remainder, 46.5%, completing the emergency permit teacher education program. PD ExCET scores ranged from a high of 96 to a low of 70 (lowest possible passing score), with an average score of 79. TASP reading scores ranged from 300 (the highest possible score) to 222, with an average score of 270. Undergraduate grade point averages ranged from a high of 4.0 to a low of 1.58, with a mean score of 3.30. Characteristics of the entire sample of 503 identified participants are shown in Table 1.

Table 1

Select Descriptive Statistics for All Study Participants

Variable	N=503	Mean	SD
PD ExCET score		79	6.311
Age		29	7.634
TASP reading score		270	18.166
Undergraduate GPA		3.30	.444

Twenty-nine (6%) of the identified participants were removed from the database because they did not teach in a Texas public school during the years covered by this research. The age range of this group of participants was from 21 to 66, with an average age of 31. Of those 29, 14 were male and 15 were female. The ethnic breakdown was 97% non-minority, and 3% minority. Slightly more than 62% completed the field-based teacher education program while 37.9% completed the emergency permit teacher education program. Professional Development ExCET scores ranged from a high of 92 to a low of 70, with an average score of 79. TASP reading scores ranged from 297 to 222, with an average score of 266. Undergraduate grade point averages ranged from a high of 4.0 to a low of 2.5, with a mean score of 3.3. Characteristics of the 29 non-teachers are shown in Table 2.

Table 2

Select Descriptive Statistics for all Non-teachers

Variable	N=29	Mean	SD
PD ExCET score		79	7.04
Age		31	9.68
TASP reading score		266	19.07
Undergraduate GPA		3.31	.3134

An additional 56 (11%) participants were removed from the database because they were hired to teach in a Texas public school in the year 2001 and 2002, therefore they did not have an opportunity to complete two consecutive years of teaching when this research was conducted. The age range of this group of participants was from 22 to 49, with an average age of 28. Of those 56, 31 were male and 25 were female. The ethnic breakdown was 87.5% non-minority, and 12.5% minority. Exactly half (28) of this group completed the field-based teacher education program, while the other half (28) completed the emergency permit teacher education program. Professional Development ExCET scores ranged from a high of 96 to a low of 70 with an average score of 78. TASP reading scores ranged from 300 to 226, with an average score of 269. Undergraduate grade point averages ranged from a high of 4.0 to a low of 2.68, with a mean score of 3.33. Characteristics of the 56 participants who completed all certification requirements

and entered the teaching profession in a Texas public school in the year 2001 and 2002 are shown in Table 3.

Table 3

Select Descriptive Statistics for 2001-2002 Hires

Variable	N=56	Mean	SD
PD ExCET score		78	6.76
Age		28	6.43
TASP reading score		269	19.68
Undergraduate GPA		3.33	.3425

Of the remaining 418 participants who completed all certification requirements and were hired to teach in a Texas public school, 30 left the profession before they completed two consecutive years of teaching. This group was coded as “leavers”. The age range was from 22 to 60, with an average age of 29. Of those 30, 18 were male and 12 were female. The ethnic breakdown was 93% non-minority, and 7% minority. Slightly more than 57% completed the field-based teacher education program while 43% completed the emergency permit teacher education program. Professional Development ExCET scores ranged from a high of 91 to a low of 71, with an average score of 79. TASP reading scores ranged from 300 to 238, with an average score of 271.

Undergraduate grade point averages ranged from a high of 4.0 to a low of 2.39, with a mean score of 3.15. Characteristics of the “leavers” are shown in Table 4.

Table 4

Select Descriptive Statistics of Teachers Not Returning for a Second Year

Variable	N=30	Mean	SD
PD ExCET score		79	5.184
Age		29	8.766
TASP reading score		271	14.631
Undergraduate GPA		3.15	.44018

The remaining 388 participants were coded as “stayers” because they completed two or more consecutive years as a teacher in a Texas public school. The age range of this group was from 21 to 59, with an average age of 30. Of those 388, 193 were male and 195 were female. The ethnic breakdown was 88% non-minority and 12% minority. Slightly more than 52% completed the field-based teacher education program while 47% completed the emergency permit teacher education program. Professional Development ExCET scores ranged from a high of 96 to a low of 70, with an average score of 79. TASP reading scores ranged from 300 to 224, with an average score of 270. Undergraduate grade point averages ranged from a high of 4.0 to a low of 1.6, with a

mean score of 3.31. Characteristics of the sample of the 388 “stayers” are shown in Table 5.

Table 5

Select Descriptive Statistics for Retained Teachers

Variable	N=388	Mean	SD
PD ExCET score		79	6.280
Age		30	7.555
TASP reading score		270	18.136
Undergraduate GPA		3.31	.46359

Tables 6 through 8 clarify and further breakdown the general demographics of the total number of participants in the study (n=503). Table 6 shows the number and percentage of participants by gender, Table 7 shows the number and percentage of participants by type of teacher education program, and Table 8 shows number and percentage of participants by ethnicity.

Table 6

Number and Percentage of Participants by Gender

	Total	Percentage
Characteristic	Number	of Participants
Female	247	49.1
Male	256	50.9

Table 7

Number and Percentage of Participants by Type of Teacher Education Program

	Total	Percentage
Characteristic	Number	of Participants
Emergency Permit TE program	234	46.5
Field-based TE program	269	53.5

Table 8

Number and Percentage of Participants by Ethnicity

Characteristic	Total	Percentage
	Number	of Participants
Minority	56	11.0
Mon-minority	447	88.9

Table 9 and Table 10 describe the breakdown of the total number of participants in the study (n=503) by gender. Table 9 shows the number and percentage of ethnicity by gender and Table 10 shows the number and percentage of type of teacher education program by gender.

Table 9

Number and Percentage of Ethnicity by Gender

Ethnicity	Female (247)		Male (256)	
	#	%	#	%
Minority	35	14.2	21	8.2
Non-minority	212	85.8	235	91.8

Table 10

Number and Percentage of Type of Teacher Education Program by Gender

Teacher Education Program	Female (247)		Male (256)	
	#	%	#	%
Field-based (student teaching)	133	53.8	136	53.1
Emergency Permit	114	46.2	120	46.9

Tables 11 through 13 include the descriptive characteristics of the 29 participants who passed the PD ExCET but chose not to enter the teaching profession. Table 11 shows the number and percentage of non-teaching participants by gender. Table 12 shows the number and percentage of non-teaching participants by type of teacher education program. Table 13 shows the number and percentage of non-teaching participants by ethnicity.

Table 11

Number and Percentage of Non-teaching Participants by Gender

Characteristic	Total	Percentage
	Number	of Participants
Female	15	51.7
Male	14	48.3

Table 12

Number and Percentage of Non-teaching Participants by Type of Teacher Education Program

	Total	Percentage
Characteristic	Number	of Participants
Emergency Permit TE program	11	37.9
Field-based TE program	18	62.1

Table 13

Number and Percentage of Non-teaching Participants by Ethnicity

	Total	Percentage
Characteristic	Number	of Participants
Minority	1	3.4
Non-minority	28	96.6

Table 14 and Table 15 describe the breakdown by gender of the 29 participants who passed the PD ExCET but chose not to enter the teaching profession. Table 14 shows the number and percentage of non-teaching participants by ethnicity and Table 15 shows the

number and percentage of non-teaching participants by type of teacher education program.

Table 14

Number and Percentage of Non-teaching Participants by Ethnicity by Gender

Ethnicity	Female		Male	
	#	%	#	%
Minority	1	6.7	0	0
Non-Minority	14	93.3	14	100

Table 15

Number and Percentage of Non-teaching Participants by Type of Teacher Education Program by Gender

Teacher Education Program	Female		Male	
	#	%	#	%
Field-based (student teaching)	8	53.3	10	71.4
Emergency Permit	7	46.7	4	28.6

Research Questions

The following research questions guided the study.

1. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, and undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose to enter the teaching profession?

The total number of PD ExCET successful students who completed the field-based teacher education program and chose to enter the teaching profession was 251. There were 125 males and 126 females in this group. Almost 91% were non-minority, with only 9% representing minority groups. Table 16 shows the descriptive statistics of this group for the following variables: PD ExCET scores, age at time of passing the PD ExCET, TASP reading scores, and undergraduate grade point average.

Table 16

Select Descriptive Statistics for PD ExCET Successful Students Who Completed the Field-based Teacher Education Program and Entered the Teaching Profession

Variable	N=251	Mean	SD
PD ExCET score		78	5.59
Age		28	7.24
TASP reading score		269	18.21
Undergraduate GPA		3.30	.4384

2. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, and undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose not to enter the teaching profession?

The total number of PD ExCET successful students who completed the field-based teacher education program and chose not to enter the teaching profession was 18. There were 10 males and 8 females in this group. Almost 94% (17) were non-minority, with only one person representing a minority group. Table 17 shows the descriptive statistics of this group for the following variables: PD ExCET scores, age at time of passing the PD ExCET, TASP reading scores, and undergraduate grade point average.

Table 17

Select Descriptive Statistics for PD ExCET Successful Students Who Completed The Field-Based Teacher Education Program And Did Not Enter The Teaching Profession

Variable	N=18	Mean	SD
PD ExCET score		78	6.21
Age		28	6.87
TASP reading score		261	17.56
Undergraduate GPA		3.38	.2047

3. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and returned to the profession for a second year?

The total number of PD ExCET successful students who completed the field-based teacher education program and returned to the profession for a second year was 244. There were 122 males and 122 females in this group. Almost 91% were non-minority, with 9% representing minority groups. Table 18 shows the descriptive statistics of this group for the following variables: PD ExCET scores, age at time of passing the PD ExCET, TASP reading scores, and undergraduate grade point average.

Table 18

Select Descriptive Statistics for PD ExCET Successful Students Who Completed The Field-Based Teacher Education Program And Returned for a Second Year

Variable	N=244	Mean	SD
PD ExCET score		78	5.94
Age		28	7.30
TASP reading score		269	18.23
Undergraduate GPA		3.29	.4385

4. What are the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose not to return to the profession for a second year?

The total number of PD ExCET successful students who completed the field-based teacher education program and chose not to return to the profession for a second year was 7. There were 4 males and 3 females in this group. Six were non-minority, with only one person representing minority group. Table 19 shows the descriptive statistics of this group for the following variables: PD ExCET scores, age at time of passing the PD ExCET, TASP reading scores, and undergraduate grade point average.

Table 19

Select Descriptive Statistics for PD ExCET Successful Students Who Completed The Field-Based Teacher Education Program and Chose Not to Return for a Second Year

Variable	N=7	Mean	SD
PD ExCET score		80	6.65
Age		24	3.08
TASP reading score		273	18.58
Undergraduate GPA		3.46	.4330

5. What is the relationship between the following variables and teacher retention: PD ExCET scores, TASP reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average?

Research questions number five for this study examined the relationship between the following variables and teacher retention: PD ExCET scores, TASP reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average. A point-biserial correlation coefficient was conducted between the following variables to determine their relationship to teacher retention: PD ExCET scores, age at time of passing the PD ExCET, TASP reading scores and undergraduate grade point average. A phi coefficient was used to determine the relationship between the following variables and teacher retention: ethnicity, teacher education program completed and gender (Jurs, 1998).

The SPSS 11.5 program was used to analyze the relationship between the variables. Table 20 shows the correlations between teacher retention and PD ExCET scores, age at time of passing the PD ExCET, TASP reading scores and undergraduate grade point average. The final results indicated that there is not a relationship between the selected variables and teacher retention.

Table 20

Relationship Between Teacher Retention and Select Variables

Variable	Point bi-serial	Significance (2-tailed)
PD ExCET score	-.022	.652
Age	.011	.830
TASP reading score	-.012	.799
Undergraduate GPA	.089	.068

The special case in which both variables are nominal dichotomous variables is called the phi coefficient (Jurs, 1998). Table 21 shows the crosstabulation results for the variables of ethnicity, gender, and type of teacher education program completed. The final results indicated that there is not a relationship between the identified variables and teacher retention.

Table 21

Phi Coefficient Results for Select Variables and Teacher Retention

Variable	Phi coefficient	Significance
Ethnicity	-.040	.410
TE program	-.018	.705
Gender	-.053	.279

An attempt was made to develop a logistic regression equation predicting teacher retention. An acceptable overall model could not be developed because none of the selected variables entered the equation.

Summary

From the database at the ExCET Office at a single Texas senior-level university, 503 students who had passed the Professional Development (PD) Examination for Certification of Educators in Texas (ExCET) between September 1, 1996 and August 30, 2000 were identified.

Research question number one addressed the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, and undergraduate grade point average) of 251 PD ExCET successful students who completed the field-based teacher education program and chose to enter the teaching profession. There were 125

males and 126 females in this group. Almost 91% were non-minority, with only 9% representing minority groups.

Research question number two addressed the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, and undergraduate grade point average) of 18 PD ExCET successful students who completed the field-based teacher education program and chose not to enter the teaching profession. There were 10 males and 8 females in this group. Almost 94% (17) were non-minority, with only one person representing a minority group.

Research question number three addressed the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, undergraduate grade point average) of 244 PD ExCET successful students who completed the field-based teacher education program and returned to the profession for a second year. There were 122 males and 122 females in this group. Almost 91% were non-minority, with 9% representing minority groups.

Research question number four addressed the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, undergraduate grade point average) of 7 PD ExCET successful students who completed the field-based teacher education program and chose not to return to the profession for a second year. There were 4 males and 3 females in this group. Six were non-minority, with only one person representing minority group.

Research Question 5 examined the relationship between the following variables and teacher retention: PD ExCET scores, TASP reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or

emergency permit teacher education program, gender, and undergraduate grade point average. For that purpose, an attempt was made to develop a logistic regression model since the dependent variable (stay/leave) was binary; however, none of the selected variables entered into the equation. An acceptable overall model could not be developed.

A point-biserial correlation coefficient was used to determine the relationship between the following variables and teacher retention: PD ExCET scores, age at time of passing the PD ExCET, TASP reading scores, and undergraduate grade point average. A phi coefficient was used to determine the relationship between the following variables and teacher retention: ethnicity, teacher education program completed, and gender. The results of the study show that there is no relationship between the selected variables (Professional Development Examination for the Certification of Educators in Texas scores, Texas Academic Skills Program reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average) and teacher retention.

CHAPTER 5

Summary, Findings, Conclusions, Implications, and Recommendations for Further Research

This chapter presents a summary of the investigation, a discussion, and the findings and conclusions. Included are implications for practice. The chapter concludes with recommendations for further research.

Summary

When a certified teacher makes the decision to leave the profession, it is rare that a single motivating factor can be identified. Research indicates that factors useful in the prediction of teacher attrition do exist (Boe, Bobbitt & Cook, 1997; Brubaker, 1976; Chapman & Green, 1986; Cohen, 1990; Colbert & Wolff, 1992; Grissmer & Kirby, 1993; Hare & Nathan, 1999; Ingersoll, 1997; Jorissen, 2002; Marshall & Marshall, 2003; Miller, Brownell, & Smith, 1995; Natale, 1993; Patrick, 2000; Pidge & Marso, 1996; Ruhland, 2001; Schlechty & Vance, 1981; Schlechty & Vance, 1983; Stottlemyer, Reinhardt-Mondragon, & Eberhard, 2000; Texas Education Agency, Austin Division of Policy Planning and Evaluation, 1995; Westling & Whitten, 1996). The current teacher attrition rate combined with the current teacher shortage, especially in high needs areas, and the national emphasis on education excellence creates a need for public school administrators and college and university teacher education program administrators to identify those aspects of a teacher's job which predict the inclination to leave the profession in an effort to retain certified teachers.

Discussion

The overall purpose of this investigation was to determine the relationship between teacher retention and the following variables: Professional Development Examination for the Certification of Educators in Texas (PD ExCET) scores, Texas Academic Skills Program (TASP) reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average. The study was conducted during the spring and summer of 2003.

From the database at the ExCET Office of a single Texas senior-level university, 503 students who had passed the PD ExCET between September 1, 1996 and August 30, 2000 were identified. The ExCET Office also supplied the names, social security numbers, PD ExCET passing scores, age at time of passing the PD ExCET, ethnicity, gender, and type of teacher education program completed for each of the identified participants. The ExCET Office forwarded electronically the data set to the Office of Institutional Research at the university where TASP reading scores and undergraduate grade point averages were added to the master list. The master list was also forwarded electronically to SBEC where public school teaching assignments for each identified participant for the years covered in the study were added and the list was returned to the ExCET office. The two lists were merged together and all identifying markers were removed from the list before being sent to the researcher.

Before final analyses were conducted, two groups of identified participants were removed from the database: 1) 29 because they did not teach in a Texas public school during the years covered by the study, and 2) 56 because they were hired to teach in a

Texas public school in the year 2001 or 2002 so they did not have an opportunity to complete two consecutive years of teaching when this research was completed.

Findings

A number of results from previous studies have been confirmed in this study. The selected variables (PD ExCET scores, age at time of passing a certification test, gender, ethnicity, type of teacher education program completed, undergraduate grade point averages and TASP reading scores) were not predictors of teacher retention.

1. The passing score of the PD ExCET was not a significant predictor of teacher retention. Participants who taught at least two years in a Texas public school (n=388) had PD ExCET scores that ranged from 96 to 70, with a mean of 79. The participants who taught less than two consecutive years or who never taught in a Texas public school (n=59) had PD ExCET scores that ranged from 70 to 96, with a mean of 78.
2. The age at time of passing the PD ExCET was not a significant predictor of teacher retention. The mean age of the participants who taught at least two years in a Texas public school was 30, with a range from 21 through 60. The mean age of the participants who taught less than two consecutive years or who never taught in a Texas public school was 29.76, with a range from 22 through 66.
3. The gender of the participants was not a significant predictor of teacher retention. Of the participants who taught in a Texas public school at least two years, 50% were female and 50% were male. Of the participants who taught less than three

consecutive years or who never taught in a Texas public school, 49.7% were female and 50.3% were male.

4. The ethnicity of the participants was not a significant predictor of teacher retention. Of the participants who taught in a Texas public school at least two years, 88% were non-minority, and 12% were minority. Of the participants who taught less than two consecutive years or who never taught in a Texas public school, 86.3% were non-minority and 13.7% were minority.
5. The type of teacher education program completed was not a significant predictor of teacher retention. Of the participants who taught in a Texas public school at least two years, 53% completed the field-based teacher education program and 47% completed the emergency permit teacher education program. Of the participants who taught less than two consecutive years or who never taught in a Texas public school, 52.7% completed the field-based teacher education program and 47.3% completed the emergency permit teacher education program.
6. TASP reading scores was not a significant predictor of teacher retention. Of the participants who taught in a Texas public school at least two years, TASP reading scores ranged from 300 to 224, with an average score of 270. Of the participants who taught less than two consecutive years or who never taught in a Texas public school, TASP reading scores ranged from 225 to 300, with an average score of 270.
7. Undergraduate grade point average was not a significant predictor of teacher retention. Of the participants who taught in a Texas public school at least two years, undergraduate grade point averages ranged from 4.00 to 1.58, with a mean

of 3.31. Of the participants who taught less than three consecutive years or who never taught in a Texas public school, undergraduate grade point averages ranged from 1.58 to 4.00, with a mean of 3.29.

Five research questions were formulated for the study. The first research question examined the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, and undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose to enter the teaching profession. The second research question examined the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, and undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose not to enter the teaching profession. The third research question examined the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and returned to the profession for a second year. The fourth research question examined the descriptive characteristics (PD ExCET scores, age, gender, ethnicity, TASP Reading scores, undergraduate grade point average) of PD ExCET successful students who completed the field-based teacher education program and chose not to return to the profession for a second year. The fifth research question examined the relationship between the following variables and teacher retention: PD ExCET scores, TASP reading scores, age at time of passing the PD ExCET, ethnicity, completion of a field-based teacher education program or emergency permit teacher education program, gender, and undergraduate grade point average. The current study confirmed the absence of a

relationship between the selected variables and teacher retention as reported in the literature review. Table 22 shows a complete summary of the findings.

Table 22

Summary of Findings

	503 Total	388 Stayers	30 Leavers	29 Non-teach	56 2001-2002
PD ExCET	79	79	79	79	78
Age	29	30	29	31	28
TASP	270	270	271	266	269
GPA	3.30	3.31	3.15	3.31	3.33
Gender	M-257 F-246	M-193 F-195	M-18 F-12	M-14 F-15	M-31 F-25
Ethnicity	NM-89% M-11%	NM-88% M-12%	NM-93% M-7%	NM-97% M-3%	NM-88% M-12%
TE Program	FB-53% EP-47%	FB-52% EP-47%	FB-57% EP-43%	FB-62% EP-38%	FB-50% EP-50%

As shown in Table 22, all the groups had the same average PD ExCET score, except the 56 participants who were hired to teach in a Texas public school in the year 2001 or 2002 so they were removed from the final analyses because they did not have an opportunity to complete two consecutive years of teaching when this research was completed. However, their average PD ExCET score was only one point lower than all the other groups. This same group of 56 participants had the lowest average age and the

highest undergraduate grade point average of all the groups. The group that completed all certification requirements but never taught in a Texas public school had the highest average age and the lowest average TASP score. The group that left the profession after only one year in the classroom had the highest average TASP score and the lowest undergraduate grade point average. The group that completed all certification requirements but never taught in a Texas public school also contained the highest percentage of non-minority participants, the lowest percentage of minority participants, the highest percentage of participants who completed the field-based teacher education program, and the lowest percentage of participants who completed the emergency permit teacher education program.

Conclusions

The need for research in this area was based on a comprehensive review of the literature. Studies found links between teacher retention and state-mandated teacher certification scores, standardized test scores, age, teacher education preparation programs, ethnicity, and gender (Anrig, Goertz, & Clark, 1986; Chambers, Munday, & Sienty, 1999; Cobb, Shaw, & Millard, 1999; Dobry, Murphy, & Schmidt, 1985; Dybdahl, Shaw, & Edwards, 1997; Flippo, 1986; Gifford, 1986; Goodison, 1986; Hillard, 1986; Ishler, 1985; Kauchak, 1984; Kopff & Watt, 1990; Madaus & Pullin, 1987; McTighe, 1997; Moore, Schurr, & Henriksen, 1991; Nance & Kinnison, 1988; Pisani, Pisani, & Anderson, 2002; Shepard & Kreitzer, 1987; Sibert, 1989; Simonsson & Poelzer, 2000; Simonsson & Poelzer, 2002; Villeme, 1982). This existing research was used to shape the design of the current study.

According to research by Goodison (1986), there is no empirical relationship between basic competency test scores and actual job performance. Further research by Flippo (1986) indicated that rising test scores on certification tests are a direct result of the availability of questions, objectives and content because tests with known questions or content become less effective at screening the more they are administered. Research by Dybdahl, Shaw, and Edwards (1997) showed that there has been a lack of correlation between basic competency test scores and effectiveness in the classroom and that state-mandated certification test scores were found to be weak predictors of actual classroom performance.

Although research by Chambers, Munday, and Sienty (1999) established a relationship between TASP reading scores and successful pass rates on the PD ExCET, there was no relationship identified between TASP reading scores and teacher retention. Further research by Moore, Schurr and Henriksen (1991) showed little evidence that standardized test scores provided useful information for predicting the teaching effectiveness of beginning teachers and whether they would remain in the profession.

Research upholds the theory that beginning teacher support must become a high priority for school districts and university teacher education programs by providing systematic support and assistance, and reducing feelings of isolation through cooperative team planning in order to reduce the attrition rate (Colbert & Wolff, 1992).

Age becomes a factor in a teacher's decision to stay or leave the teaching profession. Younger teachers have very high rates of departure, but the rate declines through the mid-career period and then rises again in the retirement years. Because the distribution of age in the teaching force is skewed upward – older teachers significantly

outnumber younger teachers – many analysts have concluded that retirement due to a rapidly graying teaching workforce is the most significant factor behind teacher attrition, teacher shortages, and school staffing problems (Ingersoll, 1997).

Job opportunities for minorities have opened up in career fields where salaries and future opportunities have exceeded those of teachers in classrooms. Traditionally, teaching had been one of the most attractive career options for minorities. The fact that the most able have many other choices is having an adverse affect on the quality of entrants into the teaching profession (Anrig, Doertx, & Clark, 1986).

Studies show that attrition differs markedly between men and women. Men have much lower rates at attrition than women. Two years after entry, 28% of men drop out as compared to almost 35% of women. By the fourth year, well over half of the women have left teaching at least once, while the corresponding number for men is only 43%. However, the differences are much smaller when permanent attrition is examined – only 2 to 3 percentage points. The conclusion is that women tend to drop out more frequently than men, but tend to return more frequently as well (Grissmer & Kirby, 1993). The most obvious reason is that women leave the profession to start/maintain a family and then return when their children are school age.

While research by Nance and Kinnison (1988), and Simonsson and Poelzer (2002) show that grade point averages are considered a predictor of success on state mandated teacher certification tests, according to research by Flaitz (1987); Evertson, Hawley, and Zlotnik (1985); and Dobry, Murphy, and Schmidt (1985), academic indicators have a poor track record in predicting teacher success and attrition. However, additional research by Dobry, Murphy, and Schmidt (1985) showed a significant

relationship between grade point average and success on professional knowledge tests, and that grade point average may serve as a necessary condition for success in teaching. This positive correlation between grade point average and teacher effectiveness might be explained by the range restriction. Most teacher education programs require a student to attain a grade point average greater than some minimum value for admission to a program and to maintain a grade point average above some minimum value in order to continue in a program (Moore, Schurr, & Henriksen, 1991).

Research has shown that many of the variables used in this study can and do have an effect on standardized test scores, but there is no evidence or research to support that there is a relationship between the variables and teacher retention. Especially in the state of Texas, the Professional Development Examination for Teachers in Texas (PD ExCET) is a means to an end. Future teachers know they must pass the PD ExCET, as well as at least one content area test, in order to be certified to teach in a Texas public school. They will not get hired – and subsequently not get paid – unless they have the proper credentials needed for Texas teachers. Whether they remain in the profession depends on many things, including views of teacher preparation and training, and confidence in preparedness (Justice, Anderson, & Greiner, 2003).

Further research into why teachers leave the profession shows that the decision by current teachers is influenced by several factors including administrative and teacher-to-teacher support, especially during the first two years of teaching; paying in-school mentors; reducing in class-size, with a goal of 20-23 students per class; realistic monetary incentives based on achieving pre-determined academic standards; providing adequate teacher-training opportunities related to classroom management and teaching strategies;

and essential student discipline and school security guidelines with standards established and implemented within the district (Justice, Anderson, & Greiner, 2003).

Significant factors leading to teacher retention include adequate teacher preparation, positive pre-service experiences, and initial school placement. Research has shown that many problems encountered by first year teachers are reduced in direct proportion to sufficient teacher preparation (Glassberg, 1980; Taylor & Dale, 1971).

Implications for Practice

According to research by Grissmer and Kirby (1993), accurate measures of teacher attrition are needed to serve several important planning and policy objectives. First, attrition rates determine how many teachers need to be hired each year. Statistics show that generally over 70% of new teachers are hired to replace leaving teachers while only 30% are required to meet the needs of expanding enrollments, smaller class sizes, and new programs which makes it crucial for school districts to measure and predict attrition accurately. Evidence from the 1990-1991 School and Staffing Survey conducted by the National Center for Education Statistics shows that high rates of teacher attrition disrupt program continuity and planning, hinder student learning, and increase school districts' expenditures on recruiting and hiring (Shen, 1997).

The second important planning and policy objective listed by Grissmer and Kirby (1993) is that attrition rates, when accurately measured and interpreted, can provide good indicators of the relative adequacy of compensation levels and working conditions within the profession. Low salaries and poor working conditions are likely to lead to higher attrition and point to a need for corrective policies in these areas.

Third, differential patterns of attrition across subjects may point to the inadequacy of a uniform system of compensation. Without pay differentials to compensate those with highly marketable skills, school districts risk having high turnover among those teachers with perhaps a significant deterioration in the quality of teaching in certain areas (Grissmer & Kirby, 1993). The implications of Grissmer & Kirby's (1993) recommendations of the importance of measuring and monitoring teacher attrition can assist school district administrators in recruiting, hiring, training, and retaining teachers.

Research by Colbert and Wolff (1992) concluded that beginning teacher support must become a higher priority for school districts. This can be accomplished by training administrators and experienced teachers in classroom observation and peer coaching strategies with a collaborative effort between school districts and university schools of education. Second, creative and flexible scheduling is necessary to provide release time to peer coaches and beginners to provide opportunities to build trusting relationships that can contribute to increased career satisfaction and retention of beginning teachers. Third, experienced teachers need to be encouraged to participate in the professional growth of new teachers with added compensation that could include release time, additional instructional materials, university tuition costs and time to attend professional conferences. Fourth, university schools of education must collaborate with local school districts and welcome them as equal partners in the education business. University faculty in all disciplines should be highly visible in the public school classrooms so they are viewed as competent classroom teachers and not as ivory-tower professors out of contact with the real world of education. Fifth, collaboration between universities, school districts, state departments of education, and teacher credentialing commission must

continue to develop, regardless of whether external funding exists to support it. Before policy decisions are made affecting new teacher support, all constituencies involved must be included in the formation of policy. Finally, beginning teachers need structured, intensive, and ongoing support and assistance during the induction years.

Further analysis of the data provides implications regarding the current emphasis on state-mandated teacher certification tests and teacher retention. In addition, there are implications for future practice that may be of use to public school administrators. The findings of the study provide public school administrators and college and university administrators and educators with an indication of the importance of effective teacher education programs, effective public school mentoring programs, and the need for open communication between the two entities.

1. Findings may be useful in designing programs to attract intermittent teachers into more continuous teaching in response to emerging teacher shortages (Chapman & Green, 1986).
2. Research indicates that teachers who stayed in the profession for several years before leaving tended not to have found either greater satisfaction or financial reward in the jobs into which they went. People who changed careers tended to fall behind both those who taught continuously and those who never entered teaching in their reward attainment. These findings have implications for the career advising of potential teacher education students (Chapman & Green, 1986).
3. Principals who emphasize identity, competency and efficacy as the three main goals of the induction period for new teachers are likely to develop teachers who

believe in themselves and who are skilled at making a difference in the lives of young people. Principals who keep good teachers are those who provide an environment in which new teachers develop competence, gain a sense of efficacy, and take pride in being teachers (Jorissen, 2002).

4. Influence administrator formulation of policies regarding accountability issues, faculty instructional strategies and content selection in the courses, and student performance on teacher certification tests (Simonsson & Poelzer, 2002).
5. Knowledge and information on how to select or prepare students effectively for teacher certification is central in both higher education and school districts (Simonsson & Poelzer, 2002)

Recommendations for Further Study

Several areas for further research are suggested by this study and are listed below:

1. Future research should include an in-depth study of the different teacher education programs completed by identified participants. Changes in the field-based teacher education program and the emergency permit program over the years included in the study could have made a difference in the preparation of the participants to be successful in their public school assignment. Findings would provide practical information for instructional administrators.
2. Further investigation into the reason why some of the participants, who completed all requirements for state certification, chose not to enter the teaching field. Implementation of Chapman's Multi-factor Model to explain teacher recruitment and attrition could be used with this group (Chapman, 1984).

3. Duplication of the study is recommended at other colleges or universities that offer teacher education programs to compare results with PD ExCET successful students.
4. Existing research literature suggests that attrition from teaching is influenced by a variety of factors that are probably best revealed by the study of longitudinal samples of teachers. A goal would be to test the general hypothesis that attrition from teacher preparation and the early teaching years does not necessarily reduce the quality of the remaining teaching pool (Pigge & Marso, 1996).

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Annual Meeting of the Southwest Educational Research Association, Houston,
Texas.

VITA

Connie Sue Steele Greiner was born in Clarksburg, West Virginia, on May 2, 1954, the daughter of Laura Evelyn Owens Steele and Everette Ray Steele. After graduating from North Hills High School in Pittsburgh, Pennsylvania in 1972, she enrolled at Indiana University of Pennsylvania and was awarded the Bachelor of Science degree with a major in Home Economics Education in December 1977. She received the Master of Science degree with a major in Vocational Technical Education from East Texas State University, in August 1995. In August 2000, she entered The Graduate School at Texas A&M University-Commerce and was awarded the Doctor of Education degree with a major in Supervision, Curriculum and Instruction-Higher Education in December 2003. She has been a university educator since 1999, after teaching in public education for 20 years. Currently, she is a Clinical Instructor in the Secondary and Higher Education Department at Texas A&M University-Commerce, working with the undergraduate field-based teacher certification program and the alternative certification teacher education program. She has been married since January 7, 1978 to Robert Greiner, Sr. and they have two children – Robert Noel Greiner, Jr., born in 1984, and Stephanie Anne Greiner, born in 1991.

Permanent address: 1325 Woodthorpe Drive
Mesquite, Texas 75181