A COMPARISON OF TEACHERS' SENSE OF EFFICACY OF
TRADITIONALLY AND ALTERNATIVELY CERTIFIED
FIRST YEAR TEACHERS

DISSERTATION

Presented to the Graduate Council of the
University of North Texas in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

Katherine A. Groves, B.F.A., B.S., M.E.

Denton, Texas

May 1998

The purpose of this study was to compare the self-efficacy of two groups of first year teachers working in a large urban school district in North Texas. Twenty-eight of the participants were certified teachers. Ten participants held college degrees unrelated to teaching and were undergoing an alternative certification process.

The Teacher Efficacy Scale was administered at the beginning and the end of the school year. Data from this scale was analyzed to determine if there were differences between the regular certification teachers and the alternative certification teachers at the beginning and the end of the school year, and to determine if their sense of efficacy changed over the course of the school year. There were no significant differences between the two groups of teachers at either time of the school year, and their sense of efficacy did not significantly change. It was found that gender was a significant influence upon personal teaching efficacy. This finding was attributed to the study’s limitation of small and uneven group sizes and the increased age of most of the male participants.

Linear regression was used to determine if the first administration of the Teacher Efficacy Scale could predict the results at the end of the year. Findings suggested that results from the first administration of
the scale were a good predictor of performance on the scale at the end of the school year. The regular certification teachers had high correlations on the factors of teaching efficacy and personal teaching efficacy, whereas the alternative certification teachers showed moderate correlations on these two factors. The results suggested that the sense of efficacy was consistent throughout the school year for the certified teachers, but the sense of efficacy for the alternative certification group varied, which was attributed to the group's inexperience and limited exposure to the classroom environment prior to their teaching assignment.
A COMPARISON OF TEACHERS' SENSE OF EFFICACY OF
TRADITIONALLY AND ALTERNATIVELY CERTIFIED
FIRST YEAR TEACHERS

DISSERTATION

Presented to the Graduate Council of the
University of North Texas in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

Katherine A. Groves, B.F.A., B.S., M.E.
Denton, Texas
May 1998
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF TABLES</th>
<th>v</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF GRAPHS</td>
<td>vi</td>
</tr>
</tbody>
</table>

Chapter

1. INTRODUCTION .................................................................1
   Statement of the Problem
   Definition of Terms
   Limitations
   Overview of Research Design

2. REVIEW OF LITERATURE  ..............................................................15
   Sense of Efficacy
   Sense of Efficacy and Teaching
   Measurement of Teachers' Sense of Efficacy
   Teaching Experience and Sense of Efficacy
   Types of Certification Programs
   Alternatively Certified Beginning Teachers and Sense of Efficacy
   Summary

3. RESEARCH DESIGN: PROCEDURES, METHODOLOGY, AND INSTRUMENTATION .......................38
   Subjects
   Instrumentation and Methodology
   Data Analysis

4. RESULTS .................................................................45
   Data Analysis
   Demographic Data
   Descriptive Statistics
   Research Questions 1 and 2
   Research Question 3
   Research Question 4
5. SUMMARY AND DISCUSSION ........................................................................64

Implications

REFERENCES ........................................................................................................75
LIST OF TABLES

Table

1. Demographic Frequencies .................................................................46
2. Descriptive Statistics ........................................................................48
3. Mann-Whitney U Nonparametric Test of Significance ......................50
4. Mann-Whitney U Nonparametric Test of Significance ......................51
5. Linear Model Parameter Estimates .....................................................52
6. Model Summary for Regression ..........................................................57
7. ANOVA for Regression ......................................................................59, 60
8. Predictor Variable Coefficients ..........................................................61, 62
LIST OF GRAPHS

Graph

1. Linear Regression of Teaching Efficacy ........................................54
2. Linear Regression of Personal Teaching Efficacy ..........................55
CHAPTER 1

INTRODUCTION

The initial year of teaching is both critical and sensitive to an individual's teaching career. Classroom discipline, motivating students, dealing with individual differences, assessing students' work, relationships with parents, organization of class work, insufficient materials and supplies, and dealing with problems of individual students are frequent problems of first-year teachers (Veenman, 1984). Characterized as problem-filled, this first year is a survival stage in which the beginning teacher either makes a place within the institution or is defeated by the whole experience.

Novices' conceptions of teaching brought to their first experience can greatly influence this crucial year. From the first-year teachers' point of view, teaching is seen as cultural transmission, the training of skills, the fostering of natural development, and as producing conceptual change (Scardamalia, 1989). When dealing with the problems these perceptions manifest, the tendency for the first-year teacher is to minimize the problems, or "get by" in the best way possible. Coping with initial classroom experiences can be overwhelming for first year teachers.

According to Bandura (1982), one's behavior is determined in part by beliefs that behavior will lead to desirable outcomes and that one has the requisite skills to bring about the outcome, or a sense of self
efficacy. First year teachers' self perception in the teaching role is another aspect of the initial teaching year. Their effectiveness in this new role, including its implications and responsibilities, is critical to first year success. The concept of self efficacy with regard to teaching involves the teachers' confidence in their ability to bring about positive change in their students. This sense of efficacy is rooted in Bandura's (1982) conceptualization of self efficacy.

Teachers' sense of efficacy refers to the extent to which teachers believe that they are effective as teachers. This sense of efficacy involves self-evaluation of their ability to affect positive student performance. Studies of teachers' sense of efficacy have found that it is a multidimensional concept (Ashton, Webb, & Doda, 1983). Two of the constructs identified are teaching efficacy and personal teaching efficacy. Teaching efficacy refers to the belief that external influences limit one's ability to bring about change in students. A student's home environment, the extent of the student's experience brought to the classroom, or a student's I.Q. are examples of external influences that contribute to the construct of teaching efficacy. Personal teaching efficacy refers to the belief in one's own abilities and skills that can bring about changes in student learning. High self-confidence, high expectations of student learning, or positive perceptions of preservice training that enhance teaching ability exemplify personal teaching efficacy. In short, the two constructs of teachers' sense of efficacy relate to what may be considered external factors (what the teacher may not necessarily be able to control) and internal factors (what comes from
within the teacher). Sense of efficacy, teaching efficacy, and personal teaching efficacy are terms which emerged from the work of Ashton, Webb, and Doda (1983). To measure the constructs of teaching efficacy and personal teaching efficacy, Gibson and Dembo (1984) developed the Teacher Efficacy Scale.

Individuals who perceive themselves as ineffective, or have a negative sense of efficacy, in coping with environmental demands tend to focus on their personal deficiencies and imagine potential difficulties as more formidable than they really are. On the other hand, those who have a positive sense of efficacy align their attention and effort to the demands of the situation and are impelled to greater effort. Research has shown that teachers with a positive sense of efficacy are effective teachers, in that they affect positive student achievement (Ashton, 1984).

Much of the emotional adversity first year teachers experience may have its basis in Bandura's theory of self-efficacy. Feelings of self-disparagement and depression may arise from the pattern in which novices perceive themselves as ineffectual, while seeing others similar to them, enjoying the benefits of successful effort. Believing that one has the requisite skills to bring about desirable outcomes in student change and motivation, or a sense of efficacy, is an instrumental part of the first year teaching experience.

Traditionally, teachers are prepared through enrollment and attendance in a teacher certification program at an accredited four-year college. This is considered regular certification. Certified teachers receive their educational training as they work towards a bachelor's
degree. Requirements for teacher certification in Texas begin with passing a basic skills test (Texas Academic Skills Program, or TASP) for admission to a college or university teacher education program. In a Texas teacher education program, students cannot be enrolled in professional education course work before the junior year.

Requirements for teacher certification include: (1) A minimum of sixty semester hours of general education in the areas of English (twelve semester hours), speech (three semester hours), American history (six semester hours), political science with an emphasis in the United States and Texas constitutions (three to six semester hours), natural science (three semester hours), mathematics of college algebra or above (three semester hours), computing and information technology (three semester hours), fine arts (three semester hours), and electives (nine semester hours); (2) Thirty-six to forty-eight semester hours of an academic specialization; and (3) professional development sequence (eighteen semester hours of upper-division courses). The professional development sequence has three components: (1) core requirements that include studies of the teaching-learning processes, human growth and development, knowledge and skills regarding the unique needs of special learners, the legal and ethical aspects of teaching including the recognition of and response to signs of abuse and neglect in children, the structure, organization, and management of the American school system with emphasis upon the state and local structure in Texas, and education computing, media, and other technologies; (2) methodology that is specifically designed for the grade level option selected by the
student and includes studies in instructional methods and strategies that emphasize practical applications of the teaching-learning processes, curriculum organization, planning, and evaluation, basic principles and procedures of classroom management, and the scope and sequence of the essential elements for all subjects required in the elementary course of study that are not included in the academic specializations when elementary options are selected; and (3) field experience that includes at least forty-five clock hours of observation and experience prior to student teaching, and a minimum of six semester hours of student teaching. After the completion of the teacher education program, the Examination for the Certification of Educators in Texas (ExCET) must be successfully completed at the appropriate level of professional development and for each content specialization area before a teacher is considered fully certified.

Because of shortages in various teaching fields, individuals may become certified teachers through alternative certification, which is acquired through specialized courses and assistance obtained by degreed individuals whose background is not in education. Although these programs vary from state to state, an alternative certification program generally is a teacher preparation program that accepts noncertified individuals with at least a bachelor's degree and offers them special assistance, shortcuts, or unique curricula directed toward a standard teaching credential (Adelman, Michie, & Bogart, 1986). A candidate in an alternative certification program is often hired by a school district to begin teaching while working toward certification.
In Texas there are three alternative certification program models (Texas Education Agency, 1991). The higher education, or university, model is based upon university course work as the foundation of training. This type of program requires university cooperation and collaboration with school districts to supervise the field-based component as interns serve as teachers under the guidance of a mentor teacher. In the second model, the training is administered by an education service center. An education service center is a regional center established and operated for the purpose of coordinating educational planning and providing educational services to the area school districts according to the rules and regulations provided by the State Board of Education (Texas Education Agency, 1990). In the education service center model higher education supervision is limited, though most programs require some higher education course work. A considerable amount of the training is given by specialists and consultants and is accomplished at the service center. This model also relies heavily on a master teacher working with the new teacher in the classroom. The service center model serves multiple school districts, as does the university model. The third model is the local school district model, which has been developed and implemented by three large districts in Texas, which each have an enrollment of fifty thousand students or more. This model highlights a combination of training provided by the district with a minimum amount of higher education course work. While meeting the general teacher preparation needs, the model also addresses needs unique to the district. Emphasis on working
with at-risk students in an urban classroom setting is a primary focus of the training, as well as completing an internship under a mentor with supervision from the district.

Acceptance into the alternative certification program of a large urban school district (more than seventy thousand students) in North Texas requires all teacher applicants to have a bachelor's degree from an accredited university, an overall grade point average of 2.50, and passing scores on the Texas basic skills test, the Texas Academic Skills Program (TASP). In addition, the school district also requires those seeking an elementary level position to have a combination of twenty-four semester hours in English, mathematics, social studies (government, history, economics, geography), and science (biology, chemistry, geology, earth science, physics, physical science) with a minimum of three semester hours in each subject and a grade point average of 2.50 in these twenty-four semester hours. Those seeking a bilingual and/or English as a second language (ESL) teaching position are also required to have a passing score on the Texas Oral Proficiency Test (TOPT), a language proficiency test.

The district's alternative certification program requires that secondary teacher applicants seeking a position teaching mathematics have a total of twenty-four semester hours in math with a 2.50 grade point average and twelve of the hours taken at the junior or senior level. For secondary teacher applicants seeking a position teaching science, a total of forty-eight semester hours in biology, chemistry, geology and/or earth science, physics, and physical science is required
with a minimum of six semester hours completed in each area. These hours include twenty-four semester hours of junior and senior level courses with twelve semester hours concentrated in a single area of science.

Applicants accepted into this district’s alternative certification program become interns and begin the school district’s required training. The training is offered by the school district and must be completed before an intern can be assigned a full time teaching position. This pre-assignment training is scheduled on Mondays during the spring semester and daily during June and July. The training includes classroom management, diversity training, a math institute, a science seminar, and a thirty hour whole language workshop for bilingual interns. In addition, interns are required to complete twenty-four hours of classroom observations prior to the summer training, and complete a minimum of six semester hours of college or university course work designated by the school district’s alternative certification director. Once the interns are assigned a full time teaching position, they continue in the school district’s training program on predetermined Mondays throughout the school year. Also, the completion of six more semester hours of designated college or university course work is required after the interns receive their teaching assignments. Finally, before obtaining the teacher certification credential, the Examination for Certification of Educators in Texas (ExCET) must be successfully completed at the appropriate level of professional development.
Regardless of their preparation, first year teachers enter the classroom equipped with either a strong or weak sense of efficacy. Their sense of efficacy may be influenced by other factors such as their age and gender, and the grade level and type of school to which they are assigned (Chester, 1991). In the face of problems encountered in the first year, some novices may become doubtful of their capabilities, and consequently, may slacken their efforts or give up altogether and not continue a career in teaching (Bandura, 1982). In contrast, other first year teachers may exert greater effort to master the challenges of the classroom. When individuals of varying ages and gender are prepared differently to teach in classrooms of urban schools ranging from low to high socioeconomic status, their sense of efficacy may be an integral part of their effectiveness and success as teachers.

The development of the construct of teachers' sense of efficacy is fairly recent, and most studies of this area have been conducted in the last fifteen years (Ashton, Webb, & Doda, 1983; Benz, Bradley, Alderman, & Flowers, 1992; Gibson & Dembo, 1984; Glickman & Tamashiro, 1982; Guyton, Fox, & Sisk, 1991; Morin & Welsh, 1991; Saklofske, Michayluk, & Randhawa, 1988; Tracz & Gibson, 1986; and Trentham, Silvern, & Brogdon, 1985;). Few studies have specifically addressed teachers' sense of efficacy in first-year teachers (Blase, 1985; Chester, 1991; Kemis & Warren, 1991; and Walker & Richardson, 1993). In general, these studies have focused on first-year teachers who have had traditional...
preparation for certification; that is the four-year bachelor's degree with a concentration in educational course work. Alternative certification of teachers has developed within the last ten years. Studies comparing traditionally prepared teachers to alternatively prepared teachers with regard to their sense of efficacy are relatively scarce (Guyton, Fox, & Sisk, 1991).

Research is needed to build upon the findings of previous studies, as well as to enhance former studies of teachers' sense of efficacy. Because of the advent of teacher shortages, large urban school districts have turned to other methods of filling teaching positions, often designing their own alternative certification programs. This option can be a somewhat costly and time-consuming investment. However, if the large school districts cannot recruit and hire enough certified teachers to fill vacant positions, an alternative certification program may be an investment the district must make. Comparisons between newly certified teachers and alternative certification candidates may help school districts evaluate their training programs for the alternative certification personnel. Research comparing two groups of first year teachers may influence decisions regarding alternative certification programs, augment the research base of similar studies, and add to the research of previous studies of teachers' sense of efficacy.
Statement of the Problem

Does the sense of efficacy of regularly certified and alternatively certified first year teachers change from the beginning of the school year to the end of the school year?

Definition of Terms

Sense of self-efficacy - the concept proposed by Bandura (1982) that one's behavior is determined in part by beliefs that behavior will lead to desirable outcomes and that one has the requisite skills to bring about the outcome.

Teachers' sense of efficacy - the extent to which teachers believe that they are effective as teachers. It involves teachers' self-evaluation of their ability to affect positive student performance.

Teaching efficacy - a construct of teachers' sense of efficacy regarding the belief that external influences limit one's ability to bring about change in students. External influences are factors that the teacher may not necessarily be able to control, such as a student's home environment, the extent of a student's experiences brought to the classroom, or a student's I.Q.

Personal teaching efficacy - a construct of teachers' sense of efficacy regarding the belief in one's own abilities and skills that can bring about changes in student learning. Internal influences come from within the individual and include factors such as high self-confidence, high expectations of student learning, or positive perceptions of preservice training that enhance teaching ability.
Teacher Efficacy Scale (Gibson, 1984) - A thirty item Likert-type scale in which respondents rate statements concerning students and teaching behaviors. Gibson's tests of reliability produced Cronbach's alpha coefficients of .78 for the factor of personal teaching efficacy, .75 for the factor of teaching efficacy, and .79 for the total instrument. These were considered acceptable reliability coefficients, indicating internal consistency reliability of the Teacher Efficacy Scale. The two distinguishable factors of teaching efficacy and personal teaching efficacy were moderately correlated ($r = -19$) indicating that the two factors represented related, but comparatively independent constructs. Further analysis of the separate factors also reflected the same internal consistency reliability. This additional analysis strongly supported the construct validity of the Teacher Efficacy Scale. In a multitrait-multimethod analysis, Gibson further distinguished teacher efficacy from the related constructs of verbal ability and flexibility. All three constructs passed the criteria for convergent validity, which advanced validity to the use of the Teacher Efficacy Scale as a measurement of teacher efficacy.

Limitations

Newly hired, inexperienced teachers in a large urban school district in North Texas were asked to participate in a study of teacher efficacy. Two hundred sixty-nine letters explaining the study, consent forms, and demographic surveys were sent at the end of the first month
of school. Because participation was voluntary, response to participate in the study was low and resulted in uneven group sizes. There were thirty-eight respondents who were assigned to a group according to their level of teacher preparation: regular certification group or alternative certification group. Twenty-eight of the subjects were certified teachers, while ten were undergoing an alternative certification process. Twenty of the subjects were age twenty-five and under; eighteen ranged in age from twenty-six to fifty-eight. Twenty-eight of the subjects were female; ten subjects were male, seven of which fell into the older age group. Subjects were evenly divided for elementary and secondary levels of teaching; nineteen taught at the elementary level, and nineteen taught at the secondary level. The disproportionate groups were fairly representative of the population of first year teachers of the school district in which the study was conducted.

Overview of Research Design

The purpose of this study was to compare the sense of efficacy of first year teachers prepared either in a traditional teachers' certification program or an alternative certification program. In order to proceed with the study of the two groups of teachers, the following research questions were generated:

1. At the beginning of the school year, how does the sense of efficacy of first year teachers prepared in a traditional teachers' certification program compare to first year teachers prepared in an alternative certification program?
2. At the end of the school year, how does the sense of efficacy of first year teachers prepared in a traditional teachers' certification program compare to first year teachers prepared in an alternative certification program?

3. Does the sense of efficacy of the differently prepared first year teachers change or stay the same by the end of the school year?

4. Do age, gender, or grade level taught have an influence on the sense of efficacy of the differently prepared first year teachers?

Subjects from a large urban school district in North Texas volunteered to participate when they responded to a letter explaining the study and returned completed consent forms and demographic surveys. Subjects were assigned to a group based on their level of teacher preparation: regular certification group or alternative certification group. The regular certification group and alternative certification group responded to statements from the Teacher Efficacy Scale concerning teacher effectiveness at the beginning and the end of the school year. The results were analyzed with regard to the research questions to determine if there were differences in the teachers' sense of efficacy between groups of teachers with regular certification and those undergoing alternative certification in a local school district model program.
CHAPTER 2

REVIEW OF LITERATURE

A teacher's sense of efficacy may be an indicator of success of student achievement. Teaching efficacy and personal teaching efficacy are two components that have been identified from the examination of this multifaceted concept. In developing measures for teachers' sense of efficacy, connections to Bandura's (1982) self-efficacy concept have been drawn. Teachers' sense of efficacy may increase or change as experience increases in the classroom. Beginning teachers' sense of efficacy can be critical to their success in the first year of teaching. Preparation prior to the first teaching experience may be a consideration in teachers' sense of efficacy.

Sense of Efficacy

The American Heritage Dictionary of the English Language (Morris, ed., 1970) defines efficacy as "power or capacity to produce the desired effect; ability to achieve results; effectiveness" (page 416). This definition connotes that some form of mechanism is involved to bring about an outcome. Albert Bandura's (1982) concept of self-efficacy links together this capacity with the expected outcome. Bandura states that efficacy "...involves a generative capability in which component cognitive, social, and behavioral skills must be organized into integrated courses of action to serve innumerable purposes. A capability is only as good as its execution" (page 122). In order to effectively interact
with one's environment, an individual must have a numerous amount of prerequisite skills that are flexible and adaptable in order to manage various circumstances. According to Bandura, an individual's capability to interact with his/her environment is partly determined by judgments of one's capabilities. These judgments of how well an individual can carry out courses of action to handle anticipated situations is considered perceived self-efficacy (Bandura, 1982). Self-efficacy is involved in an individual's determination of the level of exertion and perseverance to spend when faced with obstructions or adversity. Doubting thoughts of capabilities cause individuals with a weak sense of efficacy to lessen their efforts or simply abandon their endeavors. A strong sense of efficacy will cause individuals to strengthen their application to whatever the difficulty and conquer it.

Sense of Efficacy and Teaching

As an area of study, teachers' sense of efficacy has been examined as a characteristic of effective teachers for approximately three decades. In two Rand Corporation studies of program effectiveness evaluation, it was found that teachers' sense of efficacy was one of the best predictors of growth on student achievement scores (Armor, Conry-Osequera, Cox, Kin, McDonnel, Pascal, Pauly, & Zellman, 1976; Berman, McLaughlin, Bass, Pauly, & Zellman, 1977). Teachers with a positive sense of efficacy, it was found, were rated by their superintendents as higher performing (Trentham, Silvern, & Brogdon, 1985).
While the Rand Corporation studies brought the construct of teacher efficacy into educational research, the studies of Ashton, Webb, and Doda (1983) introduced two dimensions of efficacy - teaching efficacy and personal teaching efficacy. According to these studies, teaching efficacy concerns the broad belief about the teaching and learning relationship, while personal teaching efficacy is a teacher's ideas regarding his or her own effectiveness as a teacher. Ashton, Webb, and Doda's research produced results that have supported the Rand conclusions concerning the relevance of teacher efficacy to student achievement. In another study, it was found that the dimension of personal teaching efficacy had a positive correlation with reading achievement and whole class instruction and a negative correlation with small group instruction (Tracz, & Gibson, 1986). This study also found that the dimension of teaching efficacy had a significant correlation with language and mathematics achievement.

Distinguishing high from low efficacy teachers was determined through the identification of eight dimensions of teachers' sense of efficacy (Ashton, et al, 1983). These eight dimensions included: (1) A sense of personal accomplishment, in which working with students was perceived as important and meaningful (high sense of efficacy), as opposed to feelings of frustration and discouragement (low sense of efficacy); (2) positive expectations for student behavior and achievement, in which students progress and fulfill teachers' high expectations (high sense of efficacy), as opposed to expectations of student failure and students' negative reactions to teaching efforts (low sense of efficacy);
(3) personal responsibility for student learning, in which teaching
performance is critically examined for improvement when students fail to
learn (high sense of efficacy), in contrast to the examination of
students' abilities, family background, motivation, or attitude when they
fail to learn (low sense of efficacy); (4) strategies for achieving
objectives, in which goals are set for teachers and students and ways
to accomplish them (high sense of efficacy), in contrast to the lack of
specific goals and uncertain student achievement (low sense of efficacy);
(5) positive affect, in which feelings are positive about teaching,
students, and the individual teacher (high sense of efficacy), in contrast
to feelings of discouragement, frustration, and negative feelings about
students (low sense of efficacy); (6) sense of control, in which
influencing student learning is met with confidence (high sense of
efficacy) as opposed to working with students bringing a sense of
fruitlessness (low sense of efficacy); (7) sense of common teacher-
student goals, in which there are feelings of involvement with students
to work toward achieving shared goals (high sense of efficacy) as
opposed to feelings of being in a constant struggle with students who
have opposing goals (low sense of efficacy); and (8) democratic decision-
making, in which students are involved in the decision-making process
concerning goals and the strategies to achieve them (high sense of
efficacy), in contrast to leaving students out of this process entirely
(low sense of efficacy).
Measurement of Teachers' Sense of Efficacy

In a study to further refine the construct of teacher efficacy, Ashton, Buhr, and Crocker (1984) determined that teachers' sense of efficacy is a norm-referenced, not self-referenced, construct. In this study, teachers responded to the Personal Teaching Efficacy Vignette Scale (Ashton, Olejnik, Crocker, & McAuliffe, 1982) which consisted of twenty-five descriptions of problem situations in which various areas of teaching were represented, such as discipline, instruction, planning, motivation, and interactions with parents. The Personal Teaching Efficacy Vignette Scale was created based upon teachers' responses to a Teaching Incidents Essay in which teachers described their teaching experiences in terms of most and least effective. The vignette measure was administered either with a self-referenced, or absolute response, format or a norm-referenced, or comparative format. Both were seven point Likert-type scales, with statements of comparisons to other teachers regarding individual effectiveness comprising the norm-referenced scale. Because the researchers found a significant correlation between the norm-referenced vignettes and two items from a Rand Corporation study of teacher efficacy (Armor, Conry-Osequera, Cox, Kin, McDonnel, Pascal, Pauly, & Zellman, 1976; Berman, McLaughlin, Bass, Pauly, & Zellman, 1977), they concluded that, in terms of performance, teachers evaluate their effectiveness in comparison to the performance of other teachers.

Building upon the work of Ashton and others, Gibson and Dembo (1984) developed the Teacher Efficacy Scale. This is a thirty item
Likert-type scale in which respondents rate statements concerning students and teaching behaviors. Factor analysis of the instrument produced acceptable reliability coefficients (Cronbach's alpha coefficients of .78 for personal teaching efficacy, .75 for teaching efficacy, and .79 for the total instrument), which indicated internal consistency reliability of the Teacher Efficacy Scale. The two distinguishable factors of teaching efficacy and personal teaching efficacy were moderately correlated (r = -19) indicating that the two factors represented related, but comparatively independent constructs. Further analysis of the separate factors also reflected the same internal consistency reliability. This additional analysis strongly supported the construct validity of the Teacher Efficacy Scale. In a multitrait-multimethod analysis, Gibson further distinguished teacher efficacy from the related constructs of verbal ability and flexibility. All three constructs passed the criteria for convergent validity, which advanced validity to the use of the Teacher Efficacy Scale as a measurement of teacher efficacy.

From the development and subsequent studies with the instrument, Gibson found that teacher efficacy is a multidimensional construct (Gibson & Dembo, 1984; Tracz & Gibson, 1986). At least two of the dimensions correspond with Bandura's (1982) concepts of self-efficacy: "personal teaching efficacy, or belief that one has the skills and the abilities to bring about student learning" (page 573), and "teaching efficacy, or belief that any teacher's ability to bring about change is significantly limited by factors external to the teacher, such as the home environment, family background, and parental influences" (page 574,
Gibson & Dembo, 1984). A later study confirmed these two dimensions of teachers' sense of efficacy and supported the relationship between personal teaching efficacy and teacher behavior (Saklofske, Michayluk, & Randhawa, 1988). In this study of the relationship between personal teaching efficacy and teacher behavior, student-teacher interns were rated by their supervising teachers on eight categories of teaching behavior including professional attributes, lesson planning, unit planning, structuring behaviors, questioning behaviors, reacting behaviors, classroom management behaviors, and lesson-presenting behaviors. The researchers found that the teachers' ratings of lesson-presenting, classroom management, and questioning behaviors of the interns had small, yet significant positive correlations with personal teaching efficacy.

Teaching Experience and Sense of Efficacy

Studies comparing the self-efficacy among teachers with different levels of teaching experience produced varying results. In a study by Glickman and Tamashiro (1982), first year and fifth year teachers, and a group of former teachers who had left the field of teaching before their fifth year of teaching, were given a questionnaire consisting of three tests: a short form of the Washington University Sentence Completion Test for Ego Development (Loevinger & Wessler, 1970), a modified version of the Torrance Tests of Creative Thinking Demonstrator Form (Torrance, 1968), and a series of statements on the sense of efficacy drawn from the Rand Study Questionnaire (Berman & McLaughlin, 1975). The researchers found that the first and fifth year teachers scored
significantly higher than former teachers on both measures of sense of efficacy and ego development, but there was not a significant difference between the practicing teachers (Glickman & Tamashiro, 1982). The results of the modified version of the Torrance Tests of Creative Thinking Demonstrator Form showed no significant differences between any of the groups.

In a study comparing the efficacy of six groups of educators with various levels of teaching experience, it was found that preservice teachers had an unrealistically high sense of efficacy due to preconceptions about motivation and socialization of students, yet had a much lower sense of efficacy concerning the areas of evaluation and planning (Benz, Bradley, Alderman, & Flowers, 1992). In this study fifteen of the efficacy vignettes developed by Ashton, Olejnik, Crocker, and McAuliffe (1982) were used to measure teachers' sense of efficacy. The teaching areas addressed in the vignettes included discipline, working with parents, planning, socialization, motivation, and evaluation. The researchers found that classroom teachers had a lower sense of efficacy in the areas of motivation and socialization than the preservice teachers and college faculty. This was attributed to naive idealism on the part of the preservice teachers as well as distance from the day-to-day reality of the classroom experienced both by the preservice teachers and college faculty (Benz, Bradley, Alderman, & Flowers, 1992). In the areas of planning and evaluation, the more experienced classroom teachers and college faculty were found to have a higher sense of efficacy than the preservice teachers. This difference was given to the
assumption that the preservice teachers would not have the knowledge base to respond effectively to the areas concerning planning and evaluation of student learning (Benz, Bradley, Alderman, & Flowers, 1992).

In another study, Morin and Welsh (1991) found that beginning and experienced teachers judged the importance of some specific skills of effective teaching differently. The researchers surveyed the two groups of teachers using the Job Analysis Survey, a fifty-item Likert-type scale. This instrument is based upon five categories identified by the National Board for Professional Teaching Standards as core components of teaching, which include: knowledge of students and their learning, knowledge of subject matter and pedagogy, management and monitoring of student learning, reflection and decision-making, and membership in the learning community (National Board for Professional Teaching Standards, 1989). The results of the study showed that both groups of teachers ranked knowledge of students and their learning as the most important teaching skill, and membership in the learning community as the least important. The rankings of the other categories of teaching skills differed for the two groups. The researchers concluded that experience contributed to these differences (Morin & Welsh, 1991).

The sense of efficacy of beginning teachers over the course of a school year has been found to change. Walker and Richardson (1993) found that teachers at the end of their first year felt slightly less efficacious than during their student teaching internship. In this
study, subjects rated their effectiveness by responding to items on a
survey instrument based upon competencies and indicators related to a
state teacher assessment. The subjects were surveyed during their
student teaching experience and again at the same time of the school
year during their first year of teaching. The researchers found
significant differences in the areas of managing classroom interactions,
identifying and planning for exceptional students, teaching reading and
language arts effectively, and demonstrating an ability to work with
various sized groups (Walker & Richardson, 1993). It was found that as
first year teachers, the subjects rated themselves as more effective than
previously as student teachers in the areas of working with groups of
varying sizes and in teaching reading and language arts. The opposite
was found for management of classroom interactions and the
identification of and planning for exceptional students. In these cases,
the first year teachers rated themselves as less efficacious in
comparison to their student teaching year (Walker & Richardson, 1993).

In the results of a qualitative study concerning teacher
socialization, Blase (1985) suggests that a high sense of efficacy in
beginning teachers tends to decrease as the school year progresses.
Through structured and unstructured interviews, open-ended
questionnaires, and observations, it was found that beginning teachers
brought idealistic expectations and unrealistic assumptions to their first
teaching experience. As the school year progressed, the first year
teachers tended to shift from an idealistic instructional perspective to a
rationalized instructional perspective influenced by factors functioning
within the school and its environment (Blase, 1985). These influential factors are closely related to the characteristics of teaching efficacy, that is, the external influences upon a teacher's sense of efficacy.

First year teachers' sense of efficacy has also been examined in relationship to other factors. Kemis and Warren (1991) found that commitment to teaching as a career, potential for success as a teacher, and sense of efficacy were correlated from student teaching experience to the end of the first year of teaching. This study also examined the relationships between commitment, potential, and efficacy and the variables of teaching performance, satisfaction with teaching, adequacy of preparation, career orientation, and academic ability. Of these variables, the researchers found that the variables of teaching performance and satisfaction with teaching were significantly correlated to commitment, potential, and efficacy (Kemis & Warren, 1991). Teaching performance and satisfaction with teaching were the only variables related to all three of the main factors of commitment, potential, and efficacy. Kemis and Warren (1991) found significant correlations between adequacy of preparation and commitment, and career orientation and potential. The variable of academic ability was not significantly correlated with either commitment or efficacy, but was found to be related to potential (Kemis & Warren, 1991).

External factors affecting changes in beginning teachers' beliefs of self-efficacy were found to be variables that could be potentially manipulated within urban schools in Connecticut (Chester, 1991). This study was a two-part investigation which included a qualitative and
quantitative component. The qualitative component was comprised of five first year teachers who were interviewed twice a month for the duration of the school year, with classroom observations preceding the second interview of each month. The interviews were audiotaped and transcribed and were analyzed with regard to the teacher's attitudes toward teaching and beliefs of self-efficacy. The quantitative component involved fifty-six first year teachers who responded to a Likert-type scaled survey at two different times during the school year. The survey consisted of belief statements related to changes in teachers' attitudes about students and teaching, and changes in self-efficacy concerning the teachers' ability to contend with influences of students' environments, their influence upon student academic achievement, and their capability to obtain school system resources. Chester found that beginning teachers' sense of efficacy was associated with opportunities for collaboration, appropriation of resources, and supervisors' attention to issues of teacher performance. He also found that increased age was related to positive changes in teachers' sense of efficacy. For the three variables of collaboration, appropriation of resources, and supervisors' attention to issues of teacher performance, the older first year teachers had higher values of change in self efficacy over the course of the school year.

Types of Certification Programs

A traditional teacher certification program generally involves the completion of a bachelor's degree from a college or university approved for teacher education by a state board of education. In Texas, this
includes a minimum of sixty semester hours of general education, courses, thirty-six to forty-eight semester hours of courses in an academic specialization (e.g., art, bilingual education, biology, early childhood education, English, history, mathematics, music), and eighteen semester hours of a professional development sequence that includes foundations of education, methodology, and field experiences (Tryneski, 1994; Texas Education Agency, 1990).

Specifically, requirements for teacher certification in Texas begin with the passing of a basic skills test, the Texas Academic Skills Program, or TASP, for admission to a college or university teacher education program. In a Texas teacher education program, students cannot be enrolled in professional education course work before the junior year. Requirements for teacher certification include: (1) A minimum of sixty semester hours of general education in the areas of English (twelve semester hours), speech (three semester hours), American history (six semester hours), political science with an emphasis in the United States and Texas constitutions (three to six semester hours), natural science (three semester hours), mathematics of college algebra or above (three semester hours), computing and information technology (three semester hours), fine arts (three semester hours), and electives (nine semester hours); (2) Thirty-six to forty-eight semester hours of an academic specialization; and (3) professional development sequence (eighteen semester hours of upper-division courses). The professional development sequence has three components: (1) core requirements that include studies of the teaching-learning processes,
human growth and development, knowledge and skills regarding the unique needs of special learners, the legal and ethical aspects of teaching including the recognition of and response to signs of abuse and neglect in children, the structure, organization, and management of the American school system with emphasis upon the state and local structure in Texas, and education computing, media, and other technologies; (2) methodology that is specifically designed for the grade level option selected by the student and includes studies in instructional methods and strategies that emphasize practical applications of the teaching-learning processes, curriculum organization, planning, and evaluation, basic principles and procedures of classroom management, and the scope and sequence of the essential elements for all subjects required in the elementary course of study that are not included in the academic specializations when elementary options are selected; and (3) field experience that includes at least forty-five clock hours of observation and experience prior to student teaching, and a minimum of six semester hours of student teaching. After the completion of the teacher education program, the Examination for the Certification of Educators in Texas (ExCET) must be successfully completed at the appropriate level of professional development and for each content specialization area before a teacher is considered fully certified (Tryneski, 1994).

Alternative certification of teachers in Texas began in Houston when the city's school district executed the first alternative certification program during the 1985-1986 school year (Texas Education Agency,
This form of teacher certification grew twofold: from the need of school districts facing teacher shortages in critical areas such as mathematics, science, and bilingual education, and from the need for a program for individuals who wished to enter the teaching profession without necessarily disrupting the continuity of their time and financial resources. In an effort to aid the fulfillment of these needs, the Texas State Legislature approved education reform legislation that included general provisions for alternative certification, which was further delineated by the State Board of Education, the Texas Education Agency (Texas Education Agency, 1990). In the state of Texas, candidates for alternative certification are often individuals who have come from other vocations with a desire to give something back to society (Texas Education Agency, 1991). Other candidates are individuals who strongly desire to teach, but because of family or financial reasons cannot return to a full-time traditional college program to acquire teaching credentials.

According to the Texas Education Agency (1991), alternative certification programs can be one of three models: higher education model, education service center (ESC) model, or local school district model. The higher education, or university, model is based upon university course work as the foundation of training. This type of program requires university cooperation and collaboration with school districts to supervise the field-based component as interns serve as teachers under the guidance of mentor teachers. In an education service center model, higher education supervision is limited, though most programs require some higher education course work. An
education service center is a regional center established and operated for the purpose of coordinating educational planning and providing educational services to the area school districts according to the rules and regulations provided by the State Board of Education (Texas Education Agency, 1990). A considerable amount of the training is given by specialists and consultants and is accomplished at the service center. This model also relies heavily on a master teacher working with the new teacher in the classroom. The service center model serves multiple school districts, as does the university model. The third model is the local school district model, which has been developed and implemented by three large districts in Texas. This model highlights a combination of training provided by the district with a minimum amount of higher education course work. While meeting the general teacher preparation needs, the model also addresses needs unique to the district. Emphasis on working with at-risk students in an urban classroom setting is a primary focus of the training, as well as completing an internship under a mentor with supervision from the district.

Acceptance into the alternative certification program of a large urban school district (more than seventy thousand students) in North Texas requires all teacher applicants to have a bachelor's degree from an accredited university, an overall grade point average of 2.50, and passing scores on the Texas basic skills test, the Texas Academic Skills Program (Fort Worth Independent School District, 1996). In addition, the school district also requires those seeking an elementary level position to have a combination of twenty-four semester hours in English,
mathematics, social studies (government, history, economics, geography), and science (biology, chemistry, geology, earth science, physics, physical science) with a minimum of three semester hours in each subject and a grade point average of 2.50 in these twenty-four semester hours. Those seeking a bilingual and/or English as a second language (ESL) teaching position are also required to have a passing score on the Texas Oral Proficiency Test a language proficiency test.

The district's alternative certification program requires that secondary teacher applicants seeking a position teaching mathematics have a total of twenty-four semester hours in math with a 2.50 grade point average and twelve of the hours taken at the junior or senior level. For secondary teacher applicants seeking a position teaching science, a total of forty-eight semester hours in biology, chemistry, geology and/or earth science, physics, and physical science is required with a minimum of six semester hours completed in each area. These hours include twenty-four semester hours of junior and senior level courses with twelve semester hours concentrated in a single area of science.

Applicants accepted into this district's alternative certification program become interns and begin the school district's required training. The training is offered by the school district and must be completed before an intern can be assigned a full time teaching position. This pre-assignment training is scheduled on Mondays during the spring semester and daily during June and July. The training includes classroom management, diversity training, a math institute, a science
seminar, and a thirty hour whole language workshop for bilingual interns. In addition, interns are required to complete twenty-four hours of classroom observations prior to the summer training, and complete a minimum of six semester hours of college or university course work designated by the school district's alternative certification director. Once the interns are assigned a full time teaching position, they continue in the school district's training program on predetermined Mondays throughout the school year. Also, the completion of six more semester hours of designated college or university course work is required after the interns receive their teaching assignments. Finally, before obtaining the teacher certification credential, the Examination for Certification of Educators in Texas (ExCET) must be successfully completed at the appropriate level of professional development (elementary or secondary) and for each content specialization area to be indicated on the certificate.

Alternatively Certified Beginning Teachers and Sense of Efficacy

Research in the area of alternative certification in relation to teacher efficacy is limited. In a Georgia study, it was found that no difference in sense of efficacy existed between alternatively certified teachers and teachers who participated in a longer, traditional teacher education program (Guyton, Fox, & Sisk, 1991). This study centered on the attitudes, performance, and experiences of alternatively certified teachers and regularly certified teachers during their first year of teaching. Twenty-three alternative certification candidates and twenty-six regularly certified teachers from various school districts in Georgia
participated in the study. The subjects in the alternative certification group were required to have: (1) a bachelor's degree in a needed subject area such as mathematics or science, (2) a 2.5 grade point average, (3) completed requirements in courses covering human growth and development, the identification and teaching of children with special learning needs, curriculum, and teaching methodology, (4) completed a supervised internship of one year, and (5) performed successfully on the state certification test for teachers.

According to Guyton, Fox, and Sisk (1991), data were gathered from five different instruments. In order to discern conceptions about teaching and decisions for becoming teachers including those who influenced the decisions, an open-ended questionnaire was administered at the beginning of the school year. To determine student-centered and directive teaching points of view of the subjects, the Educational Attitudes Inventory (Bunting, 1988) was administered at the beginning of the school year, after five months of teaching, and at the end of the school year. The Teacher Efficacy Scale (Gibson & Dembo, 1984) was administered after five months of teaching and at the end of the school year to determine if there were differences and changes in personal teaching efficacy and teaching efficacy within and between the two groups of teachers. An inventory assessing the teachers' attitudes toward students, school environment, teaching, self confidence, support, teaching problems, satisfaction with education in society, locus of control, and teacher education program was administered after one month of teaching and again at the end of the school year. Both
groups of teachers were also evaluated after one month of teaching by colleagues (mentor or peer teacher) and those working in a supervisory capacity in the school (principal, assistant principal, department chair).

Guyton, Fox, and Sisk (1991) found that after the first month of teaching, no significant differences were found between the two groups of teachers concerning their teaching performance as evaluated by others in their school. There were significant differences found on three items of the inventory for teaching attitudes. It was found that the alternative certification teachers had a more positive attitude toward their teacher education program and their improvement of teaching abilities during the first month of teaching, but were less satisfied with the educational system in our society.

After five months of teaching, Guyton, Fox, and Sisk (1991) found no significant differences between the scores for the two groups of teachers on the student-centered component of the Educational Attitudes Inventory, while significant differences existed on the scores for the teacher-centered component, both between and within the two groups of teachers. There were no significant differences found between the two groups on either teaching efficacy or personal teaching efficacy, the two constructs of the Teacher Efficacy Scale, which was also administered after five months of teaching.

The end of the year measures produced no significant differences between the groups on the educational attitude scales for the student- or teacher-centered components, with no significant changes from the middle of the year to the end of the year. There were no significant
differences found for teaching efficacy and personal teaching efficacy, the two components of the Teacher Efficacy Scale, from the middle of the year to the end of the year. Attitudes toward teaching were found to be significant between the regular certification teachers and alternative certification teachers only in the area of remaining in the teaching profession. The regular certification teachers were more positive in their attitude toward maintaining a teaching career than the alternative certification teachers (Guyton, Fox, & Sisk 1991). The researchers concluded that the two groups of teachers were similar on almost all measures, and that alternative certification is a reasonable process for school districts to consider when faced with teacher shortages in particular subjects.

Summary

Teachers' sense of efficacy in relation to effective teaching has been studied for approximately thirty years. Various instruments have been constructed in effort to measure and further define the dimensions of teacher efficacy and personal teaching efficacy. For certain perceptions of effective teaching, such as the importance of knowing one's students, no differences have been found between experienced and beginning teachers. In general, experience does not appear to affect teachers' sense of efficacy, except in the case of preservice teachers who have not yet experienced full time teaching. Decreases in sense of efficacy from the student teaching experience to full time teaching were found mainly in the dimension of teaching efficacy, or the external influences of school environment and students' environments and
backgrounds. This decrease was also found from the beginning of the school year to the end of the school year within groups of beginning teachers. Age was a variable that was found to influence positive changes in self efficacy over the course of a school year with regard to external factors that were subject to manipulation.

Beginning teachers with regular certification and those with alternative certification were found not to differ in their sense of efficacy after five months of teaching. By the end of the school year, the two groups showed no differences in either teaching efficacy or personal teaching efficacy, and no change was prevalent in their sense of efficacy from the middle of the school year to the end of the school year. The main difference between regular certification and alternative certification is in the required preparation time. Regular certification requires two to three years of educational course work plus more than fifty hours of field experience. For alternative certification, these requirements are condensed into seven to eight months of district-specific training and university course work with considerably fewer hours of field experience.

Previous studies comparing regularly certified teachers and alternatively certified teachers with regard to teachers' sense of efficacy are limited in number. As large urban school districts face teacher shortages, research in the comparisons between newly certified teachers and alternative certification candidates may help school districts evaluate their training programs for alternative certification personnel. Research comparing these two groups of first year teachers
can build upon the findings of previous studies as well as enhance the study of teachers' sense of efficacy.
CHAPTER 3

RESEARCH DESIGN: PROCEDURES, METHODOLOGY, AND INSTRUMENTATION

To determine if there was a change in beginning teachers' sense of efficacy subjects responded to a scaled instrument at the beginning of the school year and again at the end of the school year. Within these measurements comparisons were made between regularly and alternatively certified teachers.

Subjects

Lists of newly hired first year certified teachers and teachers hired according to a local school district model alternative certification program were obtained from the personnel department of a large urban school district (more than seventy thousand students) in North Texas. Acceptance into the alternative certification program of this district required all teacher applicants to have a bachelor's degree from an accredited university, an overall grade point average of 2.50, and passing scores on the Texas basic skills test, the Texas Academic Skills Program (TASP). In addition, the school district also required those seeking an elementary level position to have a combination of twenty-four semester hours in English, mathematics, social studies (government, history, economics, geography), and science (biology, chemistry, geology, earth science, physics, physical science) with a minimum of three
semester hours in each subject and a grade point average of 2.50 in these twenty-four semester hours. Those seeking a bilingual and/or English as a second language (ESL) teaching position were also required to have a passing score on the Texas Oral Proficiency Test (TOPT), a language proficiency test.

The district's alternative certification program required that secondary teacher applicants seeking a position teaching mathematics have a total of twenty-four semester hours in math with a 2.50 grade point average and twelve of the hours taken at the junior or senior level. For secondary teacher applicants seeking a position teaching science, a total of forty-eight semester hours in biology, chemistry, geology and/or earth science, physics, and physical science was required with a minimum of six semester hours completed in each area. These hours included twenty-four semester hours of junior and senior level courses with twelve semester hours concentrated in a single area of science.

Applicants accepted into the alternative certification program became interns and began the school district's required training. The training was offered by the school district and had to be completed before an intern could be assigned a full time teaching position. This pre-assignment training was scheduled on Mondays during the spring semester and daily during June and July. The training included classroom management, diversity training, a math institute, a science seminar, and a thirty hour whole language workshop for bilingual interns. In addition, interns were required to complete twenty-four
hours of classroom observations prior to the summer training, and complete a minimum of six semester hours of college or university course work designated by the school district's alternative certification director. Once the interns were assigned a full time teaching position, they continued in the school district's training program on predetermined Mondays throughout the school year. Also, the completion of six more semester hours of designated college or university course work was required after the interns received their teaching assignments. Finally, before obtaining the teacher certification credential, the Examination for Certification of Educators in Texas (ExCET) had to be successfully completed at the appropriate level of professional development (elementary or secondary) and for each content specialization area to be indicated on the certificate.

Certified teachers received their educational training as they worked towards a bachelor's degree. Their requirements for teacher certification in Texas began with passing a basic skills test (TASP) for admission to a college or university teacher education program. As teacher education students, they could not be enrolled in professional education course work before the junior year. Requirements for teacher certification included: (1) A minimum of sixty semester hours of general education in the areas of English (twelve semester hours), speech (three semester hours), American history (six semester hours), political science with an emphasis in the United States and Texas constitutions (three to six semester hours), natural science (three semester hours), mathematics of college algebra or above (three semester hours), computing and
information technology (three semester hours), fine arts (three semester hours), and electives (nine semester hours); (2) Thirty-six to forty-eight semester hours of an academic specialization; and (3) professional development sequence (eighteen semester hours of upper-division courses). The professional development sequence had three components: (1) core requirements that included studies of the teaching-learning processes, human growth and development, knowledge and skills regarding the unique needs of special learners, the legal and ethical aspects of teaching including the recognition of and response to signs of abuse and neglect in children, the structure, organization, and management of the American school system with emphasis upon the state and local structure in Texas, and education computing, media, and other technologies; (2) methodology that was specifically designed for the grade level option selected by the student and included studies in instructional methods and strategies that emphasize practical applications of the teaching-learning processes, curriculum organization, planning, and evaluation, basic principles and procedures of classroom management, and the scope and sequence of the essential elements for all subjects required in the elementary course of study that were not included in the academic specializations when elementary options were selected; and (3) field experience that included at least forty-five clock hours of observation and experience prior to student teaching, and a minimum of six semester hours of student teaching. After the completion of the teacher education program, the Examination for the Certification of Educators in Texas (ExCET) had to be successfully completed at the
appropriate level of professional development and for each content specialization area before a teacher is considered fully certified.

Two hundred sixty-nine letters explaining the study, consent forms, and demographic surveys were sent at the end of the first month of school. There were thirty-eight respondents who were assigned to a group according to their level of teacher preparation: regular certification group or alternative certification group. Twenty-eight of the subjects were certified teachers, while ten were undergoing an alternative certification process. Twenty of the subjects were age twenty-five and under; eighteen ranged in age from twenty-six to fifty-eight. Twenty-eight of the subjects were female; ten subjects were male, seven of which fell into the older age group. Subjects were evenly divided for elementary and secondary levels of teaching; nineteen taught at the elementary level, and nineteen taught at the secondary level.

The study was somewhat limited due to small and uneven group sizes. The uneven group sizes were fairly representative of the population of first year teachers of the school district in which the study was conducted. In this particular district there were considerably more certified first year teachers than teachers in the alternative certification program.

Instrumentation and Methodology

As a quantitative measure, Gibson's (1983) Teacher Efficacy Scale was used in the study. This is a thirty item Likert-type scale in which respondents rate statements concerning students and teaching
behaviors. Gibson's tests of reliability produced Cronbach's alpha coefficients of .78 for the factor of personal teaching efficacy, .75 for the factor of teaching efficacy, and .79 for the total instrument. These were considered acceptable reliability coefficients, indicating internal consistency reliability of the Teacher Efficacy Scale. The two distinguishable factors of teaching efficacy and personal teaching efficacy were moderately correlated (r = -19) indicating that the two factors represented related, but comparatively independent constructs. Further analysis of the separate factors also reflected the same internal consistency reliability. This additional analysis strongly supported the construct validity of the Teacher Efficacy Scale. In a multitrait-multimethod analysis, Gibson further distinguished teacher efficacy from the related constructs of verbal ability and flexibility. All three constructs passed the criteria for convergent validity, which advanced validity to the use of the Teacher Efficacy Scale as a measurement of teacher efficacy.

Subjects were sent the Teacher Efficacy Scale at the end of the second month of the school year and again at the beginning of the last month of the same school year.

Data Analysis

The Statistical Package for the Social Sciences (SPSS) was used to analyze the data from the Teacher Efficacy Scale and the demographic information forms. Frequency tables were produced for the demographic data. Descriptive statistics were used to describe the data set from the Teacher Efficacy Scale. The Mann-Whitney U nonparametric test of
significance was used to test for significant differences between the two
groups of teachers at the beginning of the school year and the end of
the school year, and to test for significant changes from the beginning
of the year to end of the year for each group of teachers. Linear
regression was used to determine linear relationships between the
beginning of the year and the end of the year for teaching efficacy and
personal teaching efficacy. Multiple linear regression was used to
determine the influence of age, gender, and grade level taught upon
teacher efficacy. A significance level of .05 was used for all statistical
tests.
CHAPTER 4

RESULTS

Data Analysis

The Statistical Package for the Social Sciences (SPSS) was used to analyze the data from demographic surveys and the Teacher Efficacy Scale. The data were entered for each subject according to their assigned group (regular certification or alternative certification), their age, their gender, the level they were teaching at the time of the study (elementary or secondary), the time the scale was administered (beginning of the school year and the end of the school year), and for the two factors of the scale (teaching efficacy and personal teaching efficacy).

Demographic Data

Frequency tables were generated for demographic data with regard to assigned group, age, gender, and level the subject was teaching at the time of the study. Twenty-eight of the subjects were certified teachers, while ten were undergoing an alternative certification process. Twenty of the subjects were age twenty-five and under; eighteen ranged in age from twenty-six to fifty-eight. Twenty-eight of the subjects were female; ten subjects were male, seven of which fell into the older age group. Subjects were evenly divided for elementary and secondary levels of teaching; nineteen taught at the elementary
level, and nineteen taught at the secondary level. Demographic frequency data is shown in Table 1.

Table 1 - Demographic Frequencies

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular</td>
<td>28</td>
</tr>
<tr>
<td>Alternative</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>23</td>
<td>6</td>
</tr>
<tr>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>26</td>
<td>4</td>
</tr>
<tr>
<td>27</td>
<td>1</td>
</tr>
<tr>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>29</td>
<td>2</td>
</tr>
<tr>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>37</td>
<td>1</td>
</tr>
<tr>
<td>38</td>
<td>1</td>
</tr>
<tr>
<td>43</td>
<td>2</td>
</tr>
<tr>
<td>44</td>
<td>2</td>
</tr>
<tr>
<td>58</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>28</td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>19</td>
</tr>
<tr>
<td>Secondary</td>
<td>19</td>
</tr>
</tbody>
</table>

Descriptive Statistics

Descriptive statistics were used to describe the data set. The following abbreviations were used in the descriptive statistics as well as in statistical tests reported later:

PrePTE - results of the administration of the Teacher Efficacy Scale at the beginning of the school year (Pre) on the factor of personal teaching efficacy (PTE);
PreTE - results of the administration of the Teacher Efficacy Scale at the beginning of the school year (Pre) on the factor of teaching efficacy (TE);

PosPTE - results of the administration of the Teacher Efficacy Scale at the end of the school year (Pos) on the factor of personal teaching efficacy (PTE);

PosTE - results administration of the Teacher Efficacy Scale at the end of the school year (Pos) on the factor of teaching efficacy (TE);

DiffPTE - the difference between the results of PosPTE and PrePTE;

DiffTE - the difference between the results of PosTE and PreTE.

Table 2 shows the means and standard deviations for the results of the scale's administration at the beginning of the school year for both factors (PreTE and PrePTE). Also shown are the means and standard deviations for the results of the scale's administration at the end of the school year (PosTE and PosPTE) as well as the differences between the beginning of the school year and end of the school year for both factors (DiffPTE, DiffTE).
### Table 2 – Descriptive Statistics

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PreTE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>3.3711</td>
<td>.7400</td>
</tr>
<tr>
<td>Alternative</td>
<td>3.5640</td>
<td>.5022</td>
</tr>
<tr>
<td>Total</td>
<td>3.4215</td>
<td>.6994</td>
</tr>
<tr>
<td>PrePTE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>4.2439</td>
<td>.6145</td>
</tr>
<tr>
<td>Alternative</td>
<td>4.0730</td>
<td>.5707</td>
</tr>
<tr>
<td>Total</td>
<td>4.1987</td>
<td>.6161</td>
</tr>
<tr>
<td>PosTE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>3.4607</td>
<td>.6250</td>
</tr>
<tr>
<td>Alternative</td>
<td>3.5733</td>
<td>.6756</td>
</tr>
<tr>
<td>Total</td>
<td>3.4904</td>
<td>.6314</td>
</tr>
<tr>
<td>PosPTE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>4.4347</td>
<td>.5054</td>
</tr>
<tr>
<td>Alternative</td>
<td>4.3224</td>
<td>.6849</td>
</tr>
<tr>
<td>Total</td>
<td>4.4051</td>
<td>.5506</td>
</tr>
<tr>
<td>DiffTE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>.0907</td>
<td>.4853</td>
</tr>
<tr>
<td>Alternative</td>
<td>.0090</td>
<td>.5564</td>
</tr>
<tr>
<td>Total</td>
<td>.0689</td>
<td>.5132</td>
</tr>
<tr>
<td>DiffPTE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>.1907</td>
<td>.4086</td>
</tr>
<tr>
<td>Alternative</td>
<td>.2490</td>
<td>.5233</td>
</tr>
<tr>
<td>Total</td>
<td>.2064</td>
<td>.4489</td>
</tr>
</tbody>
</table>

Overall, the difference in means between the beginning and the end of the year for both groups of teachers was higher for personal teaching efficacy than for teaching efficacy. The difference in means between the beginning and the end of the year for the alternative certification group on the factor of teaching efficacy (DiffTE) was small (.0090) compared to the regular certification group (.0907). The difference in means for the alternative certification group on the factor
of personal teaching efficacy (DiffPTE) was higher (.2490) than that of the regular certification group (.1907). The differences in these specific means (DiffTE, DiffPTE) have no statistical significance since they were reported for the purpose of statistical description.

Both groups showed a difference in the means on the measure of the two factors within the scale (PosTE and PosPTE, PreTE and PrePTE). The means for personal teaching efficacy were higher than those for teaching efficacy for both the beginning of the year (PrePTE and PreTE) and the end of the year (PosPTE and PosTE). For the group of regular certification teachers this difference at the beginning of the year was .8728 and .5090 for alternative certification teachers. By the end of the year, this difference was greater (.9610) for the regular certification teachers and considerably greater for the alternative certification teachers (.7490). Reporting of the means was for descriptive purposes and, therefore, the differences in the means of the data have no statistical significance.

Research Questions:

1. At the beginning of the school year, how does the sense of efficacy of first year teachers prepared in a traditional certification program compare to first year teachers prepared in an alternative certification program?

2. At the end of the school year, how does the sense of efficacy of first year teachers prepared in a traditional certification program compare to first year teachers prepared in an alternative certification program?

To address the research questions of how the two groups' sense of efficacy compared at the beginning of the year and the end of the year, the Mann-Whitney U nonparametric test of significance was used to
analyze personal teaching efficacy and teaching efficacy at the
beginning of the year (PrePTE and PreTE) and again at the end of the
year (PosPTE and PosTE). The Mann-Whitney U test was used because
of the uneven sample sizes of the study. One of the assumptions
underlying the Mann-Whitney U nonparametric test of significance is the
null hypothesis which asserts that the two population distributions are
equal for a specified variable. In the study, the two populations were
represented by the sample groups of regular certification teachers and
alternative certification teachers; the variables were the two factors of
the Teacher Efficacy Scale, teaching efficacy and personal teaching
efficacy for the two times of the school year (PreTE, PrePTE, PosTE,
PosPTE). In order to reject the null hypothesis, and be of statistical
significance, it was required that the tested value be equal to or less
than the critical value of 87 when the probability for the test of
significance was alpha = .05. Table 3 shows the results of the Mann-
Whitney U nonparametric test of significance for the beginning of the
school year and the end of the school year.

Table 3 - Mann-Whitney U Nonparametric Test of Significance

<table>
<thead>
<tr>
<th></th>
<th>PreTE</th>
<th>PrePTE</th>
<th>PosTE</th>
<th>PosPTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>182</td>
<td>209</td>
<td>193</td>
<td>219</td>
</tr>
</tbody>
</table>

critical value = 87
p = .05

Because none of the test statistics were equal or less than the
critical value, the differences between the regular certification group
and the alternative certification group were not significant. The null
hypothesis was retained, an indication that the distributions for the two
groups were equal with regard for the factors of personal teaching efficacy and teaching efficacy.

Research Question:

3. Does the sense of efficacy of the differently prepared first year teachers change or stay the same by the end of the school year?

The Mann-Whitney U nonparametric test of significance was used to address the question of whether the two groups changed in their sense of efficacy or remained the same over the course of the school year. The criterion for the rejection of the null hypothesis that the distributions for the two groups was the same for teaching efficacy and personal teaching efficacy was the critical value of 87 at the probability level of .05. Table 4 shows the results of the Mann-Whitney U nonparametric test of significance for the difference between the beginning of the school year and the end of the school year for the factors of teaching efficacy (DiffTE) and personal teaching efficacy (DiffPTE).

Table 4 - Mann-Whitney U Nonparametric Test of Significance

<table>
<thead>
<tr>
<th>DiffTE</th>
<th>DiffPTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>137</td>
<td>113.5</td>
</tr>
</tbody>
</table>

Because neither statistical test was equal or less than the critical value, the difference between the regular certification group and the alternative certification group was not significant. The null hypothesis was retained, indicating that the distributions for the two groups in consideration of the factors of personal teaching efficacy and teaching efficacy were equal, and that the sense of efficacy of the differently
prepared first year teachers did not change over the course of the school year.

A linear regression model was used to determine if there was a linear relationship between the beginning of the year and the end of the year for each factor (teaching efficacy and personal teaching efficacy) of the scale. In this model the dependent variables were the end of the year measures (PosTE, PosPTE) with the beginning of the year measures (PreTE, PrePTE) assigned as independent variables. The t test was used to test the null hypothesis that each parameter value is equal to 0, with each parameter value tested in the presence of other parameters in the model. The critical value for rejection of the null hypothesis was 2.052 at alpha = .05 probability level. Table 5 shows the parameter estimates for the linear model.

Table 5 - Linear Model Parameter Estimates

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Parameter</th>
<th>Regression Coefficient</th>
<th>Standard Error</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>PosTE</td>
<td>Intercept</td>
<td>1.069</td>
<td>1.058</td>
<td>1.010</td>
</tr>
<tr>
<td></td>
<td>Regular PreTE</td>
<td>.629</td>
<td>.119</td>
<td>5.288*</td>
</tr>
<tr>
<td></td>
<td>Alternative PreTE</td>
<td>.703</td>
<td>.294</td>
<td>2.389*</td>
</tr>
<tr>
<td>PosPTE</td>
<td>Intercept</td>
<td>1.367</td>
<td>.920</td>
<td>1.487</td>
</tr>
<tr>
<td></td>
<td>Regular PrePTE</td>
<td>.605</td>
<td>.124</td>
<td>4.876*</td>
</tr>
<tr>
<td></td>
<td>Alternative PrePTE</td>
<td>.726</td>
<td>.224</td>
<td>3.245*</td>
</tr>
</tbody>
</table>

critical value = 2.052
*p = .05
* indicates significance
Tests of the parameter estimates were significant for both the factors of teaching efficacy and personal teaching efficacy for the regular and alternative teachers. This significance indicated that the beginning of the school year scale (PrePTE, PreTE) explained a significant amount of variability in the dependent variable, the end of the school year scale (PosPTE and PosTE).

Graphs of the regression lines for teaching efficacy and personal teaching efficacy show the relationship between the beginning and the end of the year.
Graph 1 - Linear Regression of Teaching Efficacy

$R^2 = 0.3009$

$R^2 = 0.5742$

$R^2 = 0.4999$
Graph 2 - Linear Regression of Personal Teaching Efficacy
The regression lines for teaching efficacy show that the regular certification teachers more closely fit the total population compared to the alternative certification teachers. The R-square for the regular certification teachers indicated 57% of the variance in the dependent variable (PosTE) is associated with the variance in the independent variable (PreTE). For the alternative certification group this statistic was considerably lower, at 30%. The correlation between the beginning of the year (PreTE) and the end of the year (PosTE) was higher for the regular certification group. (R=.7576) than the alternative certification group (R=.5485).

On the factor of personal teaching efficacy (PTE), the regular certification group showed results similar to teaching efficacy (TE). Again, the regression line for the regular group more closely fit the total population. The R-square for the regular certification group showed that 56% of the variance in the dependent variable PosPTE is associated with the variance in the independent variable PrePTE. For the alternative certification group, this statistic was somewhat higher than it was for the group's measure on teaching efficacy. The R-square shows that 41% of the variance on personal teaching efficacy in the end of the year is associated with the variance in the beginning of the year. The correlation between the beginning of the year and the end of the year for this factor of the scale was similar to teaching efficacy for the regular certification group (R=.7489). For the alternative group this correlation was higher compared to the correlation for teaching efficacy (R=.6373).
Research Question:

4. Do age, gender, or grade level taught have an influence on the sense of efficacy of the differently prepared first year teachers?

Multiple linear regression was used to address the question of the influence of the subjects' age, gender, and grade level taught upon their sense of efficacy. The administrations of the Teacher Efficacy Scale at the beginning of the school year and the end of the school year, produced six sets of data for the factors of teaching efficacy and personal teaching efficacy. Data about teaching efficacy and personal teaching efficacy at the beginning of the school year (PreTE, PrePTE), teaching efficacy and personal teaching efficacy at the end of the school year (PosTE, PosPTE), and the difference between these factors (DiffTE, DiffPTE) were used as dependent variables. Age, gender, level, and group were predictor variables. Table 6 shows the model summary for each dependent variable.

Table 6 - Model Summary for Regression

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>R</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>PreTE</td>
<td>.387</td>
<td>.150</td>
</tr>
<tr>
<td>PrePTE</td>
<td>.615</td>
<td>.378</td>
</tr>
<tr>
<td>PosTE</td>
<td>.449</td>
<td>.202</td>
</tr>
<tr>
<td>PosPTE</td>
<td>.599</td>
<td>.359</td>
</tr>
<tr>
<td>DiffTE</td>
<td>.234</td>
<td>.055</td>
</tr>
<tr>
<td>DiffPTE</td>
<td>.122</td>
<td>.015</td>
</tr>
</tbody>
</table>

Predictors: (Constant), age, gender, level, group

In the model summary, the R-square for teaching efficacy at the beginning of the school year (PreTE - .150) indicated that 15% of the
variance in responses to statements concerning teaching efficacy was attributed to the subjects' age, gender, grade level, and group. The R-square for personal teaching efficacy at the beginning of the school year (PrePTE - .378) was higher, indicating that 38% of the variance in responses to statements concerning personal teaching efficacy was attributed to the subjects' age, gender, grade level, and group. At the end of the school year, the R-square for teaching efficacy was slightly higher (PosTE - .202), indicating that 20% of the variance in responses to statements concerning teaching efficacy was attributed to the subjects' age, gender, grade level, and group. The R-square for personal teaching efficacy at the end of the year was nearly the same (PosPTE - .359) as that of the beginning of the year (PrePTE - .378), indicating that 36% of the variance in responses to statements concerning personal teaching efficacy was attributed to the subjects' age, gender, grade level, and group. The R-square for the difference between the beginning and the end of the school year with regard to the factor of teaching efficacy (DiffTE - .055) indicated that 5.5% of the variance of the difference between the beginning and the end of the school year responses to statements about teaching efficacy was attributed to the subjects' age, gender, grade level, and group. This statistic was less for personal teaching efficacy (DiffPTE, R-squared=.015), implying that 1.5% of the variance of the difference between the beginning and end of the year responses to statements about personal teaching efficacy was associated with the subjects' age, gender, grade level, and group.
The analysis of variance (ANOVA) procedure was used to determine if there was a relationship between each dependent variable (PreTe, PrePTE, PosTE, PosPTE, DiffTE, and DiffPTE) and the linear combination of the predictor variables of age, gender, level, and group. The test statistic for ANOVA was the F ratio, which tested the proportion in the variation of the regular and alternative certification teachers (between groups) to the variation within each group on all measures of the Teacher Efficacy Scale with regard to the factors of teaching efficacy and personal teaching efficacy at the beginning and the end of the school year. The null hypothesis assumed that the value of each coefficient of determination (R-square) equaled zero in the presence of the other variables in the model. The critical value for rejection of the null hypothesis was 2.89 at the probability level of .05. Table 7 shows the analysis of variance for regression for the dependent variables of PreTe, PrePTE, PosTE, PosPTE, DiffTE, and DiffPTE.

Table 7 - ANOVA for Regression

<table>
<thead>
<tr>
<th>Dep. Var.</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PreTe,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>2.709</td>
<td>4</td>
<td>.677</td>
<td>1.453</td>
</tr>
<tr>
<td>Residual</td>
<td>15.388</td>
<td>33</td>
<td>.466</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>18.097</td>
<td>37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dep. Var.</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PrePTE,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>5.305</td>
<td>4</td>
<td>1.326</td>
<td>5.009*</td>
</tr>
<tr>
<td>Residual</td>
<td>8.738</td>
<td>33</td>
<td>.265</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14.043</td>
<td>37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Predictors: (Constant), age, gender, level, group  
p = .05  
*indicates significance  
Critical Value = 2.89
Table 7 - ANOVA for Regression (continued)

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PosTE,</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dep. Var.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>2.977</td>
<td>4</td>
<td>.744</td>
<td>2.086</td>
</tr>
<tr>
<td>Residual</td>
<td>11.772</td>
<td>33</td>
<td>.357</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14.749</td>
<td>37</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PosPTE,</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dep. Var.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>4.027</td>
<td>4</td>
<td>1.007</td>
<td>4.622*</td>
</tr>
<tr>
<td>Residual</td>
<td>7.188</td>
<td>33</td>
<td>.218</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11.216</td>
<td>37</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DiffTE,</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dep. Var.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>.534</td>
<td>4</td>
<td>.133</td>
<td>.478</td>
</tr>
<tr>
<td>Residual</td>
<td>9.210</td>
<td>33</td>
<td>.279</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9.743</td>
<td>37</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DiffPTE,</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dep. Var.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>.111</td>
<td>4</td>
<td>.028</td>
<td>.124</td>
</tr>
<tr>
<td>Residual</td>
<td>7.344</td>
<td>33</td>
<td>.223</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7.455</td>
<td>37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Predictors: (Constant), age, gender, level, group \( p = .05 \)

The \( F \) ratio was significant for the factor of personal teaching efficacy at both the beginning and the end of the school year (PrePTE, PosPTE). In terms of the coefficients of determination (R-square), this significance indicated a relationship between the dependent variables of personal teaching efficacy at the beginning and the end of the school year and the combination of the predictor variables of age, gender, level taught and group.

To determine the relative importance of individual predictor variables, the \( t \) statistic was used. A critical value of 2.035 at the probability level of \( p = .05 \) was the criterion for significance of the predictor variables. Each predictor variable (age, gender, level taught,
and group) was tested within the presence of the combination of all the predictor variables with regard to the data generated from the measures of the Teacher Efficacy Scale (PreTE, PrePTE, PosTE, PosPTE, DiffTE, DiffPTE) as the dependent variables. Gender was the only predictor variable found to have moderate correlations to personal teaching efficacy at the beginning of the year (Pearson Correlation = -.589) and the end of the year (Pearson Correlation = -.571). Table 8 shows the t statistics for the predictor variable coefficients.

Table 8 - Predictor Variable Coefficients

<table>
<thead>
<tr>
<th>Dep. Var.</th>
<th>Unstandardized</th>
<th>Standardized</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>t</td>
</tr>
<tr>
<td>(Constant)</td>
<td>3.990</td>
<td>.486</td>
<td>-213</td>
<td>8.210</td>
</tr>
<tr>
<td>Age</td>
<td>-.017</td>
<td>.014</td>
<td>-.213</td>
<td>-1.203</td>
</tr>
<tr>
<td>Gender</td>
<td>-.460</td>
<td>.288</td>
<td>-.293</td>
<td>1.594</td>
</tr>
<tr>
<td>Group</td>
<td>-.141</td>
<td>.268</td>
<td>-.090</td>
<td>-.525</td>
</tr>
<tr>
<td>Level</td>
<td>-.179</td>
<td>.247</td>
<td>-.129</td>
<td>-.724</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dep. Var.</th>
<th>Unstandardized</th>
<th>Standardized</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>t</td>
</tr>
<tr>
<td>(Constant)</td>
<td>4.460</td>
<td>.366</td>
<td>.020</td>
<td>12.178</td>
</tr>
<tr>
<td>Age</td>
<td>.014</td>
<td>.011</td>
<td>.133</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.905</td>
<td>.217</td>
<td>-.655</td>
<td>-4.164*</td>
</tr>
<tr>
<td>Group</td>
<td>.073</td>
<td>.202</td>
<td>.364</td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>-.237</td>
<td>.186</td>
<td>-.195</td>
<td>-1.278</td>
</tr>
</tbody>
</table>

*indicates significance  

\[ p = .05 \]

Critical value = 2.035
Table 8 - Predictor Variable Coefficients (continued)

<table>
<thead>
<tr>
<th>PosTE, Dep. Var.</th>
<th>Unstandardized</th>
<th>Standardized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>4.068</td>
<td>.425</td>
</tr>
<tr>
<td>Age</td>
<td>.014</td>
<td>.013</td>
</tr>
<tr>
<td>Gender</td>
<td>.251</td>
<td>.252</td>
</tr>
<tr>
<td>Group</td>
<td>-.025</td>
<td>.235</td>
</tr>
<tr>
<td>Level</td>
<td>-.407</td>
<td>.216</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PosPTE, Dep. Var.</th>
<th>Unstandardized</th>
<th>Standardized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>4.723</td>
<td>.332</td>
</tr>
<tr>
<td>Age</td>
<td>-.074</td>
<td>.010</td>
</tr>
<tr>
<td>Gender</td>
<td>-.782</td>
<td>.197</td>
</tr>
<tr>
<td>Group</td>
<td>.021</td>
<td>.183</td>
</tr>
<tr>
<td>Level</td>
<td>-.212</td>
<td>.168</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DiffTE, Dep. Var.</th>
<th>Unstandardized</th>
<th>Standardized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>.078</td>
<td>.376</td>
</tr>
<tr>
<td>Age</td>
<td>.026</td>
<td>.011</td>
</tr>
<tr>
<td>Gender</td>
<td>-.209</td>
<td>.223</td>
</tr>
<tr>
<td>Group</td>
<td>.116</td>
<td>.208</td>
</tr>
<tr>
<td>Level</td>
<td>-.229</td>
<td>.191</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DiffPTE, Dep. Var.</th>
<th>Unstandardized</th>
<th>Standardized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>.263</td>
<td>.336</td>
</tr>
<tr>
<td>Age</td>
<td>-.022</td>
<td>.010</td>
</tr>
<tr>
<td>Gender</td>
<td>.122</td>
<td>.199</td>
</tr>
<tr>
<td>Group</td>
<td>-.052</td>
<td>.185</td>
</tr>
<tr>
<td>Level</td>
<td>.025</td>
<td>.170</td>
</tr>
</tbody>
</table>

*indicates significance

Critical value = 2.035

p = .05
As a predictor variable, gender was a significant contributor to the regression when used in combination with the other three predictor variables of age, group assignment, and grade level taught. However because the other predictor variables were not found to be significant, and are needed as significant contributors in the regression, it cannot be determined how gender is significant.
The first year of teaching has been characterized as a problem-filled year in which coping with initial classroom experiences can be overwhelming for the first year teacher. Novices' conceptions of teaching and self perceptions of themselves in the teaching role can greatly influence this crucial year. According to Bandura (1982), one's behavior is determined in part by beliefs that behavior will lead to desirable outcomes and that one has the requisite skills to bring about the outcomes. These beliefs and skills have been defined as a sense of self efficacy by Bandura (1982). In relation to teaching, the concept of self efficacy involves the teachers' confidence in their ability to bring about positive change in their students.

Studies of teachers' sense of efficacy have found that it is a multidimensional concept (Ashton, Webb, & Doda, 1983). Two of the constructs identified are teaching efficacy and personal teaching efficacy. Teaching efficacy refers to the belief that external influences, such as a student's home environment, the extent of the student's experience brought to the classroom, or a student's I.Q., limit one's ability to bring about change in students. Personal teaching efficacy refers to the belief in one's own abilities and skills that can bring about changes in student learning, such as high self-confidence, high
expectations of student learning, or positive perceptions of preservice training.

This study of first year teachers was conducted to determine if the sense of efficacy of two groups of differently prepared teachers changed from the beginning of the school year to the end of the school year. One group of first year teachers was already certified to teach with undergraduate degrees from accredited colleges of education. The other group had undergraduate degrees unrelated to education and were undergoing an alternative certification process. The subjects were newly hired, first year certified teachers and teachers hired according to a local school district model alternative certification program, both of which were obtained from the personnel department of a large urban school district (more than seventy thousand students) in North Texas.

Participants in the study were thirty-eight first year teachers assigned to a group according to their level of teacher preparation: regular certification group or alternative certification group. Twenty-eight of the subjects were certified teachers, while ten were undergoing an alternative certification process. Twenty of the subjects were age twenty-five and under, while the remaining eighteen ranged in age from twenty-six to fifty-eight. Twenty-eight of the subjects were female; ten subjects were male, seven of which fell into the older age group. Subjects were evenly divided for elementary and secondary levels of teaching; nineteen taught at the elementary level, and nineteen taught at the secondary level.
The study was somewhat limited due to small and uneven group sizes. The uneven group sizes were fairly representative of the population of first year teachers of the school district in which the study was conducted. In this particular district there were considerably more certified first year teachers than teachers in the alternative certification program.

In order to compare the two groups of differently prepared first year teachers and to determine if there were changes in their sense of self efficacy from the beginning to the end of the school year, the following research questions were addressed:

1. At the beginning of the school year, how does the sense of efficacy of first year teachers prepared in a traditional teachers' certification program compare to first year teachers prepared in an alternative certification program?

2. At the end of the school year, how does the sense of efficacy of first year teachers prepared in a traditional teachers' certification program compare to first year teachers prepared in an alternative certification program?

3. Does the sense of efficacy of the differently prepared first year teachers change or stay the same by the end of the school year?

4. Do age, gender, or grade level taught have an influence on the sense of efficacy of the differently prepared first year teachers?

The instrument used to measure the two groups of teachers' sense of self efficacy was the Teacher Efficacy Scale, developed by Gibson (1983).
The administrations of the Teacher Efficacy Scale at the beginning of the school year and the end of the school year, produced six sets of data. Data were analyzed with regard to the factors of teaching efficacy and personal teaching efficacy both for the beginning and the end of the school year, as well as for the difference between the beginning and the end of the school year for the two factors.

To address the first two research questions of how the two groups' sense of efficacy compared at the beginning and the end of the school year, the Mann-Whitney U nonparametric test of significance was used to analyze teaching efficacy and personal teaching efficacy at the two times of the school year. It was found that the differences between the regular certification group and the alternative certification group were not significant for either variable of teaching efficacy or personal teaching efficacy at both times of the school year. This finding indicated that there was no difference between regular certification teachers and alternative certification teachers in their beliefs concerning teaching efficacy and personal teaching efficacy in their first year of teaching.

The Mann-Whitney U nonparametric test of significance was again used in order to analyze data related to the third research question of determining if the sense of efficacy of the differently prepared first year teachers changed or remained the same by the end of the school year. It was found that there was no significant difference between the regular certification group and the alternative certification group. This
finding suggests that the sense of efficacy of the differently prepared first year teachers did not change over the course of the school year.

Because the third research question was directed at the aspect of a change in the first year teachers' sense of efficacy, linear regression was used to determine the possibility of a linear relationship between the beginning and the end of the school year. Results were significant, which suggest that the results of the administration of the Teacher Efficacy Scale at the beginning of the year were a good predictor of the end of the year administration of the scale for both factors of teaching efficacy and personal teaching efficacy within both groups of teachers.

Multiple linear regression was used to examine the data pertaining to the final research question concerning the influence of the subjects' age, gender, and grade level taught upon their sense of efficacy. After statistical analysis it was found that none of the variables (age, gender, group assignment, grade level) were significant influences upon teaching efficacy or personal teaching efficacy.

Discussion

The present study was somewhat limited due to small and uneven group sizes. Overall, there were thirty-eight subjects that participated in the study. The majority (twenty-eight) were certified teachers, the other ten participants were undergoing an alternative certification process. Ages of the subjects ranged from twenty-one to fifty-eight, with twenty of the subjects ages twenty-five and under. Gender was represented unevenly in the study with twenty-eight female and ten male subjects. Within the group of males, seven of the participants
ranged in age from twenty-six to fifty-eight. Subjects were evenly
divided for the grade level taught during the study; nineteen taught at
the elementary level, and nineteen taught at the secondary level.
However disproportionate the group sizes, they were fairly
representative of the population of first year teachers of the school
district in which the study was conducted.

The results of the statistical tests showed that regular
certification teachers and alternative certification teachers were similar
in their sense of efficacy at the beginning and end of the school year,
and that this sense of efficacy did not change over the course of the
school year. Both groups of the differently prepared teachers had
similar perceptions of the two constructs of teacher efficacy, teaching
efficacy and personal teaching efficacy. It was found that the
participants' sense of efficacy, including the factors of teaching efficacy
and personal teaching efficacy, at the beginning of the school year was
a good predictor of what their sense of efficacy would be at the end of
the same school year.

Although differences between the two groups of teachers at the
two times of the school year were shown to be insignificant, the
relationship between the beginning and the end of school measures was
significant. That this correlation was high for the regular certification
teachers, and the statistics nearly the same for both teaching efficacy
and personal teaching efficacy, may suggest that preservice teacher
preparation results in a somewhat consistent sense of efficacy
throughout the school year. Through the course of the school year, the
regular certification teachers may have experienced a more uniform level of confidence in their teaching abilities than the alternative certification teachers. This difference may be due to the exposure to the classroom and school environments the regular certification teachers experienced over a two year time period in their undergraduate programs. In contrast, the moderate correlation seen between the beginning and end of school measures within the alternative certification group may suggest more variance in their sense of efficacy and confidence in their teaching skills throughout the school year. This difference may be attributed to the fact that alternative certification candidates experience less exposure to the classroom and school environment in a considerable compacted time frame, and to the "learning on the job" situation of this group.

The determination of the influence of the variables of age, gender, grade level taught, and group (regular or alternative certification) was considered in a linear combination of the variables with regard to the factors of teaching efficacy and personal teaching efficacy. A relationship was found between the combination of variables and personal teaching efficacy both at the beginning and end of the school year. When each variable was considered individually to determine their influence upon teaching efficacy and personal teaching efficacy, it was found that none of the variables had an affect on either teaching efficacy or personal teaching efficacy at either time of the school year.

The difference between the certified teachers and alternative certification teachers appears to be in the constancy of the perception
of teaching efficacy and personal teaching efficacy throughout the course of the school year. Although both groups technically had no inservice teaching experience, the certified teachers were probably confident in their teaching abilities because they brought "experience" in the form of classroom observation hours from undergraduate studies and student teaching experience to their first teaching position. The alternative certification candidates probably experienced varying levels of confidence in their teaching abilities because they had less exposure to the classroom before being hired to "train on the job."

The findings of the present study reflect results found by Glickman and Tamashiro (1982) concerning teachers' sense of efficacy and differing levels of experience. In their study, no differences were found between first and fifth year teachers' sense of efficacy. Although the two groups of teachers in the present study did not have inservice teaching experience, they differed in the amount of time and exposure to the classroom and school environment, and therefore brought different levels of experience to their initial year of teaching.

The findings produced in this study were similar to the Georgia study of Guyton, Fox, and Sisk (1991) with regard to distinguishing differences between two groups of differently prepared teachers at different times of the year. After analyzing data, gathered from the Teacher Efficacy Scale after five months of teaching and at the end of the year, Guyton, Fox, and Sisk concluded that there were no significant differences between the regularly certified teachers and the alternative certification candidates concerning the factors of teaching efficacy and
personal teaching efficacy. Although their study did not measure the subjects’ sense of efficacy at the beginning of the school year, the present study has shown that the beginning of the school measure was a good predictor of the end of the school measure for both factors of teaching efficacy and personal teaching efficacy. In addition, the Guyton, Fox, and Sisk study found no differences between their groups of teachers from the middle to the end of the school year for teaching efficacy and personal teaching efficacy. This finding was replicated in the present study.

Implications

The present study found no significant differences in teaching efficacy and personal teaching efficacy between first year certified teachers and alternative certification candidates, and that these two factors of teachers’ sense of efficacy did not significantly change from the beginning to the end of the school year. That the relationship between the beginning and the end of the school for both teaching efficacy and personal teaching efficacy was significant for the regularly certified teachers implies that this group may be more effective because of a more uniform level of confidence in their teaching abilities. The alternative certification candidates, on the other hand, appeared to have more variance in their levels of confidence in their teaching abilities, implying that they were less effective in their teaching throughout the school year. Gender, age, group assignment (regular certification or alternative certification), and grade level taught at the time of the study had no influence on either group of teachers in their levels of
confidence regarding their teaching abilities from the beginning to the end of the school year.

The focus of the present study was concerned with the sense of efficacy of regularly certified and alternatively certified first year teachers, and whether this sense of efficacy changed during the course of the school year. Findings from this study may have implications for the preparation of teachers. Colleges of education may consider the steady levels of confidence in teaching abilities of the certified teachers from the beginning to the end of the year as indicative of prepared, effective teachers, which reflects positively upon their teacher preparation and certification programs. In times of teacher shortages, however, large urban school districts must depend on preparing college graduates that do not have teaching credentials by implementing programs for alternative certification. The varying levels of confidence in teaching ability found in this study’s alternative certification candidates indicate less effective teaching, in comparison to their certified counterparts. The less efficacious aspect of the teachers of the alternative certification program should be considered in the evaluation and implementation of school districts’ alternative certification programs. More time may be required of the alternative certification candidates to: (1) observe the classroom and school environments and (2) be given the opportunity to communicate with other teachers of varying levels of experience before stepping into the teaching role on a full time basis. Also, the close and frequent mentorship with an
experienced teacher may help to improve the alternative certification candidates' sense of efficacy throughout the school year.

The differences in the two factors of teacher efficacy throughout the school year may have been influenced by small sample size and uneven groups. It is suggested that further studies be conducted with larger samples and more evenly matched groups in order to determine if these findings can be generalized to the populations of alternative certification candidates and certified teachers in their first year of teaching.
REFERENCES


