
Theses and Dissertations

2010

**A study of efficacy and professional development among
alternatively-certified teachers in Arizona**

Carlyn Ludlow

Follow this and additional works at: <https://digitalcommons.pepperdine.edu/etd>

Recommended Citation

Ludlow, Carlyn, "A study of efficacy and professional development among alternatively-certified teachers in Arizona" (2010). *Theses and Dissertations*. 60.
<https://digitalcommons.pepperdine.edu/etd/60>

This Dissertation is brought to you for free and open access by Pepperdine Digital Commons. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of Pepperdine Digital Commons. For more information, please contact bailey.berry@pepperdine.edu.

Pepperdine University
Graduate School of Education and Psychology

A STUDY OF EFFICACY AND PROFESSIONAL DEVELOPMENT AMONG
ALTERNATIVELY-CERTIFIED TEACHERS IN ARIZONA

A dissertation submitted in partial satisfaction
of the requirements for the degree of
Doctor of Education in Leadership, Administration and Policy

by

Carlyn Ludlow

July, 2010

Linda Purrington, Ed.D.-Dissertation Chairperson

This dissertation, written by

Carlyn Ludlow

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

Linda Purrington, Ed.D., Chairperson

Doug Leigh, Ph.D.

Jane Dowling, Ph.D.

Eric R. Hamilton, Ph.D.
Associate Dean

Margaret J. Weber, Ph.D.
Dean

© Copyright by Carlyn Ludlow (2010)

All Rights Reserved

TABLE OF CONTENTS

	Page
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
ACKNOWLEDGEMENTS.....	x
DEDICATION.....	xi
VITA.....	xii
ABSTRACT.....	xiii
Chapter One: The Problem.....	1
Impact of Teachers.....	1
Teachers Supply and the Growth in Student Population at a National Level.....	1
Teachers Supply and the Growth in Student Population in Arizona.....	3
Inequitable Distribution of Teachers.....	4
Innovative Efforts to Recruit Teachers.....	5
Foundations of Alternative Routes to Teacher Certification.....	6
Alternative Routes to Teacher Certification in Arizona.....	7
Measuring Quality.....	8
Traditional Measures are Unfit for Teaching Interns.....	8
Measuring Quality through Efficacy.....	10
Targeted and Early Support.....	11
Professional Development.....	11
Problem Statement.....	12
Purpose of the Study.....	13
Research Questions.....	13
Importance of the Study.....	14
Delimitations, Limitations, and Assumptions.....	15
Definitions of Key Terms.....	18
Operational Definitions of Variables.....	18
Efficacy.....	18
Professional development experiences.....	19
Intensive preparation program.....	19
Induction program.....	20
Mentor.....	21
Key Terms.....	21
Teaching intern.....	21

Intern certification status.....	22
Contract location by county.....	23
Certification program category.....	23
Alternative routes to certification programs.....	24
Certified teachers.....	24
Practicum	24
Teacher shortage.....	24
Teaching certification.....	25
Teacher preparation program.....	25
Organization of the Dissertation.....	25
Chapter Two: Review of the Literature.....	27
Background.....	27
Teacher Certification.....	28
Foundations of teacher certification.....	28
Supply of traditionally trained teachers.....	30
Criticism of traditional routes to certification.....	34
Alternative Routes to Teacher Certification.....	36
Foundations of alternative routes to teacher certification.....	36
National research studies on alternative routes to teacher certification.....	39
Regional research studies on alternative routes to teacher certification.....	43
State research studies on alternative routes to teacher certification.....	44
Well-known national teacher training programs.....	44
Efficacy.....	48
Foundations of teacher efficacy.....	48
Efficacy studies of pre-service and novice teachers.....	50
Efficacy studies of veteran teachers.....	52
Professional Development Experiences of Teaching Interns.....	56
Intensive preparation programs.....	58
Induction programs.....	59
Mentoring.....	61
Chapter Three: Methodology and Procedures.....	64
Research Design and Rationale.....	64
Population, Sampling, Method, Sample, and Participants.....	65
Population.....	65
Setting.....	66
Participants.....	67
Human Subjects Considerations.....	68
Data Collection Setting and Procedures.....	72
Instrumentation.....	75

Part One: Arizona Teaching Intern Survey.....	75
Part one: reliability and validity testing.....	76
Part one: population suitability.....	79
Part one: permission.....	80
Part Two: Arizona Teaching Intern Survey.....	80
Part two: validity testing.....	82
Analytical Techniques.....	82
External Validity Testing.....	83
Research Question One.....	83
Research Question Two.....	85
Supplemental Data.....	87
Chapter Four: Results.....	88
Data Analytics and Findings.....	88
External Validity.....	90
Response rate analytics.....	91
Response rate findings.....	92
Tests of significance analytics.....	93
Findings from the tests of significance.....	96
Research Question One.....	96
Aggregate efficacy score.....	97
Itemized and subscale efficacy scores.....	100
Research Question Two.....	105
Supplemental Analytics and Findings.....	109
General information categories.....	109
Professional development experiences.....	111
Efficacy survey subscales.....	113
Summary of Data Findings.....	118
Chapter Five: Conclusions and Recommendations.....	120
Overview.....	120
Explanation of the Findings.....	122
External Validity Findings and Analyses.....	122
Research Question One Findings and Analyses.....	123
Aggregate efficacy findings.....	124
Aggregate efficacy analysis.....	124
Itemized and subscale efficacy findings.....	126
Itemized and subscale efficacy analysis.....	127
Research Question Two Findings and Analyses.....	129
Efficacy and professional development findings.....	129
Efficacy and professional development analysis.....	130
Supplemental Data Investigation Findings and Analyses.....	131
General information category findings and analyses.....	131

Professional development experience findings and analyses.....	133
Efficacy survey subscale findings and analyses.....	136
Conclusions and Discussions.....	138
The First Conclusion.....	139
The Second Conclusion.....	140
The Third Conclusion.....	140
The Fourth Conclusion.....	141
Recommendations for Policy and Practice.....	141
TIPP- Phase One.....	142
TIPP- Phase Two.....	142
Recommendations for Further Study.....	143
Studies of Professional Development.....	143
Studies of the Efficacy Survey Instrument.....	144
Additional Studies of Interest.....	145
Final Thoughts.....	145
REFERENCES.....	148
APPENDIX A: Letter Granting Permission of Research Study from the Arizona Department of Education.....	165
APPENDIX B: Approval for Data Extract and Release from the Arizona Department of Education.....	166
APPENDIX C: Permission to Use Teachers' Sense of Efficacy Scale: Part One of Arizona Teaching Intern Survey.....	169
APPENDIX D: Teaching Intern Contact Request Letter.....	170
APPENDIX E: Introductory Communication Letter to Teaching Interns.....	172
APPENDIX F: Consent Form Used with a Waiver.....	174
APPENDIX G: Arizona Teaching Intern Survey Instrument.....	176
APPENDIX H: List of Face Validity Panel Members.....	181
APPENDIX I: Pepperdine IRB Approval Letter.....	182

LIST OF TABLES

Table 1. Response Outcome, Quantity of Teaching Interns, and Rationale.....	91
Table 2. Response Rate per Category, Calculation Results, Description of Category...	92
Table 3. Population and Respondents per General Information Categories.....	94
Table 4. Two-Proportion Z-Test Calculations with Corresponding Confidence Level..	95
Table 5. Results of Grubb's Test for Detecting Outliers.....	98
Table 6. Descriptive Statistical Calculations for Teaching Interns' Efficacy Levels....	99
Table 7. Survey Item and Mean Efficacy Score Listed in Ascending Order	100
Table 8. Efficacy Survey Subscales and Accompanying Survey Items	102
Table 9. Descriptive Statistical Calculations for Teaching Interns' Efficacy Levels....	103
Table 10. Descriptive Statistical Calculations for the Three Professional Development Experiences.....	106
Table 11. Respondents' Intern Certificate Status and Calculated Mean Efficacy.....	110
Table 12. Mean Efficacy Score by Intern Certificate Status and Induction Program Participation.....	111
Table 13. Mean Efficacy Score by Intern Certificate Status and Assignment of a Mentor.....	112
Table 14. Effect Sizes, Labels per Certificate Status and Professional Development.....	113
Table 15. Respondents' Mean Efficacy Subscale Scores by Intern Certificate Status..	114

LIST OF FIGURES

Figure 1. Frequency histogram of the complete data set as calculated by the mean efficacy score per respondent.....	97
Figure 2. Frequency histogram post-outlier removal as calculated by the mean efficacy score per respondent.....	99
Figure 3. Respondents' mean efficacy scores per survey item, 1-24, with coded subscale.....	103
Figure 4. The relationship between the respondents' aggregate efficacy scores and the student engagement efficacy subscale scores.....	105
Figure 5. Attendance in an intensive preparation program as calculated by the mean efficacy score per respondent.....	107
Figure 6. Participation in a district-sponsored induction program as calculated by the mean efficacy score per respondent.....	108
Figure 7. Assignment of a mentor as calculated by the mean efficacy score per respondent.....	109
Figure 8. Intern certificate status as calculated by the mean efficacy score per respondent.....	110
Figure 9. Year-two teaching interns' mean student engagement efficacy subscale score by participation in an induction program.....	115
Figure 10. Year-one teaching interns' mean instructional strategies efficacy subscale score by assignment of a mentor.....	116
Figure 11. The relationship between the respondents' aggregate efficacy scores and the student engagement efficacy subscale scores for year-one teaching interns.....	117
Figure 12. The relationship between the respondents' aggregate efficacy scores and the student engagement efficacy subscale scores for year-two teaching interns.....	118

ACKNOWLEDGEMENTS

My dissertation journey is finally at its destination and it is only because of the wonderful people with whom I have had the privilege to know. First I would like to offer my sincerest gratitude to Dr. Linda Purrington for her inspiration and guidance. She has the rare gift of being able to spend more time thinking of others than she does of herself. She is as selfless as she is intelligent and is the model of a servant leader. Next, I would like to thank Drs. Doug Leigh and Jane Dowling who willingly served as committee members. With appreciation to Dr. Leigh, whose warmth and kindness is only surpassed by the magnitude of his brain. With appreciation to Dr. Dowling, who always dedicates one hundred percent of her effort and enviable aptitude to everything she does. I and the field of education are better for having these three individuals as advocates, scholars, and professionals.

Finally, and most importantly, I would like to thank my husband, children, and friends who always provide me their unwavering support and encouragement; my love and sincerest thanks to each of you.

My doctoral journey began with a cohort of wonderfully talented and motivated strangers at Pepperdine and now ends with the honor of calling each one of them a friend. Thank you C5 for enjoying the journey with me. This journey was definitely worth taking.

DEDICATION

I dedicate this dissertation to my wonderful husband, Patrick, for without his encouragement, support, and love, this would not have been possible. He makes my life perfect; I love you, and *THAT* was a real one! Additionally, I dedicate this to my two children, Gavin and Kelsey, in hope that they spent their lives in a constant quest for knowledge. I love both of you!

“Education is, not a preparation for life; education is life itself” --John Dewey

VITA

ACADEMIC PREPARATION

Pepperdine University, Los Angeles, CA Doctor of Education in Educational Leadership, Administration, and Policy	2010
Chapman University, Orange, CA Master of Arts in Education Curriculum and Instruction Secondary Education	1999
University of Arizona, Tucson, AZ Bachelor of Arts in Social and Behavioral Sciences Communication Political Science	1996

PROFESSIONAL EXPERIENCE

Pedagogia Educational Consulting, Cave Creek, AZ President and Chief Consultant Curriculum and Professional Development Consulting	2003- 2010
The University of Phoenix, Phoenix, AZ Headquarter On-Ground Campus Program Area Chair and Lead Faculty of MAED Curriculum and Instruction MAED Adult Education and Training MAED Teacher Leadership Programs TaskStream Coordinator Student Teaching Faculty Supervisor Global Faculty Council Member Academic Council Member	2002- 2010
Arizona State University, Tempe, AZ Associate Faculty	2005- 2006
Scottsdale School District, Scottsdale AZ Teacher and Team Lead	1998- 2003

AWARDS

Faculty Member of the Year- University of Phoenix	2006
Faculty Member of the Year- University of Phoenix	2008

ABSTRACT

The purpose of this descriptive and comparative study was to investigate the self-assessed efficacy levels of alternatively-certified teachers in Arizona. More specifically, this study examined the teachers' perceived ability to influence student learning and the extent to which, if at all, their self-reported efficacy levels differed based on the following professional development experiences: attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor.

This quantitative non-experimental and cross-sectional study collected original data from single groups of interns who hold a 2009-2010 Arizona Teaching Intern Certificate. A total of 164 teaching interns participated in the two-part survey, referred to as the Arizona Teaching Intern Survey. Part one documented the levels of Arizona intern credentialed teachers' efficacy to influence student learning using an acknowledged and reputable survey titled the Teachers' Sense of Efficacy Scale. Part two of the survey instrument collected data pertaining to the teaching interns' professional development experiences.

The findings of this study led to the conclusion that new teacher efficacy is not necessarily tied to a specific certification pathway; in fact, the life experiences of new teachers' are more influential on their classroom management than their route to certification. Furthermore, it was determined that professional development is of particular importance for teaching interns in an alternative certification program as they tend not to have the pedagogical preparation of their traditionally prepared peers. Lastly, it was concluded that year-one teaching interns and year-two teaching interns have

distinct needs and concerns; each year requiring specific avenues of support, collaboration, and development.

Because there is limited time with which to influence teachers' efficacy levels, and in turn their effectiveness and performance, a targeted two-phase professional development plan is recommended that would require: mentors for all year-one teaching interns; addressing their need for individual support and attention, and participation in a district- sponsored induction program for all year-two teaching interns; addressing their need to feel part of a connected, supportive community of peers.

Chapter One: The Problem

Impact of Teachers

Each year parents and students eagerly await notice of classroom and teacher assignment. The anxiety felt by parents is justified as they know that their children's future depends upon the quality of every teacher their child is assigned (National Commission on Teaching and America's Future, 2009). A quality education is a critical component for the future success of a child, with many people believing that "education is the major foundation for the future strength of this country... and the foundation for a satisfying life, an enlightened and civil society, a strong economy, and a secure Nation" (National Commission on Excellence in Education, 1983, para. 33). According to the 1983 report, *A Nation at Risk*, all children "are entitled to a fair chance and to the tools for developing their individual powers of mind and spirit to the utmost," adding that "this promise means that all children...can hope to attain the mature and informed judgment needed to secure gainful employment, and to manage their own lives, thereby serving not only their own interests but also the progress of society itself" (National Commission on Excellence in Education, 1983, para. 11). There is no facet of education that is more important to the success of students than the quality of teachers (Armstrong, Henson, & Savage, 2009).

Teachers Supply and the Growth in Student Population at a National Level

To ensure everyone is given an equal opportunity to succeed in life, every student deserves to have teachers who are competent. However, not all schools are able to provide that equal opportunity for their students, as many schools find it difficult to staff

all of their classrooms--not to mention staffing with quality educators. The problem of teacher shortages has been noted as a nationwide concern as far back as 1947, when a report entitled, "Investigations in Teacher Supply and Demand in 1947" was published in the Educational Research Bulletin (Eliassen & Anderson, 1947). During the past decade, however, the challenges of teacher shortages have gained unprecedented attention and concern among educators and educational interest groups. According to the National Center for Education Statistics (2008), a national increase of nine percent in total elementary and secondary student enrollment is expected annually through 2016. Public school teachers, who require state-approved teaching certifications, saw an increase of 27 percent nationally from 1991 to 2004, and projections indicate an additional 18 percent of public school teachers will be needed through 2016 (National Center for Education Statistics, 2008). The concerns expressed in 1947 mirror concerns today, whereby the student population growth and the number of teachers entering the profession do not have a proportionally progressive relationship.

In addition to supplying teachers for the increase in the number of students entering elementary and secondary schools, teachers will be needed to backfill the teacher workforce that is leaving annually. At the end of the 2004 school year, 17 percent of the teachers in elementary and secondary education left the profession (National Center for Education Statistics, 2008). Throughout the United States, almost 50 percent of teachers will voluntarily exit the profession before they reach their fifth year (Budig, 2006).

Teacher Supply and the Growth in Student Population in Arizona

The concern over the teacher shortage rate is among the most pressing problems facing the American education system, and the Arizona education system specifically. According to statistics from the National Center for Education Statistics, Arizona is presently suffering from a shortage of teachers, which is likely to continue to as the student population is poised to increase 28 percent through 2016 (2006). The increasing demand for teachers within the field of education is being exacerbated by the teacher attrition rate in the state of Arizona. The Center for Teaching Quality estimates that close to one-half of first-through-fifth-year teachers leave the profession in Arizona, compared to one-fifth nationally (Arizona Education Association, 2009).

Intensifying the situation further, Arizona raised the math and science graduation requirement from two-to-four and one-to-three years of study, respectively, beginning in the 2009-2010 academic year. A projection by the Arizona Department of Education indicates an additional 400 teachers of mathematics, and 250 teachers of science, are needed annually to compensate for the increased high school graduation requirement (Arizona Math and Science Teacher Workforce Initiative, 2008). The fields of mathematics and science, which experienced statewide annual shortages prior to the increased credit requisite, feel additional strain. Teachers leaving the state and the recent higher education graduates leave an annual gap of 500 teachers needed in the fields of mathematics and science alone (National Center for Education Statistics, 2008). The gaps in these disciplines mirror the gap in other content areas. The disparity between the vacant teaching positions and those qualified and certified to teach is vast.

Inequitable Distribution of Teachers

All communities, regions, and states do not have the same need for teachers. According to the National Center for Education Statistics (2006), 40 of the 50 US states are experiencing a substantial need for certified teachers to enter the field of education. More specifically, states in the Western region of the United States are expected to see a rise in student population, whereas, states in the North and Midwest are expected to see a decline in student population (Johnson et al., 2008). However, even in regions and states that are not seen as having a rise in student population, “many schools and districts experience difficulty finding teachers to staff all their classrooms, especially urban schools” (Coggshall, 2006, p. 4). In many locations, the urgency for more teachers is no more serious than it has been in decades past. Urban and rural communities that have high levels of socioeconomically disadvantaged students, and students of minority races and ethnicities, have seen shortages of teachers for years (Coggshall, 2006).

During the 2008-09 and 2009-10 academic years, Arizona experienced teacher shortages in 12 of its 15 counties (United States Department of Education, 2009a). The three counties not facing shortages are metropolitan counties with the largest populations and significant business presence. A product of the unique population and geography of Arizona is the inequitable distribution of teachers, with the highest need for teachers in rural areas, Native American districts, and Bureau of Indian Affairs’ reservation schools (United States Department of Education, 2009a). According to the Institute of Education Sciences (2008), rural counties have trouble recruiting and retaining teachers who are highly qualified. According to the National Commission on Teaching and America's Future (2009), “the shortage problem may better be understood as a problem of teacher

attraction, distribution, and retention...The “shortages” that exist are too few people willing to work at the salaries and under the working conditions offered in specific locations” (p. 6).

Innovative Efforts to Recruit Teachers

If teachers have a substantial and direct influence on the quality of education a student receives, then the hiring of teachers, according to Sarason (as cited in Armstrong et al., 2009), should be the most crucial and essential component of the educational improvement process. If teacher shortage in high-need states and counties is to be addressed, attention must be paid to how teachers are entering the field.

Several innovative recruiting practices have been seen throughout the nation to recruit teachers. Efforts have been made by federal, state and local educational authorities, as well as by private interest groups. These pioneering efforts aim at recruiting teachers for high-need areas. One of many such initiatives began in 2000, when the federal government offered teachers a discount of 50 percent on vacant homes located in economically-disadvantaged neighborhoods (Johnson, Musial, Hall, Gollnick, & Dupuis, 2008). The initiative, sponsored by the Federal Housing Administration, enticed teachers to live and work in high need schools and districts. Troops for Teachers and Teach for America, two additional innovative programs, target mid-career change individuals and recent college graduates, with the intention of bringing in provisional teachers who will then become fully certificated (United States Department of Education, 2008).

Many recruitment programs use alternative pathways as a means of attracting individuals into the field of education. A working paper, written in partnership with the

National Conference of State Legislatures, noted that “because programs that offer prospective initial preparation for classroom work constitute the major gateway into the profession...states have directed considerable attention recently to these aspects” (Hirsch, Koppich, Knapp, 2001, p. 8) by designing and implementing alternative routes to certification programs. Traditional means of recruiting and retaining teachers, which rely on colleges of education for turning out graduates, do not fill the gap in the shortage of teachers. “The recent increase in the number of traditional students interested in education will not meet this need, and there are real limitations on the ability of traditional colleges to entice eligible teacher education applicants” (Morey, 2001, p. 305). In studying recent college graduates, Farkus, Johnson, and Foleno (2000) noted “while young college graduates are not crashing the gates to become teachers, many are intrigued by the profession and could be convinced to join its ranks” (para. 8).

Foundations of Alternative Routes to Teacher Certification

Alternative pathways toward certification have been used by states, formally and informally, for more than three decades. The formal documentation of Alternative Routes to Teacher Certification (ARTC) programs began in 1983 when the National Center of Education Information began requesting annual licensure updates of the participants, known as teaching interns (Feistritzer, 2005a). Since 1985, when 275 teaching interns were enrolled in ARTCs nationwide, the awareness and availability of these programs have proliferated, resulting in 59,000 participants in 2005-2006 (National Center for Education Information, 2007a).

The sharp rise in ARTC enrollment started in 2002, with participation of 25,970 (National Center for Education Information, 2007a). The enrollment climb has been

attributed to the 2001 reauthorization of the Elementary and Secondary Education Act (National Center for Education Information, 2007a). The reauthorization banned states from issuing emergency teaching certificates and required that all core classes be taught by credentialed teachers with standard certificates or teachers enrolled in an ARTC program progressing toward full certification (Institute of Education Sciences, 2009). To compensate for the loss of teachers on emergency certificates, even more states that faced teacher shortages created ARTC programs. By 2007, every state had variations of an alternative teacher certification route, with 485 distinct programs offered (National Center for Education Information, 2007b). Seventy-one percent of all teaching interns serve in high-needs areas and schools, which are described as having high minority populations, high poverty levels and are often located in low socioeconomic areas (Feistritzer, 2005a). Participation has expanded to such an extent that current data indicates approximately one-third of all new teachers enter the field through an alternative route (Institute of Education Sciences, 2009).

Alternative Routes to Teacher Certification in Arizona

Arizona is one of many states that have employed ARTC programs to recruit teachers during the past decade. Arizona began its initiative to prepare and recruit teachers through the Alternative Pathway to Teacher Certification program in 2002 (Arizona Department of Education, 2006). The Arizona Department of Education was awarded a Transition to Teaching grant funded through the United States Department of Education. The grant addressed areas of teacher recruitment, retention, and support in high need schools (Horne, 2009). To increase the pool of teachers, the Transition to Teaching grant utilized funds to develop and implement a new avenue toward teacher

certification under the ARTC program. The two-year state board-approved Teacher Preparation Program was developed for all grade levels and core content areas. The program allows recruits to participate in a four-semester contracted student teaching experience, whereby the candidate is employed as the classroom teacher of record while concurrently taking the necessary teacher certification coursework. All teachers in Arizona who hold an Arizona teaching intern certificate are required to pass the Arizona Educator's Proficiency Assessment, a subject knowledge test, in order to prove content competency, prior to applying for an intern certificate. The Teacher Preparation Program partners with higher learning institutions to provide the requisite coursework. During the academic year 2009-2010, 777 teachers are working under the teacher preparation program's teaching intern certificate.

Measuring Quality

Studies have shown that certain teachers contribute to the academic growth of students more than other teachers (Goa & Stickler, 2008). Identifying teachers who will offer optimal contribution to student achievement has led many studies to question what constitutes an effective teacher. Teacher effectiveness is defined as the extent to which teachers contribute to student achievement and learning (Goa, 2007). Goa noted that although teacher effectiveness has become a topic of immense interest and widespread discussion, there are still questions as to how it should be evaluated.

Traditional Measures are Unfit for Teaching Interns

Traditionally, teacher effectiveness is measured through evaluations conducted by the schools or districts where the teacher is employed. The most common evaluation techniques for districts to employ, according to the National Comprehensive Center for

Teaching Quality (2009), are value-added and observation models. Value-added evaluation models, which are based on the work of William Sanders, view teacher effectiveness through the lens of student academic achievement and the statistical evaluation of that achievement data (National Comprehensive Center for Teaching Quality, 2009). A second frequently used method to evaluate teacher effectiveness is observation. Observations to determine teacher effectiveness concentrate on teachers' classroom practices and behaviors. Observations, often conducted by a building level supervisor, employ performance-based instruments that rely on the qualifications and training of the evaluators and the quality of the instruments (Danielson & McGreal, 2000).

These traditional methods of evaluating teacher effectiveness present challenges when implemented for novice teachers, such as teaching interns. When employing value-added models, "teacher effectiveness can be determined only after a teacher has had an opportunity to impact his or her students' learning and is not useful as a measure of teacher quality for new hires" (Goa & Stickler, 2008, p. 9). Teaching interns are not likely to have a statistically significant sample of student academic achievement data to produce valid evaluation results. Additionally, employing an observation evaluation model relies heavily on the evaluator and the evaluation instrument, and would not provide reliable results. As a result of the idiosyncrasies of observation models, Goa (2007) found that they do not, by and large, provide practically or statistically significant conclusions. Neither value-added models, nor observation models, can be generalized to determine effectiveness of teachers new to the field. The invalid and unreliable results of

customary evaluation methods present supervisors of teaching interns with difficulty in determining their effectiveness.

Measuring Quality through Efficacy

Because the effectiveness of teaching interns would be inaccurately reflected if measured through traditional approaches, a more specialized method of evaluation is needed. An appropriate method for evaluating teaching interns would not depend upon tenure of service, subjectivity of the evaluator, or distinctiveness of the evaluation instrument. One method of evaluation that is not restricted by those factors uses a teachers' self-perception as the measurement of effectiveness. Evaluations using self-perceptions have been chronicled for over 30 years by researchers such as Ashton, Ashton, Olejnik, Crocker, and McAuliffe (1982), Bandura (1977; 1986; 1993; 1994; 1997; 2007), and Guskey (1981; 1982; 1988). Perceptions of an individuals' influence to elicit a specific, desired response is known as efficacy. Efficacy is a predictive measure of perceived situational competence. Bandura (1997) described individual self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). According to Bandura, thoughts and emotions are influenced by self-efficacy, resulting in actions or performance. Individuals with high levels of self-efficacy are likely to be more persistent and restorative (Bandura, 1997).

A study, authored by Tschannen-Moran and Woolfolk Hoy (2001), found that teachers' efficacy levels have a direct relationship with their actions and performance in the classroom. Tschannen-Moran and Woolfolk Hoy (2001) stated that "efficacy affects the effort they [teachers] invest in teaching, the goals they set, and their level of aspiration" (p. 783). Efficacy levels have been found to have a proportional relationship

to resilience and determination, and teachers who exhibit higher levels of efficacy are less critical of student errors (Ashton & Webb, 1986). High levels of efficacy have been found to impact teachers' passion, commitment, and retention (Tschannen-Moran & Woolfolk Hoy, 2001). Acknowledging that some teachers contribute more to the academic advancement of students than others, as noted by Goa & Stickler (2008), defining an appropriate method to evaluate novice teachers provides valuable information for targeted and early support.

Targeted and Early Support

In a 2007 study, Tschannen-Moran and Woolfolk Hoy found as teachers' years of service increase, their self-efficacy beliefs do not. The study noted that "self-efficacy beliefs tend to be fairly stable once set, and would not necessarily tend to increase as years of experience increase" (Tschannen-Moran & Woolfolk Hoy, 2007, p. 952). The understanding of efficacy being constant once it is established allows time for effects to be made on teaching interns. Teaching interns who are provided with specific and targeted support could raise their self-efficacy levels, which are directly related to the quality of their teaching. According to Tschannen-Moran and Woolfolk Hoy, "teachers' self-efficacy beliefs are most malleable early in learning and are resistant to change once set (2007, p. 955).

Professional Development

Evaluating the self-efficacy of teaching interns would inform all involved of areas that require support. Focused professional development could then be employed. This would raise teaching interns' efficacy levels and retention rates, as teachers who feel inadequately prepared in the primary responsibilities of teaching are more likely to exit

the profession (National Commission on Teaching and America's Future, 2009).

Professional development opportunities for teaching interns range in topics and are often selected by the district or school of the interns (Danielson & McGreal, 2000). However, ensuring opportunity, consistency, and accountability of support is important if all students are to receive the same quality of teacher. All teaching interns being certified through a state's departments of education allows for states to mandate certain professional development experiences, including attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor. Other professional developments can impact a teaching intern's self-efficacy, but those three experiences can be mandated at a state level. Arizona has recommendations for all three areas of development, but without mandates, no district or school has the obligation to follow them. Studying the efficacy levels of teachers' could, according to Tschannen-Moran and Woolfolk Hoy (2001), "provoke significant changes in the way teachers were prepared and supported in their early years in the profession" (p. 802).

Problem Statement

Not all students receive the same quality of teacher, not all teachers are evaluated with appropriate and suitable methods, and not all teachers receive the early and targeted development that could raise their effectiveness. This multilayered problem consists of four factors. First, only recently have studies been conducted that compare the effectiveness of traditionally and alternatively-certified teachers; nearly all with disparate findings. Second, any published research, regardless of its validity and reliability, offers only limited application to the distinctive population of Arizona. No published research

exists studying the efficacy levels of teaching interns in Arizona and their perceived ability to influence student learning. Researchers Goa and Stickler (2008) note that “there is too little recent research on alternative preparation programs to generalize findings about the quality of the teachers they produce” (p. 5). Third, in research evaluating the effectiveness of alternatively-certified teachers, traditional methods of evaluations are often employed, which are unsuitable for novice teachers, such as teaching interns. Employing methods evaluating the efficacy levels of teaching interns are more fitting for their length of service. Finally, teachers’ efficacy levels being malleable during the initial years in the field and stable for the remainder of their careers, necessitates that a study be made of professional development experiences and teaching interns’ efficacy levels. Investigation was required into the professional development experiences that will serve to increase teaching interns’ efficacy levels, thereby increasing their effectiveness.

Purpose of the Study

The purpose of this descriptive and comparative study was to investigate the self-assessed efficacy levels of Arizona teachers who hold Teaching Intern Certificates, and more specifically, their perceived ability to influence student learning, and to examine to what extent, if at all, the self-reported efficacy levels differed based on the following professional development experiences: attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor.

Research Questions

1. What are the self-reported efficacy levels of Arizona teaching interns with regard to influencing student learning?

2. To what extent, if at all, does the self-efficacy of Arizona teaching interns differ based on their attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor?

Importance of the Study

The importance of the study was, in addition to contributing to the field of educational research, to address the multilayered problem that not all students receive the same quality of teacher, not all teachers are evaluated with appropriate and suitable methods, and not all teachers receive the early and targeted development that could raise their effectiveness.

Arizona is experiencing a shortage of teachers and teaching interns, though an alternative route to teacher certification helps bridge that gap, particularly in hard-to-fill disciplines and geographic locations. This study sought to determine the effectiveness of teaching interns by employing an appropriate evaluation method of measuring efficacy levels. Self-efficacy informs teacher effectiveness because “teachers’ judgment of their capability to impact student outcomes has been consistently related to teacher behavior, student attitudes, and student achievement” (Tschannen-Moran & Woolfolk Hoy, 2007, p. 954).

In addition to the efficacy levels of teaching interns being known, the efficacy levels were studied and compared to their professional development experiences to determine the appropriate avenues of support, collaboration, and development. Efficacy, being constant once it is established, allows time for effects to be made on teaching interns. For example, if respondents who participated in an intensive preparation program

prior to teaching were noted as possessing a statistically-significant higher efficacy level, the participation of all interns in an intensive program would be recommended. Because low efficacy levels have been found to decrease the enthusiasm and effort toward a teaching position and students, interns who reveal low levels could be targeted for supplementary support beyond what is currently offered (Tschannen-Moran & Woolfolk Hoy, 2007). Professional development and induction program improvements, targeted at specifically identified efficacy needs of teaching interns, could be recommended.

Teaching interns who are provided with specific and targeted support could raise their self-efficacy levels, which are directly related to the quality of their teaching. The study could inform Arizona state policy by providing recommendations for Arizona's alternative route to teacher certification program that have positive relationships to the efficacy levels of the 777 teaching interns and more than 21,000 of their students (National Center for Educational Statistics, 2006-2007). Tschannen-Moran and Woolfolk Hoy (2007) believe that it would behoove all students if novice teachers, such as teaching interns, were provided "the kinds of supports that would lead to the development of strong, resilient self-efficacy beliefs" (p. 955).

Delimitations, Limitations, and Assumptions

The following delimitations were applied to this study:

- The study did not collect data in any other state and was limited to teachers in Arizona.
- The study was limited in timeframe to the spring of 2010.

- The study was limited to teachers in Arizona who hold a Teaching Intern Certificate and does not necessarily represent the demographic distribution of ARTC teachers in other states.
- The study did not include all teaching interns who hold cross categorical Special Education certificates. Teachers who hold a standard Arizona teaching certificate and seek to transfer to Special Education have the option to obtain a teaching intern certificate while completing the necessary Special Education coursework. As the premise of the study relied on teaching interns' self-efficacy being malleable during their first years in the profession, any data collection of veteran teachers would have negatively impacted the validity of the study results. Therefore, Special Education teaching interns who also hold a standard certification were delimited from the study.
- The study sought to investigate the efficacy levels of teachers in Arizona who hold a Teaching Intern Certificate and did not necessarily represent the efficacy levels of other teacher certification categories.
- The study's population was limited to teacher interns in Arizona; therefore, applications to a broader population should be done with caution.
- The study's population was limited to teacher interns who provided email addresses and had access to email.

The following limitations applied to this study:

- Although 777 teacher intern certificates were issued for the 2009-2010 academic year, under extenuating circumstances, a teaching intern's position may have been eliminated, therefore reducing the possible sample size.

- Although 777 teacher intern certificates were issued for the 2009-2010 academic year, circumstances may have surfaced in which a teacher intern voluntarily, or involuntarily, exited from their selected teacher preparation program, which rendered their teacher intern certification void.
- All e-mail addresses were collected by the Arizona Department of Education at the time of certificate issuance and may not have been accurate at the time of survey administration.
- Residential mailing addresses provided by the teacher intern, in lieu of an e-mail address, may not have been accurate at the time of survey administration.

The following assumptions were applied to this study:

- Efficacy levels could be accurately quantified and measured.
- Persons in the study were representative of population.
- Efficacy measures individuals' perceptions of their ability to influence others.
- Individual perceptions of competence have an influence on student learning.
- Individual efficacy levels correlate to persistence, motivation and retention.
- Persistence, motivation and retention, as components of efficacy, have a proportional relationship to quality.
- Participants were truthful in the reporting of their efficacy levels.
- Participants were truthful in the reporting of their attendance in an intensive preparation program prior to teaching, participation in a district sponsored induction program, and assignment of a mentor.
- Participants were truthful in the reporting of their year-one or year-two of intern certification status and county of contract location.

Definitions of Key Terms

Operational Definitions of Variables

Efficacy. Teacher efficacy is described as a “judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated” (Armor et al., 1976; Bandura, 1977), as cited in Tschannen-Moran and Woolfolk Hoy (2001), p. 783. Student academic achievement, motivation and the students’ own efficacy levels have shown to be related to the teachers’ sense of their efficacy (Ashton & Webb, 1986; Moore & Esselman, 1992; Midgley, Feldlaufer, & Eccles, 1989; Anderson, Greene, & Loewen, 1988). The dependent variable, efficacy, will be measured using the Teachers’ Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001).

The Teachers’ Sense of Efficacy Scale was developed by Megan Tschannen-Moran, of the College of William and Mary, and Anita Woolfolk Hoy, of Ohio State University. In 2001 the authors conducted a meta-analysis on issues of validity and reliability in prior efficacy survey instruments. With input from the research studies of other survey instruments and the findings of the study, the Teacher’s Self of Efficacy Scale was created (Tschannen-Moran & Woolfolk Hoy, 2001). The Teachers’ Sense of Efficacy Scale shows positive correlations with, and expansion of, prior efficacy surveys by including a wider range of questions on teaching tasks--specifically measuring perceptions on student engagement, classroom management, and instructional strategies (Tschannen-Moran & Woolfolk Hoy, 2001). The instrument, as a valid and reliable measure of teacher efficacy, was appropriate to employ with pre-service and in-service teachers.

Teachers in the state of Arizona who hold Intern Teaching Certificates will self-assess their ability to influence students via the 24-item instrument, which asks teachers to rate themselves on a 9-point scale (Tschannen-Moran & Woolfolk Hoy, 2001). The scale has the following anchors, “1- nothing, 3- very little, 5- some influence, 7- quite a bit and 9- a great deal” (Tschannen-Moran & Woolfolk Hoy, 2001, p. 796). The Teachers’ Sense of Efficacy Scale was scored holistically to determine overall levels of efficacy. The holistic score was analyzed against three independent variables using the inferential statistical analysis of an analysis of variance.

The Teachers’ Sense of Efficacy Scale, according to authors Tschannen-Moran and Woolfolk Hoy (2001), state that “the instrument is copyrighted by the authors; however, there are no copyright restrictions on the instrument for use in scholarly research and for nonprofit educational purposes” (p. 801). The intent of the study was for nonprofit educational purposes and scholarly research only.

Professional development experiences. The three independent variables of attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor were selected because of their categorization as professional development experiences and are recognized as grouping variables, each possessing divergent responses.

Intensive preparation program. Intensive preparation programs are identified through a variety of labels such as teacher training camps, new teacher boot camps, teacher training institutes, and teacher preparation academies. Intensive preparation programs are offered during the spring or summer prior to beginning a teaching career and provide pre-service orientations to alternatively-certified teachers in areas such as

classroom management, instructional strategies, and diversity. No intensive preparation program is required for an Intern Certificate in the state of Arizona. The Arizona Department of Education, however, offers an optional program entitled Discover Teaching (Arizona Department of Education, 2009). Additionally, Teach for America Inc. requires their teaching interns (known as corps members) to take a summer training program for five-weeks prior to their first year of teaching (Teach for America, 2006). This dichotomous, independent variable was self-reported on the survey instrument and represented the respondents' enrollment in an intensive preparation program prior to the first year of teaching.

Induction program. Induction programs are designed to minimize problems of novice teachers by bridging the gap between the educational coursework and practical teaching application (American Association of State Colleges and Universities, 2006). Novice teachers, those within the first two years of service, experience the professional phases of socialization and acculturation (Arizona Department of Education, 2005). Induction programs offer a comprehensive list of services, which may include support, mentoring, and training. Although induction programs are not mandatory in Arizona, the Arizona Department of Education (2005) has outlined standards for novice teacher induction programs, including (a) program evaluation, (b) program design, (c) program administration and leadership, (d) site administrator roles and responsibilities, (e) beginning-teacher professional development responsibilities, (f) mentor-teacher selection and assignment, (g) mentor-teacher professional development, and (h) formative assessment system for beginning teachers. The purposes of the induction programs are to provide "logistical, emotional, and teaching support to ease a new teacher's transition

from student to professional” (Arizona Department of Education, 2005, p. 3). Each district in the state of Arizona reserves the right to offer an induction program. The induction program can be designed by the district, or the district can opt to follow a program offered by an institution of higher education. This dichotomous independent variable was self-reported on the survey instrument and represented the respondents’ status as participation in a district-sponsored induction program or as nonparticipation in a district-sponsored induction program.

Mentor. A mentor is an experienced professional providing individual support and assistance to a novice (American Association of State Colleges and Universities, 2006). The Arizona Department of Education (2005) defines a mentor as an “experienced teacher who meets the criteria for selection, successfully completes required training, is released from classroom duties, and serves to provide professional support that focuses on improving the knowledge and skills of beginning teachers and increasing student achievement” (p. 16). Arizona is not one of the 16 states in the United States that require and fund mandatory mentoring (American Association of State Colleges and Universities, 2006). The option of providing a mentor for teaching interns is at the discretion of the district. This dichotomous independent variable was self-reported on the survey instrument and represented the respondents’ assignment of a mentor as yes or no/unknown.

Key Terms

Teaching intern. Arizona offers four categories of education certifications: teaching certificates, administrative certificates, professional non-teaching certificates and other certificates (Arizona Department of Education, n.d.). The category classified as

other certificates includes a Teaching Intern. A Teaching Intern holds an Arizona Intern Certificate issued by the Arizona Department of Education, which is controlled and supervised by the Arizona State Board of Education through the alternative pathway to teacher certification program. The intern certificate “entitles the holder to enter into a teaching contract while completing the requirements for an Arizona provisional teaching certificate [by being] enrolled in an Arizona State Board authorized alternative path to certification program” (Arizona State Board of Education, 2006, p. 6). The following are board rules for intern certificates according to Arizona State Board of Education (2006), the non-transferable certificate is valid “only in the Arizona school district or charter school that requests the certificate and individuals are not eligible to hold the Teaching Intern Certificate more than once in a five-year period” (pp. 7-8). Teaching interns’ initial certificate issuance requirements include, “a Bachelor’s degree, a passing score on the Arizona Teacher Proficiency Assessment, a contract of employment or letter of intent to hire, verification of enrollment in an approved teacher preparation program, and a valid fingerprint clearance card” (Arizona State Board of Education, 2006, pp. 7-8). During the academic year 2009-2010, 777 teachers working under an Arizona Intern Teaching Certificate will be the subjects of study.

Intern certification status. According to Arizona State Board Rule R7-2-612 (E), Teaching Intern Certificates are valid for only one year from the issuance date (Arizona State Board of Education, 2006). The intern may extend certification for an additional year upon verification of a second year of full-time employment contract and proof of completion of at least six semester hours of educational coursework (Arizona State Board

of Education, 2006). This ordinal data was self-reported on the survey instrument and represented the respondent's intern certification status as year one or year two.

Contract location by county. The location of the teaching intern's contract is defined by the political geographic demarcations of counties in Arizona. This ordinal data was self-reported on the survey instrument and represented the respondent's contract location by county. The respondents were provided with a list of the 15 counties and self-selected from among the list.

Certification program category. The certification program category is defined by the institution of higher education in partnership with the Arizona Department of Education to award Arizona teaching certificates. Two distinct categories referring to the type of teacher education program and certification are offered by institutions of higher education. The two dichotomous categories are a post-baccalaureate certificate program and a dual purpose teacher education program. The post-baccalaureate certification program is composed of post-bachelor's level coursework in elementary, secondary or Special Education and ends with the enrollee earning an Arizona teaching certification. The dual purpose teacher education program awards students a Master of Arts degree in elementary, secondary or special education and an Arizona teaching certification. As of the fall of 2009, the Department of Education in Arizona has nine ARTC approved partnerships with colleges and universities, with six awarding certification plus a master's degrees and three granting post-baccalaureate certificates (Arizona Department of Education, 2009). The certification program category data was self-reported on the survey instrument and represented the respondent's program as being enrolled in a post-baccalaureate certification program or a certification plus master's degree program.

Alternative routes to certification programs. Beginning in the 1980s, alternative routes to certification programs began as “alternatives to the undergraduate program models that many states earlier required as the sole basis for program approval” (Darling-Hammond & Bransford, 2005, p. 446). Although literature exists that describes alternative licensure programs as “a procedure offered by many states to license teachers who have not graduated from a state-approved teacher education program” (Ryan & Cooper, 2004, p. 527), other literature indicated that the terms alternative certification and nontraditional certification are used as synonyms. For the purpose of this study, alternative route to certification programs are subsets of nontraditional teacher preparations programs, focusing on providing options for those individuals who desire to enter teaching without enrolling in a traditional full-time baccalaureate programs.

Certified teachers. A certified teacher is an individual who holds a current teaching certification. Individuals must “hold a valid teaching certificate to accept employment as a public-school teacher” (Armstrong et al., 2009, p. 386).

Practicum . The practicum is referred to as the student teaching portion of the teacher preparation program. Student teaching allows pre-service teachers the opportunity to be in a classroom for an extended period, typically nine-to-18 weeks. “These practical experiences help to ease (students) into teaching and prepare (students) for (their) first classroom” (Diaz, Pelletier, & Provenzo, 2006, p. 50).

Teacher shortage. According to the National Education Association (2008), there will be a need in the next 10 years for more than two million teachers to enter the field of education. As student enrollment continues to increase, one million teachers are approaching retirement, creating a teacher shortage (Diaz et al., 2006).

Teaching certification. A teaching certification, also known as a teaching credential or license, “confers on the holder the legal right to be hired as a teacher in the state that issues it; each state has the right to establish regulations concerning the qualifications of those who will be allowed to teach in its schools” (Armstrong et al., 2009, p. 385).

Teacher preparation program. A teacher preparation program “establishes standards which prepare (students) to become a teacher. These standards relate to various factors deemed necessary to meet the requirements to obtain a state teaching license” and may including learning specific content, pedagogy, taking teacher tests, and completing student teaching requirements (Diaz et al., 2006, p. 49).

Organization of the Dissertation

The dissertation is organized into five chapters. Chapter One introduced the background of the study, including a brief summary teacher shortages, the foundations of alternative routes to teacher certification, and measuring effectiveness through the evaluation of teachers’ efficacy. Additionally, the problem statement, purpose of the study, research questions and importance of the study were presented. The chapter concluded with the delimitations, limitations, assumptions and definition of key terms. Chapter Two contains historical, empirical, and theoretical research summaries on the topics of teacher certification, alternative routes to teacher certification, and efficacy. Further, intensive preparation programs, induction programs and mentoring are examined. The methodology for the study is outlined in Chapter Three and includes the research design and rationale, setting and participants, human subjects, data collection procedures, instrumentation, and analytical techniques. The results of the study will be

presented in Chapter Four, followed by a discussion of the study and suggestions for future research in Chapter Five.

Chapter Two: Review of the Literature

Background

Historically, teacher preparation programs, offered through institutions of higher education, have been the single largest supplier of teacher candidates into the field of education. Teacher preparation programs have been essential in filling the need for teachers. However, as the student population continues at a nearly nine percent annual expansion and the baby boom generation of teachers is retiring at an unprecedented level, teacher preparation programs cannot close the gap between teacher supply and demand. Alternative pathways to certification have been created to help alleviate the challenge of teacher supply. Alternative pathways was seen first nationally in 1983, and in 2002 in Arizona. The teaching interns in Arizona, who are working as teachers of record under a Teaching Intern Certificate, influence more than 21,000 Arizona students each year. This study was conceived to determine if teachers certified through alternative routes also produce quality teaching. The purpose of this descriptive and comparative study was to investigate the self-assessed efficacy levels of Arizona teachers who hold Teaching Intern Certification, and, more specifically, their perceived ability to influence student learning; and secondly to discern what relationships, if any, exist between self-reported efficacy levels and the following professional development experiences: attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor. The literature review focused on four areas. The first analysis was on teacher certification, including the supply of traditionally-trained teachers and criticisms of traditional routes to certification. Second, an analysis of alternative pathways to teacher certification was reviewed, including the foundations of

alternative routes to teacher certification, national, regional and state research studies on alternative routes to teacher certification, and well-known national teacher training programs. Third, the literature review explored the foundations of teacher efficacy, including efficacy studies of pre-service, novice, veteran teachers. Finally, experiences that support teaching interns were investigated through three professional development programs: intensive preparation, induction and mentoring.

Teacher Certification

Foundations of teacher certification. The Ninth Amendment of the Bill of Rights states it is “the right of local majorities to decide public education policy” (Lash, 2007, p. 14). Each state has assumed responsibility and decision-making power over public education. States decide on the organizational structure, funding sources and amounts, and professional licensure requirements. As states assumed this authority, profound differences in educational structures and governances became apparent. With authority over teacher licensure, states have been able to establish policies and regulations governing eligibility to teach in public education. Teacher licensure, also known as certification and credentialing, is regulated by state legislatures and boards of education. Certification requirements differ in the amount and substance of coursework requisites, quantity of field experience obligations, and length of time spent student teaching (Townsend, & Bates, 2007). Just as each state has its own requirements for certification, so also does it have its own processes for approving colleges and universities to offer teacher certification programs and award institutional recommendations (Brown, 2006). During the 1980s and 1990s, a variety of teacher certification examinations was employed in almost all states--each unique in the knowledge and skills assessed. The

certification examinations were so dissimilar that the National Research Council (2001) could not generalize to any specific knowledge or skills required of prospective teachers. States have considerable variations among their certification requirements, and although efforts have been to nationalize the process by groups such as the National Board for Professional Teaching Standards, no substantial progress has been made.

State certification departments function autonomously with only minimal federal involvement (Feistritzer & Haar, 2006). Federal interest is found in the form of annually-published reports that serve to collect and distribute information useful to states in improving education. According to Feistritzer and Haar (2006), annual reports, which continue today despite numerous name changes, began in 1870 with the Annual Report of the United States Commissioner of Education (1870-1917), followed by the Biennial Survey of Education in the United States (1918-1962), and the Digest of Education Statistics (1963- present). Congress founded the National Center for Education Statistics in 1969 to serve as the “primary federal entity for collecting and analyzing data related to education in the United States and other nations” (National Center for Education Statistics, n.d., para. 4). The National Center for Education Statistics has functioned within the United States Department of Education since its inception in 1980 as a cabinet-level agency (National Center for Education Statistics, n.d.). The federal involvement in state certification requirements was most drastically noted in 2002 with the reauthorization of the Elementary and Secondary Education Act of 1965, known as No Child Left Behind. Under the policy, states that wished to participate in Titles One-through-Ten of the Elementary and Secondary Education Act were required to have all of their teachers highly qualified. According to The United States Department of Education,

highly qualified teachers must possess a bachelor's degree, full certification or licensure, and prove competency in the subject area or grade level in which they teach by passing a standardized content area test (United States Department of Education, 2004). Today, more than half of the states require prospective teachers to pass both a professional pedagogical knowledge exam and a content area exam (Johnson et al., 2008). As the demand for teachers has increased, and the requirement of teachers has become more rigorous, the traditional routes to teacher certification cannot provide enough teachers for the increasing student population.

Supply of traditionally-trained teachers. The need for teachers has outpaced the supply in most geographic regions in the United States, although the severity varies. Three frequently-cited causes of teacher shortages include the increasing student population, the aging teaching workforce, and the 2002 legislation mandating highly qualified teachers in all public schools' core content courses.

The rising trend in student population was noted in a 2003 census brief that declared a record number of 48.5 million students attending school (United States Census Bureau, 2003). From 1991 to 2004, an increase in 15 percent of total elementary and secondary enrollment was observed (National Center for Education Statistics, 2007). According to the National Center for Education Statistics, an additional increase of nine percent in total elementary and secondary student enrollment is expected between the years 2004 and 2016. In 2008, the public school system serviced 49.8 million students, a new annual record, and by 2017 projections estimate that public school enrollment reach more than 54 million (National Center for Education Statistics, 2009).

The Baby Boom generation, those born between 1946 and 1964, comprises 53 percent of the teaching workforce in the United States (National Commission on Teaching and America's Future, 2009). Of the 76 million individuals in the Baby Boom generation (Sloane et al., 2008), 1.7 million are teachers and principals (National Commission on Teaching and America's Future, 2009). All 1.7 million educators in the Baby Boom generation are eligible for retirement in the next 10 years (National Commission on Teaching and America's Future, 2009).

Attention on retaining teachers after retirement prompted the creation of many post-retirement work programs, known as phased retirement plans, which allow retired teachers to be contracted to return to the classroom (Smartschoolsplus, Inc., 2008). These initiatives permit veteran teachers (and other certified school district personnel) to full retirement benefits, while continuing to work as contracted employees. Contracts can only be offered for a limited time (National Association of State Retirement Administrators, 2002). Post-retirement work programs encourage retired teachers to continue working, thus temporarily aiding in alleviating the teacher shortage. However, the quick fix of phased retirement programs has not been able to keep up with the increasing retirement of teachers.

The shortage of teachers differs greatly based on geographic region and is more prevalent in poor school districts (Birkeland & Peske, 2004). Schools in poverty areas experience more school-to-school teacher migration and observe higher attrition rates among teachers (Birkeland & Peske, 2004). These high rates of teacher turnover impact low income students as “some studies have found that teacher attrition seems related to the demographic characteristics of schools’ student populations...[or] due to the

difficulties posed by the kinds of working conditions that often pertain in high-minority, low-income schools” (National Commission on Teaching and America's Future, 2009, p. 11). Four factors have been found to influence the decision of teachers who are considering vacating their current teaching position or abandoning the field entirely: working conditions, salaries, levels of preparedness, and support and mentoring during the early years in the field (National Commission on Teaching and America's Future, 2009). The nationwide shortages of teachers in the high-need disciplines of math, science and Special Education, coupled with localized teacher attrition and universal teacher retirement, exacerbates the staffing challenges of some geographic regions more than others.

Regions and disciplines in need of teachers have resorted to placing teachers out-of-field and hiring unlicensed teachers to serve as unofficial teachers of record. Studies indicate that not all disciplines and demographics are evenly impacted by out-of-field teaching as nearly one-third of all secondary mathematics teachers are teaching out-of-field and “teachers in high-poverty schools are more likely to be teaching out-of-field than are teachers in more affluent schools” (Ingersoll, 1999, p. 30). Of the 39 largest school districts that served high-minority, high-poverty students in 1995, 77 percent reported hiring teachers who were unlicensed (Eubanks & Weaver, 1999). The intensity of the shortages in high-minority, high-poverty schools and districts has a higher likelihood of relying on “unlicensed teachers than are higher-income districts serving more white students” (Birkeland & Peske, 2004, p. 7).

The 2002 reauthorization of the Elementary and Secondary Education Act mandated that all teachers of core content disciplines be highly qualified. According to

Grover J. Whitehurst's speech to the White House Conference on Preparing Tomorrow's Teachers, the highly qualified policy statement is interpreted to mean:

1. Teachers matter (otherwise why focus on teachers at all).
2. Teachers vary in their quality (otherwise why distinguish highly qualified teachers from others).
3. Quality is affected by
 - a. General knowledge and ability (otherwise why require a bachelor's degree).
 - b. Certification and licensure (otherwise why make that a defining feature of being highly qualified).
 - c. Experience (otherwise why distinguish beginning from experienced teachers).
 - d. Subject matter knowledge (otherwise why require that beginning teachers have demonstrated through their college major or an examination that they have knowledge of the subject matter they teach).
 - e. Intensive and focused in-service training (otherwise why provide funds to support such activities).
 - f. Alignment between teacher training and standards-based reforms (otherwise why require evidence of such alignment in state applications for funding) (United States Department of Education, 2003, para. 6).

The supposition is that teachers make a difference in students' achievement and that their quality is related to, among other components, their certification status. The certification status, as a component of the highly qualified label, caused districts who employed high levels of out-of-field and unlicensed teachers to seek alternatives routes of hiring teachers. The policy mandating 100 percent of teachers to be highly qualified required full participation by the 2005-2006 academic year, and "given the time commitment and expense of traditional teacher certification, it seem[ed] likely that these unlicensed teachers turn to alternative certification programs" (Birkeland & Peske, 2004, p. 8).

Criticism of traditional routes to certification. Darling-Hammond and Bransford (2005) described the importance of teacher training stating "certainly among the most demanding kinds of professional preparation: teacher educators must constantly model practices; construct powerful learning experiences; thoughtfully support progress, understanding, and practice; carefully assess students' progress and understandings and help link the theory and practice" (p. 441). As the standards for teacher certification became more rigorous, more critical attention was paid to the preparation of teachers (Birkeland & Peske, 2004). In 2002, The United States Secretary of Education, Rod Paige, stated that there "was little evidence that education school course work leads to improved student achievement" (Levine, 2006b, p. 39). Paige stated that educators should be selected based only on verbal ability and subject matter knowledge. Furthermore, he stated that enrollment in a school of education should be voluntary and encouraged states to eliminate teaching requirements and "other burdensome bureaucratic hurdles" (Levine, 2006b, p. 39). As a result of sentiments such as these, and the public's criticism of

teacher preparation programs, many states have deregulated teacher licensure guidelines and created an environment in which nontraditional and traditional certification paths are encouraged (Levine, 2006b).

The traditional university's structure of teacher education has been traced to James Earl Russell of the Teacher's College at Columbia University in the early 1900s (Feiman-Nemser, n.d.). One of the early critics of traditional teacher education programs was James Conant, in 1963, in which his argument for modifying traditional programs pointed to a lack of content area focus and academic rigor (Conant, 1963). In studying traditional teacher preparation programs from 1950 to 1990 a number of shortcomings were found by authors Darling-Hammond and Bransford (2005) including: fragmented and superficial curriculum, inadequate time for learning, traditional views of schooling, and uninspired teaching methods. During the 1980s two historical reports were published that initiated a movement of teacher education reform. In 1986, the Holmes Group, Inc. published a report, *Tomorrow's Teachers*, in which they stated that teachers were the greatest hope for educational reform; therefore, teacher preparation programs must be revised. The group listed several goals for teacher preparation programs, which included the following, as outlined by Ishler (1995): "to make the education of teachers intellectually more solid; to recognize differences in teachers' knowledge, skill, and commitment, in their education, certification, and work; and to connect our institutions to schools," further adding, "to create standards of entry to the profession that are professionally relevant and intellectually defensible, and to make schools better places for teachers to work and learn" (para. 4). The second report published by the Carnegie Forum

in 1986 entitled, *A Nation Prepared*, held the same message--increased professionalism and a need for higher standards (Sadker & Sadker, 2005, p. 16).

A vast amount of research by organizations such as The Center for the Study of Teaching and Policy (Hirsch, Koppich, & Knapp, 2001; Wilson, Floden, & Ferrini-Mundy, 2001) and The Center for the Future of Teaching and Learning (Shields et al., 2003) have been conducted to determine the effectiveness of traditional teacher preparation programs. Studies indicate that the traditional teacher preparation programs that consist of four years of undergraduate level academics and practicum experience are not an effective format for teacher preparation (Hirsch et al., 2001; Wilson et al., 2001; Shields et al., 2003). Three alternatives to the current traditional teacher preparation programs have been proposed, including: extending the traditional four year undergraduate program to five years, postponing studies of professional practice to the graduate level, and circumventing coursework in favor of more practical on-the-job training (Feiman-Nemser, n.d.). Theoretical research published by the Teacher Education and Learning to Teach Program, and recently supported by the National Commission on Teaching and America's Future, indicated there is no single effective way to organize teacher education programs as a variety of successful programs employ a number of effective methods (Darling-Hammond & Bransford, 2005, p. 391).

Alternative Routes to Teacher Certification

Foundations of alternative routes to teacher certification. Alternative routes to teacher certification began during the 1980s when states introduced options to a traditional licensure. Each of the states, functioning under its own certification guidelines, operated its alternative programs with diverse models (Feistritzer, 2005b). Alternative

routes to teacher certification (ARTC) offered individuals the option of working as the teacher of record in the classroom, under an alternative certificate, while obtaining the necessary college coursework toward full certification (Feistritzer & Haar, 2006). Eight states offered ARTC programs in 1983 and by 2003, 46 states offer these non-traditional avenues of certification (Birkeland & Peske, 2004). Among the 46 states that offer ARTCs, 144 different models were in operation, all functioning to expedite the certification coursework, allowing alternatively-certified teachers (often referred to as interns) to obtain on-the-job training and to be paid as a certified teacher (Birkeland & Peske, 2004). According to a report by Feistritzer (2005a), ARTC programs are field-based programs “designed to recruit, prepare and license talented individuals who already had at least a bachelor’s degree--and often other careers in fields other than education” (p.3). These programs have several common characteristics: “rigorous screening processes, coursework or equivalent experiences in professional education studies before and while teaching, work with mentor teachers and/or other support personnel and high performance standards for completion of the programs” (Feistritzer, 2005a, p. 3). The nontraditional pathways to teacher certification permit a broader interpretation of traditional certification laws and present an innovative response to the need for teachers (Noll, 2008, p. 387). Nontraditional teacher certification programs target mid-career bachelor’s-prepared recruits (Darling-Hammond & Bransford, 2005).

Supporters of alternative certification programs believe that the current state certification processes are already too restrictive. In a current Brookings Institution paper, it was stated that “public education already is a regulated monopoly” (Noll, 2008, p. 383). Advocates for alternative certifications argue that these types of options open the field for

a diversity of teacher backgrounds. This would include those changing careers, who otherwise would only have the option to attend and become certified under traditional systems. Additionally, alternative programs, according to Blair (2003; as cited in Kauchak & Eggen, 2008), tend to appeal more to cultural minorities and individuals in the high-need disciplines of math and science. Proponents' view the bachelors-prepared, alternatively-certified, teachers as possessing a greater wealth of life experiences and bringing maturity and dedication to the field (Kauchak & Eggen, 2008). A recent study conducted by the Institution of Education Sciences (2009) found no statistical difference in student achievement between traditional and ARTC-prepared teachers and no evidence to correlate the length or content of the teacher preparation coursework and the teachers' effectiveness.

Opponents of alternative teacher certification policies warn that a lack of pedagogical knowledge on behalf of the teacher will lead to lower student achievement and teacher satisfaction (Noll, 2008, p. 388). According to challengers of alternative certifications, this is particularly true when teachers are placed in high-need, low-income schools. Alternative routes have been criticized as leaving the recruits under-prepared to manage the tasks of teaching. "Most alternative routes sponsored by school districts, states or other vendors have been found to be significantly less effective at preparing and retaining recruits than university-based teacher education programs" (Darling-Hammond, 1999, p. 13). Critics refer to a 2000 study indicating that the "two-year dropout rate for alternative licensure candidates is more than three times greater than the national average for new teachers" (Kauchak & Eggen, 2008, p. 43) and may be attributed to the disproportionate rate at which alternatively-certified teachers are assigned to high-

minority and high-poverty schools. According to Sadker and Sadker (2005), a challenge may exist with the nature and population of alternative programs, stating that “studies of alternative licensure preparation have indicated that graduates of alternative programs represent more of an attempt at a quick fix for teacher shortages than a permanent solution” (p. 551).

The subsequent pages contain summaries of the national research studies on alternative pathway programs followed by a synthesis of general findings from regional research studies. Next, details of state studies will be provided. Finally, two well-known alternative pathway programs will be examined.

National research studies on alternative routes to teacher certification. The earliest research of considerable size was supported by the United States Department of Education and conducted in the mid-1980s of 20 alternative and retraining programs by Adelman, Policy Studies Associates, and And (1986). The purpose of the scholarly study was to investigate “concerns about the supply and quality of American teachers [especially] special types of teacher training programs that have been developed by states, localities, and institutions of higher education” (Adelman et al., 1986, p. 7). Adelman et al. (1986) addressed four research questions: “what are the characteristics of individuals being attracted to such programs and of the programs themselves; how successful are programs in preparing teachers, particularly for math and science classrooms,” followed by “what are participants’ career goals and how successful are they in finding permanent teaching positions; and what are the perceptions of current faculty and administrators regarding alternative certification and retraining?” (p. 8). The study found that ARTC programs offered more practicum experience and condensed

coursework and attracted individuals who were well-educated and had plans to continuing their teaching career. Although there were negative perceptions among some administrators, the study concluded that ARTCs programs were “responsible and innovative approaches to addressing local and state issues of teacher supply and quality” (Adelman et al., 1986, p. 10).

Early empirical research by Denton and Peters (1988) focused on alternative certifications and examined their effectiveness in preparing secondary math and science teachers. Denton and Peters (1988) enrolled three cohorts of students in an alternative program and conducted a study for 15 months. Although significant sample size attrition was found, research indicated that the interns felt influenced sufficiently by their coursework in pedagogy and content that they were able to reproduce it in their classrooms. Improvements by the interns were made in the areas of “desired teaching skills, academic attainment of students, and the ability to reflect on their personal roles and ultimately to become certified” (Denton & Peters, 1988, p. 68).

A 1997 empirical study conducted by J. Shen investigated the policy implications of traditional and alternative teaching practices through two research questions: “What percentage of the public teaching force were Alternative Certified teachers? Did Traditionally Certified and Alternatively Certified teachers differ in demographics, work experience, academic qualification, career pattern, and what and where they taught?” (Shen, p. 277). A representative sample of 47,105 teachers was used, of which 1,119 represented a subsample of alternatively-certified teachers. The study found that little difference was noted in gender between traditionally and alternatively-certified teachers, however more non-white teachers were found to be entering the field through alternative

pathways. Additionally, Shen (1997) found that alternative pathways did not attract older individuals, nor did they attract individuals with higher academic quality. Alternatively-certified teachers were found to be 11 percent more likely to teach in high minority population schools and five percent more likely to teach in the high need disciplines of math and science (Shen, 1997).

Wilson et al. (2001) studied commonalities among quality traditional and alternative teacher preparation programs in a 2001, and did a follow-up report in 2003. The secondary research study provided useful recommendations and improvements for all categories of teacher preparation programs. The study reviewed 57 research sources to determine common characteristics and program trends (Wilson et al., 2003). In researching alternative programs specifically, the report researched 20 of the 57 studies and concluded that alternative programs were more successful at attracting diverse teachers, in terms of ethnicity and age (Wilson et al., 2001). Inconclusive evidence was found in the areas of program quality and participant enrollment quality when comparing traditional and alternative pathways (Wilson et al., 2003). Wilson et al. (2003) described four characteristics of effective alternative programs, including “high standards for entry, substantial pedagogical training, high-quality mentoring, and strong evaluation components” (p. 22).

In 2005 a study was commissioned by the National Center for Education Information with the purpose of investigating the reasons teachers elected alternative routes to certification (Feistritzer, 2005a). The sample size of 2,647 respondents represented a cross section of all alternative pathway participants. Feistritzer (2005a) found that most teachers in an alternative pathway to certification program were recruited

for high-need areas in high-need subjects. The study concluded that 54 percent of teachers entering through an alternative path stated their probable inability to become certified without the alternative pathway, and as age increased, the likelihood of attending a traditional program decreased. Additionally, Feistritzer (2005a) found that fifty-two percent of men reported an inability to attend a traditional program, and Hispanic teachers found themselves less likely to attend a traditional program. Ninety-seven percent of the participants surveyed would recommend an alternative pathway to certification (Feistritzer, 2005a).

A study conducted by the American Education Research Association in 2005 explored the quality of teacher preparation programs and routes to certification (Cochran-Smith et al., 2005). The study investigated and synthesized the common themes and essential findings from published research reports. The 12-chapter study was written by a panel of American Education Research Association members, each of whom was tasked with researching and authoring individual sections. All panel members followed American Education Research Association guidelines for research by examining only peer-reviewed empirical studies from 1986-2002. Chapter nine examined alternative routes to certification by reviewing 38 studies with the following conclusions: alternatively-certified teachers are “more willing than traditionally-certified teachers to teach in low-SES urban schools, but these data may reflect more where teachers can get jobs than actual teacher preferences” (Cochran-Smith et al., 2005, p. 663). Negligible differences were found in efficacy levels of alternatively and traditionally certified teachers as noted through observations. Under some circumstances, alternatively licensed teachers may “have higher expectations for the learning of students of color living in

poverty than teachers who have been traditionally certified” (Cochran-Smith et al., 2005, p. 689). In the conclusion of the chapter, the researchers noted little disparity between traditionally and alternatively-certified teachers (Cochran-Smith et al., 2005).

A recent study examined student achievement results and classroom practices of traditionally and alternatively-certified teachers (Institute of Education Sciences, 2009). The study used only subjects in schools in which traditionally and alternatively-certified teachers were contracted in the same grade level. The sample size included 20 districts, 63 schools and 2,600 students. The study found that the effectiveness level of the teacher is not correlated with the amount or substance of the teacher preparation coursework. The study concluded that there was no statistically significant difference in the effectiveness of alternatively and traditionally- certified teachers on student achievement results (Institute of Education Sciences, 2009).

Regional research studies on alternative routes to teacher certification. Regional studies of alternative pathway programs have focused on the following geographic regions: a study of the 15 states in the Southern Regional Education Board, including Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia (Cornett, 1990); a study of the North Central Regional Educational Laboratory region, including Iowa, Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin (Legler, 2002); and a study of unidentified Midwestern states (Adcock & Mahlios, 2005). A summary of those studies led to the following conclusions: alternative pathways attract more male teachers, alternative pathways attract more ethnically diverse teachers, and alternative pathways enroll individuals who would not have been able to obtain a

certificate through traditional routes (Cornett, 1990; Legler, 2002; Adcock & Mahlios, 2005).

State research studies on alternative routes to teacher certification. Several individual states' alternative pathway to certification programs have been studied, including a study of Connecticut (Bliss, 1990), a study of New Jersey (Klagholz, 2000), a study of California (Chin, Young & Floyd, 2004), a study of Colorado (Bassett, Campbell, Hirsh, Hupfeld & Reichardt, 2004), a study of Massachusetts (McDermott, 2005), and two studies of Florida (Flood & Milton, 2005; Milton, Flood & Dukes, 2006). State-specific studies examined the characteristics and qualities of the participants in the alternative pathway programs, the effectiveness of the program, and the relationship with student academic achievement. General findings from the studies were difficult to ascertain as each program is based on the states' educational policies and therefore not comparable.

Well-known national teacher training programs. Although teacher certification and alternative routes to teacher certification are regulated by each state, a number of national programs do exist. National training programs require state certification policies to be followed, and permission must be granted by each state in which the program requests to operate. Two well-known national teacher training programs include Troops for Teachers and Teach for America. The programs require a commitment of two years and enrollment in a teacher preparation coursework program, but they do not necessarily conclude with issuance of a teaching certificate (Feistritzer & Haar, 2006). National teacher training programs do not fundamentally qualify as an alternative path to certification as they do not inevitably end with a teaching license. However, many states

opt to classify them as alternative programs because their participants work under alternative or intern teaching licenses. Troops for Teachers, created in 1994 by the Department of Defense and supported by the Department of Education, helps eligible armed forces members obtain teaching certifications and offers a stipend for working in high-need schools (United States Department of Education, 2008). Since it was established, Troops to Teachers has recruited and placed former military personnel into more than 9,000 classrooms, with 785 of those participating in an alternative pathway to certification program (Feistritzer, 2005a).

Teach for America, founded in 1990 by Wendy Kopp, recruits highly successful college graduates by requiring a minimum cumulative grade point average of 3.3 for application (Tatel, 1999). Teach for America's philosophy is grounded in content knowledge, in contrast to a traditional pre-service program's pedagogical ideology. Teach for America's (2006) mission is to "recruit aggressively to attract outstanding recent college graduates of all majors and career interests to commit two years to teach in urban and rural public schools,...to invest in the training and professional development necessary to ensure their success" and continues on by stating that "our teachers, also called corps members, go above and beyond traditional expectations to lead their students to significant academic achievement, overcoming the challenges of poverty despite the current capacity of the school system" (para.1). The corps members attend a five-week "boot camp" during the summer prior to beginning their two-year teaching commitment (Teach for America, 2006). After the boot camp the corps members are required to attend on-going professional development. In most cases, Teach for America has a partnership with local higher learning institutions, which the corps members may attend to obtain the

standard teaching certification or master's degree plus teaching certificate (Tatel, 1999). Teach for America and state policies mandate that recruits pass the state's content knowledge examination in the area in which the alternative teacher wishes to teach. Additionally, recruits must enroll in a teacher certification program that must be completed simultaneously while teaching under the alternative certification.

A 2005 study examined the effects of three levels of teacher certification on student achievement: alternatively-certified Teach for America teachers, fully-certificated teachers, and unlicensed teachers (Darling-Hammond, Holtzman, Gatlin, & Heilig). The study found that when compared with students who were taught by fully certificated teachers, students of alternatively-certified Teach for America teachers attained levels of one-half to three months lower. Unlicensed teachers showed even lower student achievement scores when compared with students of alternative-certified Teach for America teachers. The study indicated that certification status does impact student achievement, with unlicensed teachers having the least impact and fully certificated teachers having the most influence on student achievement. The results of the study indicated that unlicensed teachers "exert negative effects on student achievement relative to teachers with full certification" (Darling-Hammond et al., 2005, p. 18). Darling-Hammond, cited in Noll (2008), stated that, "if anyone could prove that claim that teachers are born not made, these bright eager students might have been the ones to do it" adding that "evaluations found [the] summer training program did not prepare candidates adequately [with] many recruits knowing that their success, and that of their students, had been compromised by their lack of access to the knowledge needed to teach" (p. 389).

Additional studies conducted of alternatively-certified Teach for America teachers have found no evidence of a negative correlation in student achievement. In a study of 69 Teach for America teachers in 23 school districts, Teach for America teachers of mathematics and science were found to have increased achievement on summative standardized assessments by one-tenth of a standard deviation, with more than 6000 student scores reported (What Works Clearinghouse, 2008). An additional study from 2005 of more than 65,000 students, found that teacher certification status as traditional or alternatively-certified (through Teach for America or the similarly selective local Teaching Fellow program), has no statistically significant difference upon the student achievement beyond the second year of teaching (Boyd et al., 2005). The authors of the study found that because of a reduced time and tuition costs of the preparation coursework, alternative paths attracted a more diverse teaching population. In addition, the levels of attrition were found to be similar to that of traditionally-prepared teachers (Boyd et al., 2005).

Findings of national, regional and state studies conducted immediately following the establishment of alternative routes to certification programs over 25 years ago have shown little difference to more recent studies. A synthesis of the research leads to five conclusions. Alternative pathways to certification are organizationally different in each state and represent each state's educational policy directives. No statistically significant difference in student academic achievement exists between traditionally and alternatively- certificated teachers. Research is inconclusive in alternative pathway's enrollment of higher quality teachers. Alternative pathways to certification program

participants are more diverse. Alternative pathways have a higher probability to teach in high-minority schools.

Efficacy

Foundations of teacher efficacy. Teacher self-efficacy, with its specific professional application, is the belief in reaching difficult students and helping them learn. Efficacy is described by Bandura (1997) as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). Self-efficacy, unlike self-esteem and self-concept, refers to competency in a specific area. Self-concept is “... a composite view of oneself that is formed through direct experience and evaluations adopted from significant others” (Bandura, 1986, p. 409); whereas, self-esteem “...pertains to the evaluation of self-worth, which depends on how the culture values the attributes one possesses and how well one's behavior matches personal standards of worthiness” (Bandura, 1986, p. 410). Rather than a global perspective of self or comparative perspective of ability, self-efficacy is the belief of individuals in their effectiveness and competency in a specific task without regard to how others would accomplish the same task (Woolfolk Hoy & Hoy, 2009).

Teacher efficacy was first conceptualized by the Rand researchers more than 30 years ago (Armor et al., 1976). The Rand researchers investigated teachers’ perceptions of their ability to control teaching behaviors’ reinforcements and concluded student performance and student motivation were influential factors of teachers’ behaviors (Armor et al., 1976). A second conceptualization of teacher efficacy, viewed as a cognitive process, is based on the 1977 work of Bandura. The 1977 experimental research study of Albert Bandura is known as the seminal study in the field of self-

efficacy. The study established efficacy as individual perceptions to accomplish a task and the resulting reality of performing a task; implying that efficacy predicts behavior (Bandura, 1977).

Tschannen-Moran and Woolfolk Hoy (2001) assert that teacher “efficacy affects the effort the teachers invest in teaching, the goals they set, and their level of aspiration” (p. 783). The direct relationship between efficacy and resilience is described as resulting in individuals who “will set higher goals, be less afraid of failure, and [will] find new strategies when old ones fail” (Woolfolk Hoy & Hoy, 2009, p. 166). Student academic achievement, motivation and the students’ own efficacy levels have shown to be related to the teachers’ sense of their efficacy (Anderson et al., 1988; Ashton & Webb, 1986; Midgley et al., 1989; Moore & Esselman, 1992). Persistence, effort and resilience have been found to be higher among teachers who feel in control of their professional life and have higher efficacy levels (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Efficacy in teachers has been noted as resembling subject-expectancy effects, when teachers who believe they have a great influence over student achievement will work harder, be more patient, and try new strategies, resulting in students who achieve more, which further solidifies the teachers’ high level of efficacy (Guskey, 1988). Levels of efficacy are shaped during the early stages of a teacher’s career, increasingly stabilizing over time, and result in a level resistant to change (Woolfolk Hoy & Hoy, 2009).

Theoretical and empirical studies of teacher efficacy have been conducted for more than 30 years. The efficacy levels of pre-service teachers, being most impressionable during the formative period in a teacher’s career, have been the subject of numerous studies. Veteran teacher’s efficacy level has also been a topic of abundant

research and interest. However, novice teachers, particularly those certified through alternative pathways, are underrepresented as subjects of research studies.

Efficacy studies of pre-service and novice teachers. Efficacy in pre-service teachers has been connected to perceptions of control and opinions of children (Woolfolk Hoy & Hoy, 1990). Pre-service teachers who have higher levels of teacher efficacy are more optimistic and less likely to depend on stringent classroom rules, to use threats of punishment, and to be controlling than teachers who have lower teacher efficacy levels (Saklofske, Michaluk & Randhawa, 1988). Levels of pre-service teacher efficacy levels are marginally influenced by academic learning in pre-service coursework but significantly influenced by field experience and student teaching practicum (Tschannen-Moran et al., 1998).

A 2008 secondary research study was conducted to explore the impact that tutoring a student in reading has on the efficacy level of pre-service teachers. Two separate literature reviews were conducted on efficacy and tutoring in anticipation of integrating the research findings and providing recommendations for pre-service teacher preparation programs (Haverback & Parault, 2008). The premise of the study was Bandura's conclusion that mastery learning shapes self-efficacy (Bandura, 1993). Mastery learning is described as an instructional strategy that enhances student learning, whereby the student is required to master content prior to advancement (Guskey, 1994). The investigation found pre-service teachers' experiences in reading tutoring resulted in higher mastery levels. These were found to positively influence efficacy levels in the specific task of teaching reading (Haverback & Parault, 2008). The authors found that tutoring allows pre-service teachers to "grow in confidence, shift their beliefs about

teaching and understanding each child is an individual, and connect reading theory learned in the university setting into practice” (Haverback & Parault, 2008, p. 252). The relationship between mastery learning and higher efficacy levels was corroborated by Haverback and Parault (2008).

A study further confirming the connection between mastery experiences and self-efficacy was authored by Poulou in 2007. The participants in the study were 198 student teachers in Greece. Self-efficacy beliefs, according to Pajares (1992), are more powerful indicators of future teaching behavior and have more influence on the organization of their teaching than knowledge. The purpose of the study was to investigate the “perceptions of the sources of personal teaching efficacy, the efficacy beliefs for instructional strategies, classroom management, and student engagement, and the relationship between the sources of personal teaching efficacy and efficacy beliefs” (Poulou, 2007, p. 195). The study found the following were perceived sources of teaching efficacy: personality traits, such as humor; professional skills, such as organization; the ability to sense students’ needs; teacher education coursework; and practice (Poulou, 2007). The study found the following to be contributory factors of efficacy beliefs: perception of competence, personal characteristics, and motivation (Poulou, 2007).

A single research study on efficacy and alternative routes to teacher certification was found. In the absence of empirical research on teacher efficacy levels in state-approved alternative certification programs, a 2006 study in Florida was conducted. The study explained Florida’s annual need of approximately 16,000 new teachers as caused by low interest among college graduates, high attrition rates among current teachers, and escalating teacher retirements (Suell & Piotrowski, 2006). With each district’s shortage

being different, the Florida Department of Education, upon approval, permits district-sponsored alternative certification programs. The study was conducted in one of the seven state-approved districts with the purpose of comparing traditionally and alternatively-certified first-year teachers' efficacy levels (Suell & Piotrowski, 2006). The 43 study participants were found to have no significant differences in any area, which the authors indicated as corroborating "the work of Stone (2000) and Wayman et al. (2003) who found that teachers trained via alternative approaches express similar levels of competencies as teachers from traditional degree programs" (Suell & Piotrowski, 2006, p. 4). The authors recommended future studies to include teacher efficacy of alternative programs in other states (Suell & Piotrowski, 2006).

Tschannen-Moran, Woolfolk Hoy and Hoy (1998) acknowledged that few research studies have been conducted on novice teachers, and the few published studies of novice teachers were limited to investigations of first-year teachers' efficacy levels. First-year teachers' efficacy beliefs were found to be associated with professional commitment and stress; noting inefficacious teachers as having low professional commitment and high stress (Tschannen-Moran et al., 1998). Recommendations for increasing the efficacy levels of novice teachers include assigning smaller classes with higher ratios of proficient students (Friedman, 2000). Improving the efficacy level of novice and pre-service teachers is worth "what effort and care may be involved because, once established, efficacy beliefs of experienced teachers seem resistant to change" (Tschannen-Moran et al., 1998, p. 24).

Efficacy studies of veteran teachers. Producing positive efficacy change requires "compelling feedback that forcefully disputes the preexisting disbelief in one's

capabilities” (Bandura, 1997, p. 82). Veteran teachers’ efficacy beliefs have been solidified, which makes them difficult to transform and even more challenging to sustain. The stability of veteran teachers’ efficacy levels endure, even when presented with new guidance and instruction. Veteran teachers’ efficacy levels were examined after attending an efficacy seminar, which was deliberately designed to amplify their efficacy levels (Ohmart, 1992; Ross, 1994). The study found that efficacy levels were higher directly following the efficacy seminar but reverted to previous levels after six weeks (Ohmart, 1992; Ross, 1994). Bandura (1997) described individuals’ reaction when incidents contest their stable efficacy level as likely to “hold their efficacy beliefs in a provisional status, testing their newly acquired knowledge and skills before raising their judgments of what they are able to do” (p. 83).

A 2008 study by Auwarter and Aruguete examined the impact that students’ socioeconomic status and gender have on teachers’ efficacy level. The study involved the creation and distribution of hypothetical scenarios, which were varied in the gender and socioeconomic level of students, to 106 teachers. The teachers’ responses were recorded and disaggregated to determine if their expectations to impact the students were based on the two experimental variables. The study found teachers’ attitudes toward boys and lower socioeconomic status students are more negative than toward girls and students of higher socioeconomic status. The authors speculated that students in disadvantaged schools are more likely to have lower academic achievement as a result of the lowered efficacy levels of the teachers (Auwarter & Aruguete, 2008).

One hundred and eighteen teachers were participants in a 2008 research study investigating their beliefs regarding teaching students who were learning disabled (Brady

& Woolfson, 2008). The study surveyed the teachers using a hybrid instrument, including the Teachers' Sense of Efficacy Scale, and found that teachers with higher efficacy levels were more likely to attribute students' difficulties in learning to external factors than teachers with lower efficacy levels. The findings led the authors to conclude that teachers who believe they are more competent are more likely to accept responsibility for the students' difficulties. The study cited agreement with a 1988 study, authored by Stein and Wang, which found that "teachers with a strong sense of efficacy were more willing to adapt their teaching methods to suit the needs of included students" (Brady & Woolfson, 2008, p. 540).

A 1998 study conducted in New York of 2,956 new teachers asked respondents to "rate their preparedness and their personal views about teaching, including their views of their teaching efficacy and their plans to remain in teaching" (Darling-Hammond et al., 2002, p. 4). The respondents were asked to rate their perceptions across 39 dimensions of teaching ranging from "readiness to provide effective subject matter instruction to ability to diagnose and meet student needs" (Darling-Hammond et al., 2002, p. 4). The study focused on alternative pathways to certification versus graduates of teacher preparation programs. The study found that teachers who were graduates of teacher preparation programs rated feelings of efficacy and preparedness significantly higher than teachers holding alternative certifications. Data indicates that a "sense of preparedness is by far the strongest predictor of teaching efficacy" (Darling-Hammond et al., 2002, p. 16).

A large empirical study of 6, 711 principals and 26, 257 teachers explored the predictive relationship of efficacy beliefs on professional commitment (Ware & Kitsantas, 2007). The participants responded to a 1999-2000 School and Staffing Survey

sponsored by The United States Department of Education. The School and Staffing Survey consisted of two parts, the public school principal and teacher questionnaires. The following research questions were examined in the study: “Can factors associated with teacher collective efficacy be found in a large national survey of teachers and principals and if those measures of collective efficacy can be found, how are they related to teacher commitment?” (Ware & Kitsantas, 2007, p. 305). The authors found that characteristics associated with group efficacy can be located in a large public study; the study concluded that teachers’ efficacy levels of classroom management, administrator support, and decision making authority at school were significantly related to professional commitment (Ware & Kitsantas, 2007).

A 2009 study concluded that if teachers are to have a higher level of self-efficacy, they need to be prepared with a variety of professional skills (Mondie, 2009). The skills that are not acquired in pre-service preparation programs will need to be cultivated through professional development programs. Henson (2002) noted that “teacher efficacy is indeed malleable, but that change will likely occur only via engaging and meaningful professional development opportunities, particularly activities such as teacher research initiatives that capitalize on teachers’ critical thought and human agency” (p. 144). According to Levine (2006a), the educational community “has an opportunity not only to improve new teacher efficacy but to enhance the effectiveness of current teachers through their professional development programs...[which] promises to have a significant impact on student achievement” (p. 41).

Self-efficacy is described as an individual’s perception of his or her “capabilities to organize and execute courses of action required to attain designated types of

performances; it is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses" (Bandura, 1986, p. 391). Efficacy studies of pre-service, novice and veteran teachers have shown its importance as an indicator of teacher quality and as impacting student achievement. A synthesis of the research leads to four conclusions. First, a significant relationship is found between efficacy and motivation, resilience, and effort. Second, efficacy levels are most impressionable during the early stages of a teachers' career. Third, subsequent to a teacher's efficacy level being formed it is reasonably stable for the remainder of a teachers' career and difficult to alter. Fourth, additional research of novice teachers in alternative routes to teacher certification is required. Tschannen-Moran et al. (1998) aptly stated that "the development of a strong sense of efficacy can pay dividends of higher motivation, greater effort, persistence, and resilience across the span of a teaching career" (p. 26).

Professional Development Experiences of Teaching Interns

Professional development opportunities for teaching interns range in topics and are often selected by a local education agency (Danielson & McGreal, 2000). However, ensuring opportunity, consistency, and accountability of support is important if all students are to receive the same quality of teacher. A 2009 study by Mouza found teachers who participated in research-based professional development had enhanced and lasting changes in their general pedagogical knowledge and their ability to plan and deliver meaningful educational experiences for their students. One of the primary factors that inspired teachers' changes was the level of support provided to them through collaborative opportunities with peers (Mouza, 2009). Supportive experiences of teachers are known to be important, according to Goa (2007), in the academic progress of students

and their own professional satisfaction. Support through development was thematically found in numerous research studies as integral to the retention and effectiveness of novice teachers. New teacher development should be, according to Wong (2005), “a comprehensive, coherent, and sustained professional development process that is organized by a school district to train, support, and retain new teachers, which then seamlessly guides them into a lifelong learning program,” (p. 43).

High levels of self-efficacy could be solidified early in teachers’ careers if supportive experiences are constructed and encouraged by schools and districts. Supportive environments help new teachers to “construct powerful learning experiences; thoughtfully support progress, understanding, and practice...and help link the theory and practice” (Darling-Hammond & Bransford, 2005, p. 441). The United States Department of Education-sponsored transition to teaching program supports alternatively-certified teachers, known as grantees, through numerous programmatic means (American Institute for Research, 2004-2005). Help and encouragement are offered before and after grantees become teachers of record. The transition to teaching’s annual progress review reported 46 percent of grantees received support prior to their first day as a new teacher (American Institute for Research, 2004-2005). The report indicated 40 percent of grantees had considered ‘support’ as a primary factor in their enrollment decision into the transition to teaching program. Mentoring or induction programs were reported by 72 percent of grantees as primary reasons for their likely retention in the field of education (American Institute for Research, 2004-2005).

Professional development can begin as pre-employment programs, prior to teaching interns entrance into their classes, through intensive preparation programs, or

during their tenure as teaching interns, through induction and mentoring programs. Other professional developments can impact a teaching intern's self-efficacy, but those three experiences can be mandated at a state level.

Intensive preparation programs. Intensive preparation programs, offered prior to entry into full-time teaching, can be found under a variety of names, such as new teacher academies, new teacher boot camps, pre-service intensive training programs, or new teacher summer institutes. An intensive preparation program is described as a paid or unpaid pre-employment program, which provides “practical strategies in a host of areas, including lesson planning, preparation, and instruction; creation of student portfolios; classroom management and discipline; and communication with parents” (Baltimore City Public Schools, n.d., para. 1). Many alternative certification programs have summer boot camps most lasting approximately four weeks (Lederman & Flick, 2003).

A single national intensive preparation program is offered through Teach for America, entitled Institute. The five-week course offers teaching interns basic educational coursework and a few weeks of student teaching (Darling-Hammond et al., 2005). Although studies have been conducted on the effectiveness of the Teach for America program and other alternative pathway to certification programs, no study has been published isolating the intensive preparation program as a variable. Other than supporting the general development of novice teachers, the benefits of new teacher boot camps are unknown. One likely rationale for the lack of known outcomes, according to the National Academy of Education (2009), is that “many professional development programs are not fully evaluated, and most professional development research is relatively short-term,

lacking the follow-up data on teacher knowledge, classroom instruction, and student learning that would determine whether effects are robust and enduring” (p. 7).

Induction programs. Induction is a method of new teacher professional development that offers continual support and training. Induction programs seek to provide guidance, support and direction to new teachers (Smith & Ingersoll, 2004). They intend to create a sense of community among novice educators. Sergiovanni (2007) describes communities as being “organized around relationships and ideas. They create social structures that bond people together in a oneness and bind them together to a set of shared values and beliefs” (p. 97). Individuals in a community, according to Sergiovanni (2007), feel a sense of support when relationships are built on trust and respect. Seven components were discovered to be common in most induction programs: seminars for new teachers, time for common planning, an assigned mentor, a network of support, communication with higher levels of authority including administration, reduction in teaching load, and assignment of an aide (Strong, 2005). A research study commissioned by the New Teacher Center found that help and encouragement during the first two years of a teacher’s career may be as essential to her success as her certification, pre-service preparation, and content area expertise (Strong, 2006).

Smith and Ingersoll (2004) conducted a study to determine the effectiveness of induction programs on teacher retention. The study compared novice teachers, with less than three years of experience, who were participants in an induction program with novice teachers who were not participants in an induction program. Data was collected from the 1999 Schools and Staffing Survey, of which 3,235 new educators were purposively selected as novice teacher participants. The study found that induction

programs are not consistently offered to novice teachers, however when offered, participants had lower rates of attrition. Additionally, the authors found a number of induction program models in practice, with some being more complex and elaborate than others. The study found that the more complex models led to higher retention rates among novice teachers. Smith and Ingersoll (2004) noted the relationship between teachers' self-efficacy and induction programs as positive for reinforcing and increasing teachers' skills and for raising the teachers' levels of job satisfaction.

California's Beginning Teacher Support and Assessment is an induction program that has seen success in retention of teachers. A study was conducted in 1995 and 1996 that compared the retention rates of teachers who had been enrolled in the Teachers in the Beginning Teacher Support and Assessment induction program with the national rate of teacher retention (Strong, 2005). The study found that 84 percent of the teachers continued to be employed in California public school system after four years, compared to the national average of 67 percent retention (Strong, 2005).

A 1999 study examined the role of induction programs in the development, support, and retention of urban novice teachers (Fideler & Haselkorn). The study's extensive literature review, surveys, and site visits led to the authors' discovery that most schools and districts in urban areas offer some type of induction program. However, not all novice teachers were availing themselves of the induction programs offered, with nonparticipants' representing one-fourth of the potential novice teachers. Participants of the programs were noted as having higher efficacy levels and lower attrition rates than nonparticipants (Fideler & Haselkorn, 1999).

A small study of 50 novice teachers found a lack of induction and mentoring programs in the participants' Massachusetts schools (Johnson & Birkeland, 2003). The induction and mentoring programs, when instituted, were found to have a positive correlation to retention and quality teaching (Johnson & Birkeland, 2003). Induction programs were found to be optimal when supported by the school, focused on the needs of novice teachers, and well-organized (Brill & McCartney, 2008).

A national study of 54,001 first-through-third-year teachers investigated the relationship between their sense of preparedness and intention to remain in the field with their participation in an induction program (Flanagan & Fowler, 2009). The study found a statistically significant difference between the participants' sense of preparedness and their participation in a program of induction. Additionally, the study found an inconclusive relationship between the participants' intention to remain in the field and their participation in an induction program. The authors speculated the cause of the inconclusive relationship to be contingent on the unmeasured variables of quality and intensity of the induction program (Flanagan & Fowler, 2009).

Mentoring. With similar benefits to induction programs, mentoring programs have been found to increase the quality and retention rates of novice teachers. The American Institute for Research (2004-2005) noted "mentoring is such a key component of induction programs for new teachers that the terms have become synonymous" (p. 78). The terms, often used concurrently or synonymously, are indistinct. According to Wong (2005), induction and mentoring are connected but not equivalent, noting that mentoring is one component in the induction process. A summary paper of the National Foundation for the Improvement of Education's Teacher Mentoring Symposium pronounced the

primary benefits of a mentoring program as reducing the rates of teacher attrition and improving the knowledge and skills of novice and veteran teachers (National Foundation for the Improvement of Education, 1999). Mentoring can help novice teachers to develop their repertoire of skills, including their dispositional skills, instructional strategies and content knowledge (National Foundation for the Improvement of Education, 1999).

Although numerous models of mentoring programs exist, Cronenwett notes (as cited in Burke, 2003), that “their essential component is the development of a personalized relationship between the [individuals]...a relationship focused on... personal development, academic performance, self-esteem, and career decision making” (p. 97). Danielson (2007) describes the role of mentors as “serving as a friendly critic or just a patient listener, (therefore) the mentor can assist the novice in identifying those areas of teaching that will benefit most from focused attention” (p. 175).

Research conducted by the Office of Education Research (1993) concludes two types of mentor programs exist; formal and informal. Of the types of mentor programs, formal programs offer a prearranged agenda that serves a structured purpose and outcome, while the informal mentor program service is conducted through casual professional and personal relationships. Formal mentoring is seen as more complex and has results which are measureable, as often noted by a survey response or formal appointment of a mentor (Office of Education Research, 1993).

A study by Lucas and Robinson (2002) found that mentors have a positive impact on the educational experiences of their assigned undergraduate pre-service teachers. The pre-service teachers reported the mentors as effective for helping to maintain perspective and balance in their work and home life. Additionally, the study found that pre-service

teachers who reported having commonalities with their mentors saw an increase in the perceived effectiveness of the mentor process. The authors of the study noted “commonalities not only helped the mentors understand the perspectives of their protégés but also gave them credibility when they pushed the students to look at their situations in new ways” (Lucas & Robinson, 2002, para. 9).

A 2006 experimental study examined student academic achievement of novice teachers who had participated in a comprehensive mentoring program with low mentor-to-protégée ratios with novice teachers who had participated in a non-comprehensive mentoring program with moderate or high mentor-to-protégée ratios (Strong). The study found student academic achievement to be higher among the participants in the comprehensive mentoring program with second-year teachers benefiting more from their mentoring experiences than first-year teachers. The author speculated that second-year teachers were ready to address instructional issues, whereas first-year teachers were acclimating to the school culture and establishing classroom management structures (Strong, 2006).

Support through initial and sustained professional development of teaching interns is correlated to student achievement, teacher retention and teacher effectiveness. While teaching interns’ levels of efficacy are malleable, emphasis should be placed on developing their skills to optimize student learning.

Chapter Three: Methodology and Procedures

Research Design and Rationale

The purpose of this descriptive and comparative study was to investigate the self-assessed efficacy levels of Arizona teachers who hold Teaching Intern Certifications, more specifically their perceived ability to influence student learning. Additionally, the study examined to what extent, if at all, the self-reported efficacy levels differed based on the following professional development experiences: attendance in an intensive preparation program prior to teaching, participation in a district sponsored induction program, and assignment of a mentor.

This quantitative non-experimental and cross-sectional study collected original data of attitudes during the spring of 2010 of a single group who hold a 2009-2010 Arizona Intern Certificate (Creswell, 2003; Patten, 2005). A two-part survey, referred to as the Arizona Teaching Intern Survey (ATIS), was employed. Part one documented the levels of Arizona intern credentialed teachers' efficacy to influence student learning using an acknowledged and reputable 24-question closed-ended survey named the Teachers' Sense of Efficacy Scale. The Teachers' Sense of Efficacy Scale survey instrument was not modified or altered. Part two of the ATIS survey instrument collected categorical data to determine the relationship between the efficacy levels of intern credentialed teachers and professional development experiences, including: attendance in an intensive preparation program prior to teaching, participation in a district sponsored induction program, and assignment of a mentor.

Population, Sampling Method, Sample and Participants

Population

Census data was collected once during the spring of 2010. The total population of teaching interns numbered 842; however, not all were new teachers. Of the 842 teaching interns receiving certificates, 777 were new to teaching. The 65 teaching interns who were not new to teaching were derived from two categories. First, teachers who possessed an Arizona teaching certificate and sought to transfer to Special Education partook of the option to obtain a teaching intern certificate while completing the necessary Special Education coursework. Second, teaching interns who held an expired standard Arizona teaching certificate and were in progress of obtaining a current certificate also participated.

As the premise of the study relied on teaching interns' self-efficacy being malleable during their first years in the profession, any data collection of veteran teachers would have negatively impacted the validity of the study results. Therefore, the study delimited everyone who possesses or had possessed an Arizona teaching certificate. The study did not identify those individuals who have or have had substitute certificates or emergency certificates. According to the Arizona Department of Education (n.d.), approved certificates are granted as provisional (initial certificate granted for two years), standard (received after provisional certificate expires and granted for six years), reciprocal (certificate awarded in another state and legally approved in Arizona), intern, and substitute. Emergency certificates in the state of Arizona are recognized as waivers, not certificates, and are granted only upon proof of a local education agency's special circumstances and on a case-by-case basis (Arizona Department of Education, n.d.).

Even though a census was used, it was not likely that all subjects would participate. Therefore, in order to ensure accuracy of statistical analysis of the intended population of 777 teaching interns, the desired response rate was to be no less 257, assuming a confidence level of 95 percent and a confidence interval of five.

Setting

Arizona is the sixth largest state in geographic size with 114,000 square miles (Advameg, Inc., 2009). The population growth in Arizona has been one of the highest in the nation for 20 years with the state ranking 14th nationally in population at 6,500,180 (Hedding, n.d.). Of the total population, 1,065,082 are students and 52,625 are teachers (National Center for Educational Statistics, 2006-2007). Arizona is comprised of 15 counties, of which Maricopa County, anchored by the state capital of Phoenix, is the densest county with 61 percent of the state's residents (Hedding, n.d.). The 777 teaching interns represented all 15 counties in Arizona. According to 2008 data, of the 15 counties in Arizona, 13 had poverty rates above the national average. The national poverty rate, which is defined as persons under 65 who earns \$14,489 or less, is 13.2 percent (Rogel, 2009). Of the 13 Arizona counties with above national average poverty rates, five had poverty rates over 20 percent, with the largest at 33.2 percent (Rogel, 2009).

According to the United States Department of Education (2009a), Arizona had teacher shortages in 12 of the 15 counties for the 2008-09 and 2009-10 academic years. The three counties that do not have a shortage are the most populous counties, representing the largest metropolitan areas and business presence. The geographic areas in Arizona with the highest need for teachers are rural areas, Native American districts, and Bureau of Indian Affairs reservation schools (United States Department of

Education, 2009b). Approximately one out of four people in Arizona live in a county that borders Mexico. Children in those counties have a median family income reported to be 13 percent less than non-border counties of the state and are 37 percent more likely to be raised in poverty (Children's Action Alliance, 2005). Arizona is among the states with the highest percentage of Native American population with 21 Native American Tribes federally recognized, totaling over 250,000 people (Economic Development Research Program, 2000). Most of the Native American population lives in tribal communities on reservations that span one-fourth of the total land in Arizona and have an average poverty rate of 24.5 percent (Economic Development Research Program, 2000).

Participants

Known information of the population of teaching interns in Arizona included the content area in which the intern certificate was issued, the intern's district of employment, the institution in which the teaching intern was enrolled for teacher preparation coursework, the last and first name of the teaching intern, and the e-mail and residential mailing addresses. Teaching Intern Certificates were issued in the following 28 content areas: Arts Education (PreK-12 Art, Dance, Dramatic Arts, and Music), Biology, Business, Chemistry, Chinese, Earth Science, Economics, Elementary Education, English, Family and Consumer Sciences, French, General Science, Geography, Geology, Health, History, Mathematics, Middle Grades (7-8 General Science, Language Arts, and Mathematics), Physical Education, Physics, Psychology, Social Studies, and Spanish.

Teaching interns represent 132 of the 589 districts in Arizona (EducationBug, 2009). Three hundred twenty-eight teaching interns enrolled in post-baccalaureate

programs, and 450 enrolled in a dual-purpose certificate plus master's degree program. Of the nine Arizona Department of Education approved teaching institutions of higher education for teaching interns, eight had interns enrolled. The eight institutions include Arizona State University (Downtown, Tempe, West, and Polytechnic campuses), Grand Canyon University, Northern Arizona University, Ottawa University, Pima Community College, Rio Salado College, University of Arizona, and University of Phoenix. The only approved institution that did not have any teaching interns enrolled for the 2009-2010 academic year was Central Arizona College. One hundred twenty-seven cities in 23 different states were listed as residential addresses for the population of teaching interns. The certificates of the teaching interns who did not list Arizona as their primary residence was likely due to their acceptance of a teaching intern position prior to establishing residence in Arizona.

Human Subjects Considerations

Permission from the Arizona Department of Education to conduct the study was sought for, and granted from, Don Houde, Chief Information Officer of the Arizona Department of Education, and Jan Amator, designee of Tom Horne, the State Superintendent of Public Instruction in Arizona, as seen in appendices A and B. Jan Amator, the Deputy Associate Superintendent for Highly Qualified Professionals, is responsible for Title II, certification, and professional development divisions. Additionally, authorization from Pepperdine's Institutional Review Board was sought and granted, as seen in Appendix I.

Administration of the survey was conducted via a web survey. Informed consent was provided to the teaching interns prior to the first question of the web survey, as seen

in Appendix F. Teaching interns were informed of the “probability of discomfort that will not be greater than those ordinarily encountered in daily life or during the performance of psychological examinations or tests” (Pepperdine University, 2004). Participants were informed that their names and corresponding survey results would be held in confidence by the researcher and would not be available to their respective districts or to the Arizona Department of Education. The data results were not individually identified, but rather were used collectively to inform overall efficacy levels of teaching interns in Arizona. Teaching interns were notified that the anticipated use of the results would be to provide recommendations for improving the efficacy levels for future teaching interns. Teaching interns were informed that their participation in the study, which entailed the completion of a survey, was voluntary. While voluntarily completing the survey, teaching interns were able to withdraw at any time simply by closing the web survey tool. Finally, teaching interns were advised of an option to request a summary of the research results by selecting a check box at the end of the survey.

Participants were prompted to click “accept” if they agreed to participate in the study and understood the letter of informed consent. Participants who clicked “do not accept” were routed to The Arizona Department of Education Homepage. Teaching interns who withdrew from the study prior to completion were counted as non-respondents. As informed consent was provided through the web survey, no hard copy signatures were collected. The identity of the subjects was not anonymous to the researcher but was kept confidential, and the participants' responses were in no way connected with individuals.

Of the 777 teaching interns, 749 provided e-mail addresses that were used to e-mail the survey instrument through the online survey software of Survey Gizmo (Survey Gizmo, 2005-2010). The 28 individuals who did not provide an e-mail address to the certification department at the Arizona Department of Education were provided with an initial letter sent to their residential mailing address, as seen in Appendix D. The letter informed the teaching interns of the purpose of the study and requested that teaching interns who wished to be eligible to participate in the study complete the contact card and return it using the pre-stamped envelope. The contact card, requesting the teaching interns' name and e-mail address, and the envelope, with the researcher's home address pre-labeled, were included with the letter. The letter informed teaching interns that the return of the contact card did not obligate them to participate in the study, as their participation in the study was voluntarily. The letter requested the contact card be returned within five days of receipt, if they chose to be eligible to participate. Upon receipt, teaching interns' contact cards were stored in a locked filing cabinet in the researcher's home office, which was also locked. Prior to sending all teaching interns the introductory communication, the contact card information was entered into the spreadsheet database of all of the teaching interns in Arizona, which was saved in the ATIS study file located in the documents section of researcher's home office computer. The contact cards were destroyed via a paper shredder in the home office of the researcher after the information was entered into the database. Destruction of the contact cards occurred prior to June 1, 2010.

The results of each survey and the names of the individuals who completed the survey were kept confidential and private by the researcher. Additionally, all teaching

interns' personal contact information remained confidential and was protected from being used for any kind of purpose other than for the administration of the study's survey instrument. The participants' responses were collected through the web survey administration tool, Survey Gizmo (2005-2010). Response data was compiled and downloaded by the researcher. Soft copies of the survey data and the Excel and NCSS spreadsheets used for data disaggregation were saved to one file, entitled ATIS Study, in the 'documents' section on the hard drive of the researcher's home office computer. The computer is password-protected and uses a fingerprint identifier to gain access. The researcher is the only individual with access to the computer and accompanying password. No other person's fingerprint is stored as an identifier in the computer. Soft copies of the survey data and Excel and NCSS spreadsheets were destroyed by permanently deleting the data through compression and defragmentation of the hard drive. Destruction of the data was completed by June 1, 2010. Hard copies of the survey responses were not printed.

The risks to the individuals included teaching interns' feeling uncomfortable with professionally exposing themselves as the questions on the survey were job-related. The feeling of professional exposure may have caused the participants to provide socially-desirable answers. To mitigate those risks, teaching interns were provided the aforementioned informed consent prior to question one of the web survey. To avoid the social pressure to participate in the study, individuals completed the survey at their residence or in a location of their choosing.

Compensation in the form of a raffle was employed. The raffle randomly awarded five \$20 Target e-gift cards to respondents who completed the survey. Teaching interns

may have felt pressure to participate in the study to be eligible for the raffle prize. The raffle was optional, and those who had wished to participate selected a box at the end of the survey. Below the check boxes requesting participation in the raffle and a summary of the research results, a space for the participants' to disclose a preferred e-mail address was provided. Participants who did not provide a preferred email address were excluded from participation in the raffle and request of the summary of research results. Below the location to voluntarily disclose their preferred email address, a disclaimer informed participants that the e-mail addresses provided to the researcher were to be held confidential and private, would be known only to the researcher, and would be used only for the purposes of sending the requested research summary or if selected, sending the five raffle winners their e-gift cards. Teaching interns were informed that their email addresses were not to be included as part of the research findings.

Data Collection Setting and Procedures

Data collection occurred during the spring of 2010 via administration of a two-part web survey entitled the Arizona Teaching Intern Survey. Teaching interns were provided an introductory communication with information pertaining to the study, as seen in Appendix E. The introductory communication was sent, via email, one day prior to the survey administration. The introductory communication informed the teaching interns of the researcher's identity, contact information, and a synopsis of the purpose of the study. The communication encouraged the participation and response of all teaching interns. The teaching interns were told that their involvement in the study was limited to the amount of time to complete the 30-item survey, approximately 20 minutes, and the survey could be completed at their residence or in a location of their choosing. The letter

included the expected timeframe of seven days for survey completion and return. To encourage their response, participants were informed of an option to participate in a raffle. Finally, the introductory letter included a written statement from Jan Amator encouraging participation and extending Arizona Department of Education's support to the study.

Following the introductory letter, the survey was administered. The survey took approximately 20 minutes for the participants to complete and began with written instructions for completing the survey and included the following statement: 'The survey is comprised of two parts, 24 items about your beliefs as a teacher and six additional items, three relating to your professional development experiences prior to and during your time as a certified teaching intern and three requesting general information.'

Specific directions for each of the two parts followed the Part One and Part Two designations. Directions for Part One were obtained from the survey instrument; the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001) and included:

[Part one of the survey] is designed to help [researchers] gain a better understanding of the kinds of things that create challenges for teachers. Please respond to each of the questions by considering the combination of your current ability, resources, and opportunity to do each of the following in your present position. Please indicate your opinion about each of the questions below by marking any one of the nine responses in the columns on the right side, ranging from (1) "None at all" to (9) "A Great Deal" as each represents a degree on the continuum. Your answers are confidential.

Part Two directions read as follows: 'Part two of the survey is designed to better understand your professional development experiences and to examine to what extent, if at all, the self-reported efficacy levels of Part One differ based on those experiences.

Please indicate your answers to the first three questions based on the kinds of experiences

you have had prior to, and during, your time as a certified teaching intern in Arizona by selecting the most appropriate response. The final three questions request general information. Please note that unlike part one, response options change with each question. Your responses are confidential.’

Intern teachers had seven days to complete the survey. Completed surveys were returned electronically via Survey Gizmo. Upon receipt, participants were automatically sent, via Survey Gizmo, an email thanking them for their time and participation in the study. Survey participants that did not complete the survey within five days were sent a reminder notice reiterating the expectation of completion within seven days and drawing attention to the final two days for completion. Data collection of all teaching interns who participated in the study concluded eight days after the initial surveys were sent, with seven days representing the expected survey completion time and one additional day of leniency for late survey submissions. Any survey that was not received by the end of the eighth day was not used and was discarded through electronic deletion. The teaching interns who returned the survey after the eighth day or did not elect to participate in the survey were counted as non-respondents.

The raffle was held two days after the survey was administered, and notification was sent to the five winners via a message included in the e-gift card issuance e-mail. The raffle awarded five randomly selected participants with \$20 Target e-gift cards, which were electronically sent to the participants’ e-mail address and were available for use at Target.com (Target Brands, 2009). To select raffle winners the researcher used the software program The Hat 2.3. The Hat is described as “just like drawing names from a hat to determine a random order for a group of people or to choose individual random

names or pairs” (Harmony Hollow Software, 2008). The raffle participants’ e-mail addresses were entered in the software program by importing the text file from Survey Gizmo. The email addresses were randomly re-ordered and the five winners were selected.

The participants were not assigned to groups, as all 777 teaching interns were asked to participate. The teaching interns did not receive the survey questions prior to the collection of data but were informed by the introductory letter regarding the general purpose of the study. The researcher compiled all the participants’ data before disaggregation of the data was commenced.

Instrumentation

The cross-sectional data was collected using a survey entitled the Arizona Teaching Intern Survey (ATIS), as seen in Appendix G, during the spring of 2010. The survey instrument had two parts including the 24-item Teacher Sense of Efficacy Survey, and three items pertaining to the teaching interns’ professional development experiences. The professional development experience items asked the participants to respond to the following: attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor. Additionally, general data was collected, including year-one or year-two of intern certification status, county of contract location, and certification program category.

Part One: Arizona Teaching Intern Survey

Part one of the ATIS consisted of the published efficacy survey called the Teachers’ Sense of Efficacy Survey. The Teachers’ Sense of Efficacy Survey, originally known as the Ohio State Teacher Efficacy Scale, was developed after the authors, Megan

Tschannen-Moran and Anita Woolfolk Hoy, conducted extensive examinations of several efficacy survey models. Flaws were found in all previous self-efficacy studies leading them to conclude “after nearly a quarter of a century of work on teacher efficacy, it seems apparent that a new measure of teacher efficacy that is both reliable and valid is needed” (Tschannen-Moran & Woolfolk Hoy, 2001, p. 795). Self-efficacy, as described by Bandura (1997), is “belief in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). In a 2006 study, Heneman, Kimball, and Milanowski found that the most widely accepted interpretation of self-efficacy is based on the 1997 work of Bandura and concluded that Tschannen-Moran and Woolfolk Hoy followed this construct more strictly than previous efficacy researchers. After critical analysis of Bandura’s work, Tschannen-Moran and Woolfolk Hoy (2001) strongly agreed with the underpinnings of the instrument but were concerned that the survey subscales did not represent a typical teachers’ work. Tschannen-Moran et al. (1998) stated that “in order to be useful and generalizable, measures of teacher efficacy need to tap teachers’ assessments of their competencies across the wide range of activities and tasks they are expected to perform” (p. 219). As a result, Tschannen-Moran and Woolfolk Hoy (1998) defined teacher self-efficacy as “the teacher’s belief in his or her capability to execute courses of action required to successfully accomplish a specific teaching task in a particular context” (p. 233). This definition, based on interpretations of self-efficacy work by Bandura, created the conceptual foundation for the Teachers’ Sense of Efficacy Scale.

Part one: reliability and validity testing. The efficacy scale was tested for reliability and validity by the authors through a sequence of research cycles starting with item development, followed by item selection and then factor analysis revisions. The

instrument was conceptualized by eight individuals, all of whom had a minimum of five-years teaching experience and had attained, or were working toward, terminal degrees (Tschannen-Moran & Woolfolk Hoy, 2001). Keeping 23 of the original 30 items from Bandura's 1997 self-efficacy survey as foundational prompts, the group then created a list of an additional 100 items aimed at the typical responsibilities and tasks of a teacher (Tschannen-Moran & Woolfolk Hoy, 2001). The group narrowed the list to 52 items through discussion and nomination reaching item-by-item consensus or revision (Tschannen-Moran & Woolfolk Hoy, 2001). Three studies followed; first the 52 items were narrowed to 32 by testing a sample of 224 study participants, followed by a second study that eliminated 14 more items, leaving 18. The 18 items were clustered into three subscales as a result of testing 217 new study participants (Tschannen-Moran & Woolfolk Hoy, 2001). The third study developed 18 additional items, which were tested in combination with the final 18 items from the second study by an additional 410 study participants (Tschannen-Moran & Woolfolk Hoy, 2001). Using principal-axis factoring with varimax rotation for the 36-items, the authors found "four factors with eigenvalues greater than one, accounting for 58% of the variance in the respondents' scores" (Tschannen-Moran & Woolfolk Hoy, 2001, p. 799). Additionally, the authors employed a scree test and found that three factors could be obtained. The three factors include instructional strategies, classroom management, and student engagement, and the 36-items were narrowed by including the items with the highest factor loadings reaching a final 24 items. The 24-item efficacy self-assessment asks teachers to rate themselves on a nine-point scale (Tschannen-Moran & Woolfolk Hoy, 2001). The scale has the following

anchors: “1- nothing, 3- very little, 5- some influence, 7- quite a bit and 9- a great deal” (Tschannen-Moran & Woolfolk Hoy, 2001, p. 796).

Next, the Teachers’ Sense of Efficacy Scale was compared to existing survey instruments of teacher efficacy. The 410 participants of the aforementioned third study were administered two additional surveys (Tschannen-Moran & Woolfolk Hoy, 2001). The 1976 instrument created by the Rand researchers and the 1993 instrument by Woolfolk Hoy and Hoy both indicated strong correlations and positive relations to the Teachers’ Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001).

Evidence of reliability for the Teachers’ Sense of Efficacy Scale and subscales was provided by the survey’s authors. The means of the efficacy subscales were calculated at 6.7 for classroom management, 7.3 for instruction strategies, and 7.3 for student engagement (Tschannen-Moran & Woolfolk Hoy, 2001). Reliabilities were 0.90 for classroom management, 0.91 for instruction strategies, and 0.87 for student engagement and inter-correlations between the efficacy subscales of classroom management, instructional strategies, and student engagement were computed at 0.70, 0.60, and 0.58, respectively ($p < 0.001$) (Tschannen-Moran & Woolfolk Hoy, 2001).

A study, conducted by Heneman et al. (2006), investigated the construct validity and reliability of the Teachers’ Sense of Efficacy Scale by “examining the psychometric properties of the Teachers’ Sense of Efficacy Scale on a large sample of elementary, middle, and high school teachers, and comparing our results to those reported by Tschannen-Moran and Woolfolk Hoy” (p. 4). The results of the study support the operational concepts and measurements of the Teachers’ Sense of Efficacy Scale and stated that the Teachers’ Sense of Efficacy Scale instrument “should be the preferred

measure of teachers' sense of efficacy in future research; its replicable psychometric properties, behavioral richness in capturing the teacher role, and predictive capacity for explaining significant variance in teacher classroom performance all support this conclusion" (Heneman et al., 2006, p. 13).

Part one: population suitability. While the 24-item score, as well as the disaggregated subscale scores, may be used to assess efficacy levels, the authors of the Teachers' Sense of Efficacy Scale found that employing the entire efficacy score was most appropriate for pre-service teachers as the "subscale scores may have little meaning for prospective teachers who have yet to assume real teaching responsibilities" (Tschannen-Moran & Woolfolk Hoy, 2001, p. 801). The population by which the authors calculated the mean subscale scores was based on a sample of 410 respondents; 62% were in-service teachers, with an average of 8.2 years of experience, 25% were pre-service teachers, and 13% did not specify (Tschannen-Moran & Woolfolk Hoy, 2001). The pre-service teachers were all enrolled in one of three teacher preparation programs located in Ohio or Virginia (Tschannen-Moran & Woolfolk Hoy, 2001). The authors did not specify the certification routes of the in-service or pre-service teachers. With this in mind, assuming the population reflects the proportion of all teachers certified in the United States, with more than 80% certified through traditional routes, then less than 82 of the 410 respondents would have been certified through an alternative route (Feistritzer, 2005a).

The population of this study does not have the experience of veteran teachers, nor can it be assumed that they have had experiences similar to pre-service teachers. Therefore, the researcher of this study used the entire 24-item efficacy survey score to

determine the aggregate efficacy level of Arizona teaching interns, as described in research question one. However, as the appropriateness of the total score versus the subscale scores was not defined by the authors for the population of this study, the individual survey items, with their associated subscale, were analyzed to determine if they do, in fact, have meaning for the teaching intern population.

Part one: permission. The Teachers' Sense of Efficacy Scale, according to authors Tschannen-Moran and Woolfolk Hoy, indicates that "the instrument is copyrighted by the authors, however, there are no copyright restrictions on the instrument for use in scholarly research and for nonprofit educational purposes" (2001, p. 801). The intent of the study was for nonprofit educational purposes and scholarly research only; however, a permission letter is provided in Appendix C.

Part Two: Arizona Teaching Intern Survey

Part Two of the Arizona Teaching Intern Survey included six items, three relating to professional development experiences and three requesting general information. The professional development items were the three independent variables of attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor. The three independent variables were selected because of their categorization as professional development experiences. Professional development experiences of novice teachers have been found to have a positive relationship with teacher quality and retention (American Institute for Research, 2004-2005; Flanagan & Fowler, 2009; National Academy of Education, 2009; Strong, 2006; and Wong, 2005). The independent variables were self-reported on the survey instrument by selecting among the responses provided. Responses for the dichotomous

independent variable of the respondents' enrollment in an intensive preparation program prior to the first year of teaching were reported as attended an intensive preparation program prior to year-one of the Teaching Intern Certificate or as did not attend an intensive preparation program prior to year-one of the Teaching Intern Certificate. Responses for the dichotomous independent variable of the respondents' participation status in a district-sponsored induction program were reported as participation in a district-sponsored induction program or as nonparticipation in a district-sponsored induction program. Finally, responses for the categorical independent variable of the respondents' assignment of a mentor were reported as yes or no/unknown.

Subsequent to the three professional development experience items, three items of general data were collected and included year-one or year-two of intern certification status, county of contract location, and certification program category. The general data was not analyzed for comparison; rather it was used to determine if the number of respondents represent the entire population of Arizona teaching interns. Respondents were prompted to self-select among the provided options. The ordinal data of intern certification status was self-reported on the survey instrument and represented the respondents' intern certification status as year-one or year-two. The general data of contract location was self-reported by selecting the respective county from among a list of the 15 counties. Finally, the certification program category data was self-reported on the survey instrument and represented the respondents' program as being enrolled in a post-baccalaureate certification program or a certification plus master's degree program.

In a 2007 study of novice and veteran teachers, Tschannen-Moran and Woolfolk Hoy examined the sources of teachers' self-efficacy. The study investigated if

demographic variables, among other variables studied, were sources of a teacher's self-efficacy. Tschannen-Moran and Woolfolk Hoy (2007) found, "the outward characteristics of the schools and of the teachers themselves did not prove to be potent predictors of Teachers' Self-Efficacy Beliefs" adding that "none of the demographic and school setting variables tested were significantly related to Teachers Sense of Efficacy for Novice Teachers, and only school level was related for Career Teachers" (p. 950). As demographic information was not seen to correlate with teachers' efficacy levels, data in those areas were not collected for analysis of potential relationships.

Part two: validity testing. The two-part Arizona Teaching Intern Survey was examined for face validity (Leedy & Ormrod, 2005; Patten, 2005). The ATIS was given to a panel of seven individuals in January of 2010. The panel members were selected because of their status as fully-certificated teachers in Arizona, representing seven distinct school districts. Refer to Appendix H for a list of panelists. All panel members had at least three years of teaching experience with a mean of 5.9 years. All panel members have earned their Master's of Arts degree in education. In a face-to-face meeting, panel members individually reviewed the survey instrument. All seven panel members conveyed their judgment that the ATIS appeared to be a good measure of teaching interns' efficacy level. Specifically, the panel reported that part two, which includes three items on professional development experiences, appeared to have appropriate and clear operational definitions for the independent variables.

Analytical Techniques

The information gathered during the data collection phase of the study was subject to the process of data analysis. The electronic survey data was gathered using the

Survey Gizmo software. The software assigned each survey completed a number from one through the total number of respondents, based on the numerical order of submission. The collected electronic data was exported from Survey Gizmo to a researcher-created spreadsheet. The spreadsheet was created in Microsoft Excel format and imported to NCSS, a statistical analysis software program, which allowed the researcher to examine the participants' responses and draw conclusions with regard to the general validity of the data and the research questions, as outlined in Chapter One.

External Validity Tests

External validity testing was conducted and analyzed for response rate and significance. First, the number of respondents was compared to the census population to calculate the response rate of the survey in four categories, based on common survey research situations, including cooperation, contact, refusal, and response (Lynn, Beerten, Laiho & Martin, 2001). Next, tests of significance were conducted to confirm the respondents' representativeness of the population using three general information items collected in the Arizona Teacher Intern Survey. The data collected was self-reported by the respondents and included year- one or year-two of intern certification status, county location of their school, and their certification program category. A two proportion z-test was conducted on each of the three categories of data collected to reveal if the two proportions' means are, or are not, statistically different from one another, thus indicating representativeness (Leedy & Ormrod, 2005).

Research Question One

Research question one examined the self-reported efficacy levels of Arizona teaching interns with regard to influencing student learning. The 24-item efficacy self-

assessment asked teachers to rate themselves on a nine-point scale with five clarifying anchors (Tschannen-Moran & Woolfolk Hoy, 2001). The nine-point scale is classified as a Likert scale because it has more than five possible responses, in which each value is greater than the next (Matell & Jacoby, 1972). A Likert scale is statistically categorized as measuring ordinal variables; yet, because the level of measurement is on an interval scale that contains at least five unique values, it also meets the criteria for measuring continuous variables (Matell & Jacoby, 1972). In addition to meeting the criteria, this study followed the conventions of educational research, and treated the Likert scale as an interval scale.

To determine the efficacy level of the teacher interns, participants' responses were examined using descriptive statistical analysis that provided the distribution, central tendencies, and the dispersion of data; specifically, the mean, median, standard deviation, and range (Isaac & Michael, 1995). The normality of the data's distribution was analyzed, followed by a test for detecting outliers. The Grubb's test was employed to determine if, and where, significant outliers existed. The mean efficacy score of Arizona teaching interns, calculated from an aggregate score per respondent, was obtained. Next, descriptive statistical analysis was conducted on the participants' responses, per individual survey item, and then disaggregated according to the three subscales of student engagement, instructional strategies, and classroom management. Finally, linear correlation and regression analyses were conducted on each of the subscales to determine their predictive relationship to the mean aggregate efficacy scores of the respondents. A linear regression examines the extent to which an independent variable is a predictor of a dependent variable by finding the correlation coefficient, or r-squared (Easton & McColl,

1997). Three separate regression analyses were performed with the efficacy subscales scores listed as independent variables and the aggregate efficacy scores listed as the dependent variable. The results of the analyses indicated if, and which, subscales could provide statistical predictions.

Research Question Two

Research question two investigated to what extent, if at all, the self-efficacy of Arizona teaching interns differed based on their attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor. The three independent variables were selected because of their categorization as professional development experiences and were recognized as grouping variables, each possessing divergent responses. Divergent responses permit a comparative relationship to be calculated. The independent variables were reported as categorical in part two of the ATIS. The reporting of these variables was not set on a continuous scale, cannot be averaged or converted to numeric data, and are therefore classified as discrete variables (McCall, 2002). To compare the teaching interns' efficacy levels and the three professional development experiences, an analysis of variance calculation (ANOVA) was conducted.

An analysis of variance, known as an ANOVA, "considers the possible effects of one or more independent variables" on a dependent variable (McCall, 2002, p. 85). ANOVA calculations are recognized as part of the General Linear Model of inferential statistics (Trochim, 2006). An ANOVA is used for statistical analysis when the dependent variable is reported as continuous, and the independent variable is reported as discrete. The ANOVA calculations were used to prove whether or not a statistically

significant difference existed between each independent variable and the dependent variable of efficacy. The NCSS software program was used to conduct the ANOVA calculation.

The NCSS output detailed two values of central importance to this study. The first value of importance was the p-value, which was used to determine whether or not the calculations were based on random chance. P-values provide the confidence level that the independent variable and the dependent variable have a relationship (Varma, 2010). In order for a statistically significant difference to be found, the calculated p-value must be less than .05 (Isaac & Michael, 1995). Because p-values do not inform of the size of the effect that each independent variable had on the dependent variable, the second value of importance was the effect sizes (Rosnow & Rosenthal, 1996). There are no relationships between p-values and effect sizes. When the effect size coefficient is determined, “the size of the coefficient for each independent variable gives you the size of the effect that variable is having on your dependent variable” (Princeton University, 2007, para. 11). The magnitude and meaning of effect sizes are much less clear than those of p-values. Recognized researcher of effect sizes, Cohen (1988) stated “there is a certain risk in inherent in offering conventional operational definitions for those terms for use in power analysis in as diverse a field of inquiry as behavioral science” (p. 25). However, a rough guideline for effect sizes (r) was noted by Cohen (1988); less than 0.1 has a small effect, more than 0.371 has a large effect, and all sizes in between have varying degrees of moderate.

Supplemental Data

To provide a comprehensive investigation of the data collected from Arizona teaching interns, additional statistical analyses were conducted on the general information categories, the professional development experiences, and the efficacy subscales. First, the general information categories, as reported by the respondents, were analyzed independently and collectively to determine if any statistical relationships were found by employing ANOVA calculations. Second, the reported professional development experiences were compared to the reported general information categories to determine if any statistical relationships were found by employing two-sample t-tests with two grouping variables. Next, the three efficacy subscales, as described by Tschannen-Moran and Woolfolk Hoy (2001), were analyzed. New subscale means were calculated per respondent and, employing two-sample t-tests, were compared to the reported professional development experiences and the reported general information categories to determine if any statistical relationships were found. Finally, linear correlation and regression analyses were conducted on each of the subscales per certification status to determine their predictive relationship to the mean aggregate efficacy scores of the respondents. The results of the analyses indicated if, and which, subscales could provide statistical predictions for year-one teaching interns and if, and which, subscales could provide statistical predictions for year-two teaching interns.

Chapter Four: Results

Data Analytics and Findings

The purpose of this descriptive and comparative study was to investigate the self-assessed efficacy levels of Arizona teachers who hold Teaching Intern Certificates, and more specifically, their perceived ability to influence student learning. In addition this study sought to examine to what extent, if at all, the self-reported efficacy levels differed based on the following professional development experiences: attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor. The following two research questions guided this study;

1. What are the self-reported efficacy levels of Arizona teaching interns with regard to influencing student learning?
2. To what extent, if at all, does the self-efficacy of Arizona teaching interns differ based on their attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor?

This quantitative non-experimental and cross-sectional study (Creswell, 2003) collected original data during the spring of 2010 from single groups of interns who hold a 2009-2010 Arizona Intern Certificate. A two-part survey, referred to as the Arizona Teaching Intern Survey (ATIS), was administered. Part one documented the levels of Arizona intern credentialed teachers' efficacy to influence student learning using a valid and reliable 24-item closed-ended survey titled the Teachers' Sense of Efficacy Scale. Part two of the ATIS survey instrument collected data on three items pertaining to the teaching interns' professional development experiences. The professional development

experience items asked the participants to respond to the following: attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor. Additionally, general data was collected, including year-one or year-two of intern certification status, county of contract location, and certification program category.

Data collection commenced after spring recess for most Arizona districts, yet before the administration of the statewide mandatory testing. The intended population of the survey was 777 teacher interns. As 28 of the teacher interns did not supply an email address to the Arizona Department of Education, they were sent, via mail, a letter requesting their contact information. One contact card with corresponding email address was returned to the researcher, which reduced the possible number of respondents to 749. On March 27, 2010, teaching interns were sent the introductory communication informing them of the purpose of the study and encouraging their participation and response. The introductory communication was sent to the 749 potential respondents; however, 98 of the emails were returned as undeliverable. The researcher reviewed the 98 undeliverable email addresses and was able to correct 42 by fixing common errors, likely produced by the respondents when completing their teacher intern certificate application. The remaining 56 email addresses were unable to be corrected, ultimately allowing for 694 introductory communications and subsequent surveys to be dispersed. On March 28, 2010, the survey was published via Survey Gizmo. An invitation was emailed to teaching interns notifying them of the survey's publication and web link.

The teaching intern population was sent two reminders, instead of the single reminder as was planned. The initial survey administration and the first reminder, on day

four, yielded 110 respondents. To encourage participation, the researcher sent an additional reminder, on day six, which generated an additional 54 responses. Data collection of all teaching interns who participated in the study concluded eight days after the initial surveys were sent, with seven days representing the expected survey completion time and one additional day of leniency for late survey submissions. Data collection concluded on April 4, 2010, and garnered 164 responses.

The Arizona Teaching Intern Survey presented respondents with two optional items for completion, both located at the end of the survey. The first item invited respondents to participate in the raffle awarding five \$20 Target e-gift cards. Of the 164 respondents, 137 (95.14%) chose the option to be eligible for the raffle prize. Using the software program, The Hat 2.3, five respondents were randomly selected from the 137 who elected to participate in the raffle. On April 6, 2010, the Target e-gift cards were sent to the winners via the email address provided by the respondents at the conclusion of the survey. The second item asked respondents if they would like to receive a summary of the research results upon completion of the study. Of the 164 respondents, 104 (72.22%) chose the option to receive the research summary.

This chapter discusses analytical techniques and the results of the data collected with respect to its external validity, research question one, research question two, and concludes with three supplemental data analytics and findings.

External Validity

To determine the extent to which the data collected was externally valid, a series of statistical analyses were conducted. First, the response rate of the population was analyzed. Next, tests of significance were conducted to validate the respondents'

representativeness of the population using three general data items collected in the Arizona Teaching Intern Survey.

Response rate analytics. The response rate, as displayed in Table 1, was recorded per response outcome, quantity of teaching interns, and rationale for categorization.

Table 1

Response Outcome, Quantity of Teaching Interns, and Rationale

Response outcome total	Quantity total	Rationale
Non-response	432	Teacher interns successfully contacted with no response
Refusal	27	Did not return contact card to be eligible to participate in the survey
Break off (abandon and partial)	98 (78 abandon, 20 partial)	Abandon- opened the survey web link but did not respond to any items Partial- opened the survey web link and provided consent but did not complete any items in the survey
No-contact	56	Email address returned as undeliverable
Completed	164	Respondents: represented as the number of teacher interns who completed the 30-item survey

According to the Institute for Social and Economic Research, survey research is too complicated to be calculated by one simple measure (Lynn et al., 2001). The intricacies of survey research design and the practical complexities of contacting

potential participants led to refinements in response rate calculations that include determining the rates of contact, refusal, cooperation, and total population response (Lynn et al., 2001). Using a confidence level of 95% and a confidence interval of five, the four categories of response rates in this study were calculated, as displayed in Table 2.

Table 2

Response Rate per Category, Calculation Results, and Description of Category

Category	Result	Description of category
Contact rate	44.40%	Percentage of the population who were successfully contacted from the total population
Refusal rate	12.61%	Percentage of the population who refused to participate
Cooperation rate	23.63%	Percentage of surveys completed from the population who were successfully contacted
Response rate-total population	21.11%	Percentage of the completed responses compared to the entire population of Arizona teaching interns

Note. Descriptions of categories. Adapted from *Standardisation and Systematisation of Response Rate Calculation* by Eustat, 2007, Vitoria-Gasteiz, Basque Country: Basque Statistics Office. Copyright 2007 by Euskal Estatistika Erakundea Basque Statistical Office. Adapted with permission.

Response rate findings. Online surveys are noted as having a mean response rate of 32.5 %, which decreases as survey invitation lists increase (Hamilton, 2003). Research by Kraut, Olson, Banaji, Bruckman, Cohen, and Couper (2004) found that telephone and mail surveys have higher average response rates than online surveys, but do not provide the same utility and functional benefits. No minimum response rate is widely recognized

for research or scholarly studies for any survey delivery modality (Baruch & Holtom, 2008). Web survey providers estimate the average response rate of online surveys to be 20-30% (Survey Gizmo, 2005-2010; Zoomerang, 2008). Acknowledging the large invitation list and the high cooperation rate, the response rate of this study was determined to hold external validity.

Tests of significance analytics. Measures of statistical inference used to confirm or refute statements based on the respondents' data are known as tests of significance (Easton & McColl, 1997). According to Telhaj, Hutton, Davies, Adnett, and Coe (2004), the power of the statistical inferences are "determined by the degree to which the sample is representative of the population, that is, how similar in the relevant respects the sample and the population are" (p. 1). A bias is produced if the characteristics of interest represented by the non-respondents are different from the characteristics of interest of the respondents (Statistics Canada, 2009). Non-respondents impact the proportion of eligible participants by increasing the variance of the results. To determine if a bias was produced in this study, the respondents and population were compared for representativeness in three areas. The three areas listed in the Arizona Teaching Intern Survey as item numbers 28, 29, and 30, requested information regarding the respondents' intern certificate status, the county of their school's location, and the category of their certification program. Table 3 displays the data of the population (N) and the respondents (n) in each of the general information categories.

Table 3

Population and Respondents per General Information Categories

	N	%	n	%
Maricopa County	554	71.3	120	73.2
Other than Maricopa County	223	28.7	44	26.8
Certification Plus Master's Degree	450	58	91	55.5
Post-Baccalaureate Certification	327	42	73	44.5
Year One Teacher Intern	391	50.3	60	36.6
Year Two Teacher Intern	386	49.7	104	63.4

Note. N = population total of 777 and n = respondents total of 164

The item responses were compared to the known characteristics of the population by conducting two-proportion z-tests for each of the three categories, as displayed in Table 4. The proportions of the respondents were tested for their difference to the proportions of the population in each of the categories by conducting z-tests. A z-test is a “standard score in which the original value of a variable is expressed as the number of standard deviations the original value is from the arithmetic mean of the set of observations” (McCall, 2002, p. 139). The z-tests are reported as a two tailed z-tests as two tailed tests presume that there is no significant difference in the population and the respondents groups, typically known only if prior experimental observations were conducted (Microbiology Bytes, 2009).

Table 4

Two-Proportion Z-Test Calculations with Corresponding Confidence Level

	Z-test	Confidence level
School location by county	0.39	95%
Category of certificate program	0.49	95%
Intern certificate status	3.11	95%

The first test examined the respondents' school location by county, identified as Maricopa County or Non-Maricopa County, and displayed in Table 4. The two-tailed two-proportion z-test was calculated at 0.39, which would indicate that the two proportions' means are not statistically different from one another. The z-test, with a 95% confidence level, suggests that the respondents in Maricopa County are statistically representative of the study's population in Maricopa County.

The second test examined the respondents' category of certificate program, identified as certificate plus Master's degree or post-baccalaureate certification, as displayed in Table 4. The two-tailed two-proportion z-test was calculated at 0.49, which signifies the two proportions' means are not statistically different from one another. The z-test indicates, with a 95% confidence level, that the respondents' categories of certification program are statistically representative of the categories of certification program of the study's population.

The third test examined the respondents' intern certificate status, identified as year-one or year-two, and displayed in Table 4. The two-tailed two-proportion z-test was calculated at 3.11, which signifies the two proportions' means are statistically different

from one another. The z-test indicates, with a 95% confidence level, that there is no statistical association between the two groups in the category of teacher intern certificate status. The respondents' intern certificate status is not statistically representative of the intern certificate status of the population.

Findings from the tests of significance. In survey research, response representativeness is of greater consequence than response rate (Cook, Heath, & Thompson, 2000). The three areas calculated for representativeness requested information on the county of the respondents' school location, the category of their certification program, and their intern certificate status. The respondents were statistically representative of the study's population of Arizona teacher interns in two-of-the three categories--county of school location and category of certification program. The third category of intern certificate status was found to lack statistical representativeness due to a higher proportional response rate of year-two teacher interns than year-one teacher interns. As a result of the data for the teacher interns' certificate status being measured across stages (year-one or year-two) and the design of the data collection being cross-sectional; it would be inappropriate to assume the cause of the differences among the two groups. As the two categories of static data are representative of the population, a determination was made that the respondents are a non-biased representation of the population. The tests of significance demonstrate support for the respondents' claims.

Research Question One

Research question one examined the self-reported efficacy levels of Arizona teaching interns with regard to influencing student learning. Part One of the Arizona Teaching Intern Survey examined the efficacy levels of the teaching interns using the

Teachers' Sense of Efficacy Scale instrument (Tschannen-Moran & Woolfolk Hoy, 2001). Each of the 164 respondents of the survey completed all items included in the efficacy scale instrument. The 9-point scale had the following anchors, "1- none at all, 3- very little, 5- some influence, 7- quite a bit and 9- a great deal" (Tschannen-Moran & Hoy, 2001, p. 796).

Aggregate efficacy score. To assess the aggregate efficacy level of Arizona teaching interns, the entire 24- item efficacy survey score was used. Each respondent's mean was calculated providing an aggregate score of the respective respondent's efficacy level. The respondents' mean efficacy scores were plotted on a frequency histogram to determine the normality of the data's distribution, as seen in Figure 1.

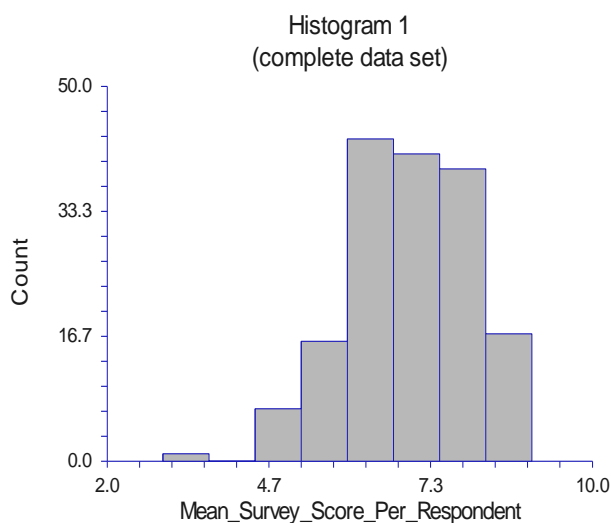


Figure 1. Frequency histogram of the complete data set as calculated by the mean efficacy score per respondent.

The frequency histogram revealed the possibility of outliers, or anomalous values, in the data (McCall, 2002). The Grubb's test for detecting outliers, also known as the ESD method, was employed to determine if and where significant outliers were found

(Easton & McColl, 1997). The Grubb's test, which calculated the mean and standard deviation, detected one outlier, as shown in Table 5. Outliers are identified by analyzing the p-value (significance set at $P < 0.05$) and the z-score, as measured against the critical z-score (McDonald, 2009).

Table 5

Results of Grubb's Test for Detecting Outliers

Mean:	6.99
SD:	1.05
# of values:	164
Outlier detected?	Yes
Significance level:	0.05 (two-sided)
Critical value of Z:	3.55

Respondent 112 had a mean efficacy score of 2.92 and a Z score of 3.88, thereby determining it was a significant outlier. The scores provided by respondent 112 were removed from the data for the purposes of analysis. A second frequency histogram was graphed, as seen in Figure 2. The histogram and subsequent analysis revealed the data's distribution to have a slightly negative skew of -0.14, but still representing normality.

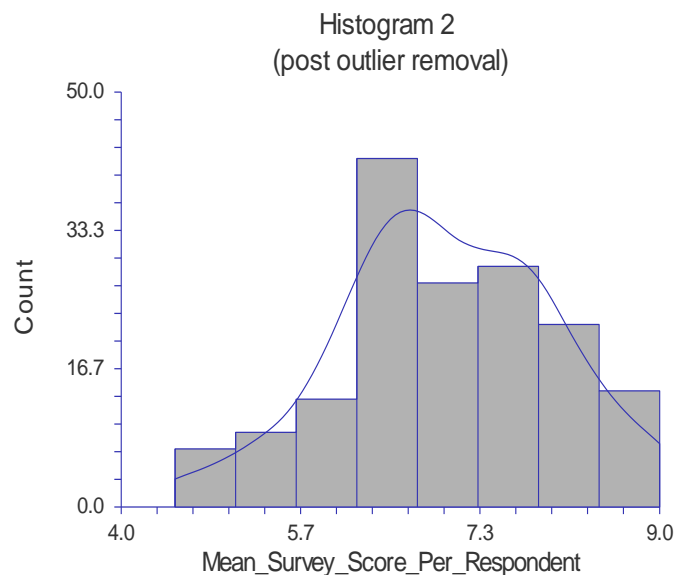


Figure 2. Frequency histogram post-outlier removal as calculated by the mean efficacy score per respondent.

With the normality of the data's distribution established, the respondents' efficacy levels were examined using descriptive statistical analysis and are displayed in Table 6.

Table 6

Descriptive Statistical Calculations for Teaching Interns' Efficacy Levels

Mean	Standard deviation	Minimum	Maximum	Ave. range	Median
7.02	1.00	4.5	9	4.5	7

The mean of the teacher interns' efficacy levels was calculated at 7.02. According to the efficacy scale rankings, a seven is represented by the anchor "quite a bit" of influence on student learning (Tschannen-Moran & Woolfolk Hoy, 2001). The minimum aggregate

score was 4.5 and the maximum aggregate score was 9, suggesting an average range of 4.5.

Itemized and subscale efficacy scores. The 24 survey items were individually analyzed and the respondents' mean efficacy scores per item were calculated. Table 7 illustrates the mean score per survey item in order from lowest to highest mean. A minimum mean score of 5.90 was found in item 22 and a maximum mean score of 8.18 was found in item five, suggesting an average range of 2.28.

Table 7

Survey Item and Mean Efficacy Score Listed in Ascending Order

Survey item	Mean
22. How much can you assist families in helping their children do well in school?	5.9
4. How much can you do to motivate students who show low interest in school work?	6.4
12. How much can you do to foster student creativity?	6.5
14. How much can you do to improve the understanding of a student who is failing?	6.5
1. How much can you do to get through to the most difficult students?	6.6
23. How well can you implement alternative strategies in your classroom?	6.6
24. How well can you provide appropriate challenges for very capable students?	6.6
17. How much can you do to adjust your lessons to the proper level for individual students?	6.7

(table continues)

21. How well can you respond to defiant students?	6.8
2. How much can you do to help your students think critically?	6.9
9. How much can you do to help your students value learning?	6.9
18. How much can you use a variety of assessment strategies?	6.9
15. How much can you do to calm a student who is disruptive or noisy?	7
6. How much can you do to get students to believe they can do well in school work?	7.1
11. To what extent can you craft good questions for your students?	7.3
16. How well can you establish a classroom management system with each group of students?	7.3
3. How much can you do to control disruptive behavior in the classroom?	7.4
10. How much can you gauge student comprehension of what you have taught?	7.4
13. How much can you do to get children to follow classroom rules?	7.4
20. To what extent can you provide an alternative explanation or example when students are confused?	7.5
8. How well can you establish routines to keep activities running smoothly?	7.6
7. How well can you respond to difficult questions from your students?	7.7
5. To what extent can you make your expectations clear about student behavior?	8.1

Note. Survey items are from “Teacher Efficacy: Capturing an Elusive Construct,” by M. Tschannen-Moran and A. Woolfolk Hoy, 2001, *Teaching and Teacher Education*, 17, p. 800. Copyright 2001 by Elsevier Science Ltd.. Reprinted with permission.

Although the entire 24-item survey was used to examine teaching interns' mean efficacy score, the individual items were disaggregated based on their subscales. The subscales were analyzed to determine if they did, in fact, have meaning for the teaching intern population. The three subscales indicate teachers' efficacy levels in the categories of student engagement, instructional strategies, and classroom management (Tschannen-Moran & Woolfolk Hoy, 2001). The subscales correspond to eight items on the efficacy survey, as displayed in Table 8.

Table 8

Efficacy Survey Subscales and Accompanying Survey Items

Efficacy in student engagement	Survey item number	1, 2, 4, 6, 9, 12, 14, 22
Efficacy in instructional strategies	Survey item number	7, 10, 11, 17, 18, 20, 23, 24
Efficacy in classroom management	Survey item number	3, 5, 8, 13, 15, 16, 19, 21

Note. Survey items are from “Teacher Efficacy: Capturing an Elusive Construct,” by M. Tschannen-Moran and A. Woolfolk Hoy, 2001, *Teaching and Teacher Education*, 17, p. 800. Copyright 2001 by Elsevier Science Ltd. Reprinted with permission.

Respondents' mean efficacy scores per survey item and subscale were graphed, as displayed in Figure 3. The lightest color, light grey, signifies the mean efficacy score in the student engagement subscale. The middle color, dark grey, signifies the mean efficacy score in the classroom management subscale. The darkest color, black, signifies the mean efficacy score in the instructional strategies subscale. Of the four items with the highest mean, two are from the classroom management subscale and two are from the instructional strategies subscale. Of the four items with the lowest mean, all four are from the student engagement subscale. Next, the subscales of student engagement,

instructional strategies, and classroom management were examined using descriptive statistical analysis and are displayed in Table 9.

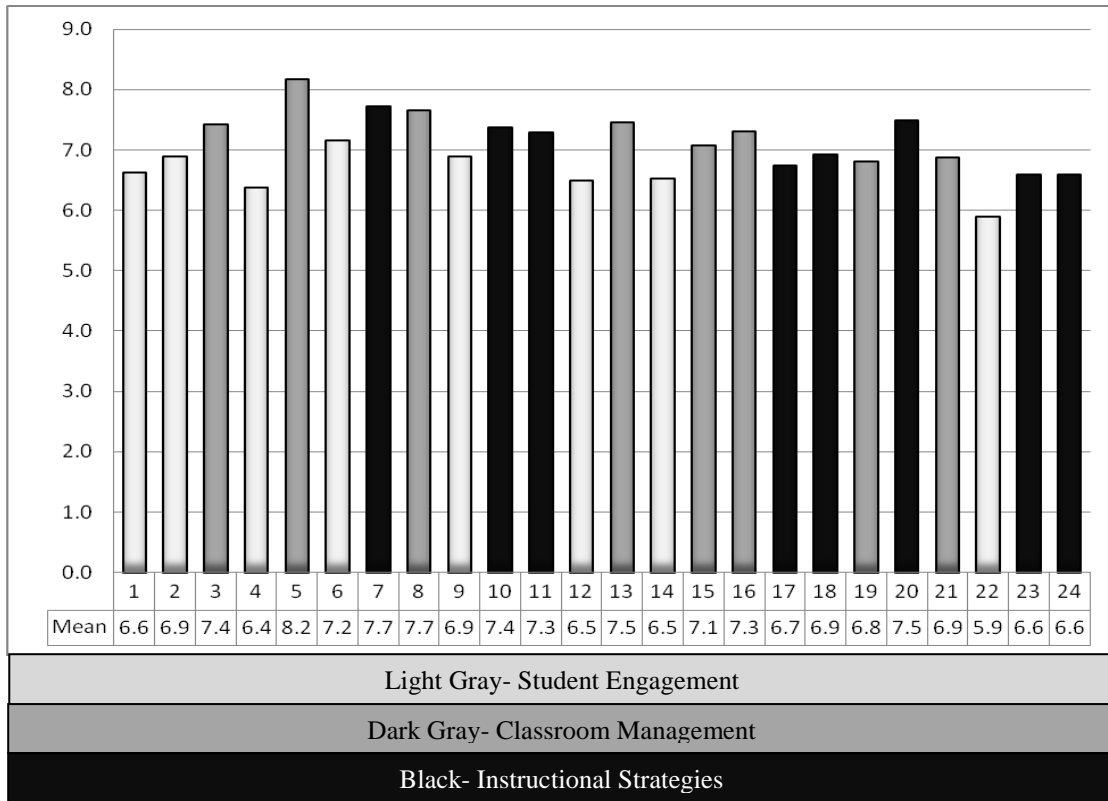


Figure 3. Respondents' mean efficacy scores per survey item, 1-24, with coded subscale.

Table 9

Descriptive Statistical Calculations for Teaching Interns' Efficacy Levels

	Mean	Std. dev	Min.	Max.	Ave. range	Median
Student engagement	6.61	1.22	4	9	5	6.5
Instructional strategies	7.09	1.00	4	9	5	7.13
Classroom management	7.35	1.18	2.25	9	6.75	7.5

The lowest mean score was found in the student engagement subscale, followed by the instructional strategies subscale, and finally, with the highest mean score, was the classroom management subscale. The average ranges in the scores from the student engagement subscale and the instructional strategies subscale were both five. The average range in the classroom management subscale was larger, at 6.75, due to the low minimum score of 2.25. The low score was given by respondent 156. The Grubb's test for detecting outliers was employed and a Z score of 4.34 was calculated, thereby determining it was a significant outlier. The respondent's scores were not, however, removed from the data for the purposes of statistical analysis as the respondent's other two mean subscale scores, 4.88 for student engagement and 6.38 for instructional strategies, were not found to be outliers.

Finally, the means of the efficacy subscale scores and the aggregate efficacy scores were examined for predictive relationships using linear regression analysis. The results of the analyses indicated that the student engagement subscale had the highest predictive relationship. The r-squared was calculated at 0.78, showing that there was substantial variation that can be accounted for the aggregate efficacy scores by the student engagement subscale scores. In addition, the slope of the scatter plot and the correlation value, at 0.88, indicated that the relationship was positive, as displayed in Figure 4. In sum, for every point of increase in the student engagement efficacy subscale score, a statistical prediction can be made that the aggregate efficacy score will increase by .78 percentage of one point.

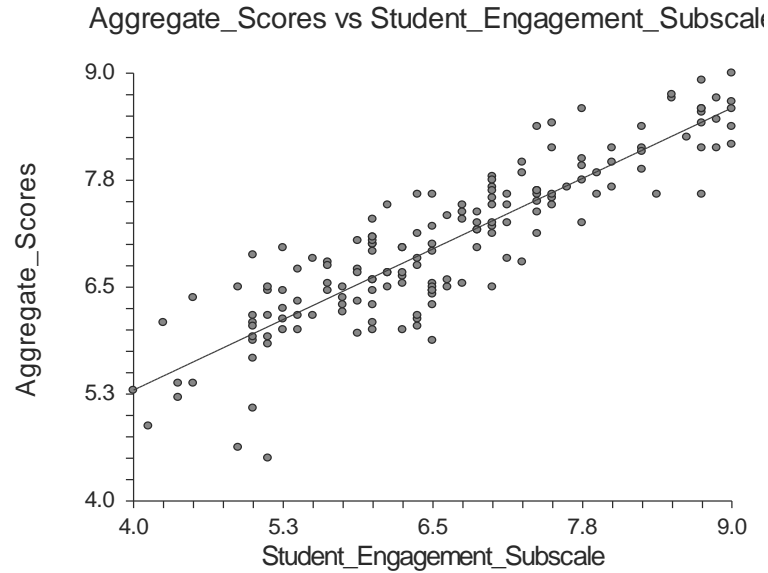


Figure 4. The relationship between the respondents' aggregate efficacy scores and the student engagement efficacy subscale scores.

Research Question Two

Research question two investigated to what extent, if at all, the self-efficacy of Arizona teaching interns differed based on their attendance in an intensive preparation program prior to teaching, participation in a district sponsored induction program, and assignment of a mentor. To compare the teaching interns' efficacy levels and the three professional development experiences, an analysis of variance calculation was conducted for each variable. Descriptive statistics for the three independent variables are represented in Table 10.

Table 10

Descriptive Statistical Calculations for the Three Professional Development Experiences

Professional development experience	Count n = 163	Mean efficacy m= 7.0135	Standard deviation
Attended intensive preparation program	84	7.10	1.03
Did not attend intensive preparation program	79	6.93	0.97
Participant in an induction program	111	7.10	1.01
Non-participant in an induction program	52	6.83	0.97
Assignment of a mentor	120	7.04	0.95
No or unknown assignment of a mentor	43	6.95	1.14

The first independent variable analyzed was the teacher interns' attendance in an intensive preparation program prior to teaching. The ANOVA calculation identified the p-value as 0.29, revealing that there is not a statistically significant difference in the efficacy levels of teaching interns based on their attendance in an intensive preparation program, as seen in Figure 5.

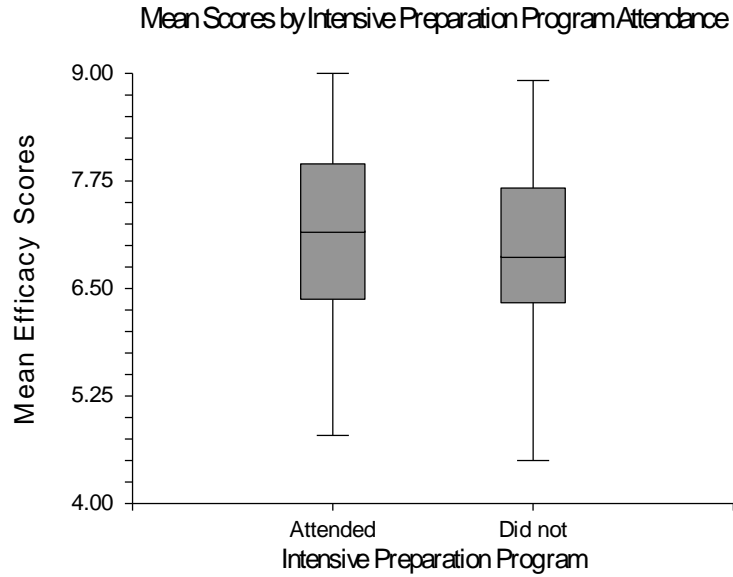


Figure 5. Attendance in an intensive preparation program as calculated by the mean efficacy score per respondent.

The second independent variable analyzed was the teacher interns' participation in a district-sponsored induction program. The ANOVA calculation identified the p-value as 0.11, revealing that there is not a statistically significant difference between teaching interns' efficacy levels based on their participation in a district-sponsored induction program, as seen in Figure 6.

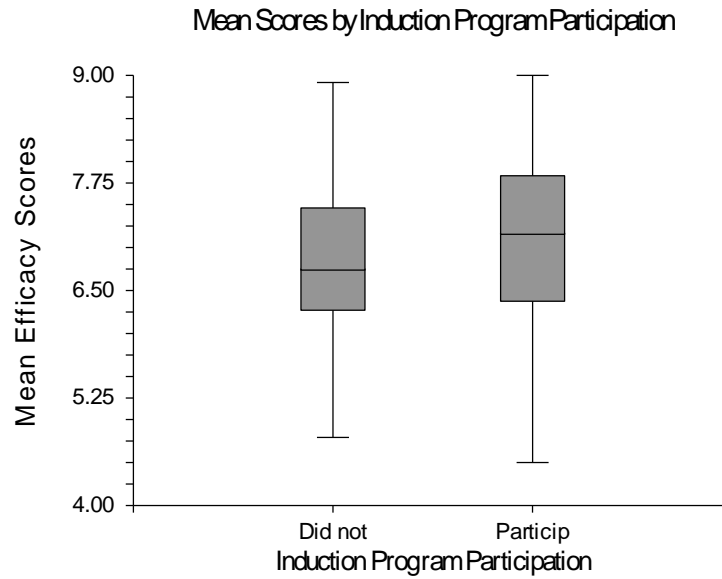


Figure 6. Participation in a district-sponsored induction program as calculated by the mean efficacy score per respondent.

The third independent variable analyzed was the teacher interns' assignment of a mentor. The ANOVA calculation identified the p-value as 0.60, revealing that there is not a statistically significant difference between teacher interns' efficacy level and their assignment of a mentor, as seen in Figure 7.



Figure 7. Assignment of a mentor as calculated by the mean efficacy score per respondent.

Supplemental Analytics and Findings

To provide a comprehensive investigation of the data collected from Arizona teaching interns, additional statistical analyses were conducted on the general information categories, the professional development experiences, and the efficacy subscales. The supplemental analyses that follow were not specifically declared in this study's research questions, but nevertheless the findings may provide additional contributions to the research questions and to the field of educational research.

General information categories. The general information categories, as reported by the respondents, were analyzed independently and collectively to determine if any statistical relationships were found. Employing ANOVA calculations, one notable relationship was discovered, as displayed in Table 11. With a p-value of 0.03, a statistically significant difference was found between the mean efficacy score per

respondent and their teacher intern certificate status, as seen in Figure 8. Year-one teacher interns displayed a lower mean at 6.78 than year-two teacher interns at 7.15. The effect size was calculated at 0.18, revealing that the teacher interns' certificate status had a moderate effect on their efficacy scores. No statistically significant differences were found between the mean efficacy scores per respondent and their school's location by county or their category of preparation program.

Table 11

Respondents' Intern Certificate Status and Calculated Mean Efficacy

Intern certificate status	Respondents	Mean
Year-one respondents	59	6.78
Year-two respondents	104	7.15

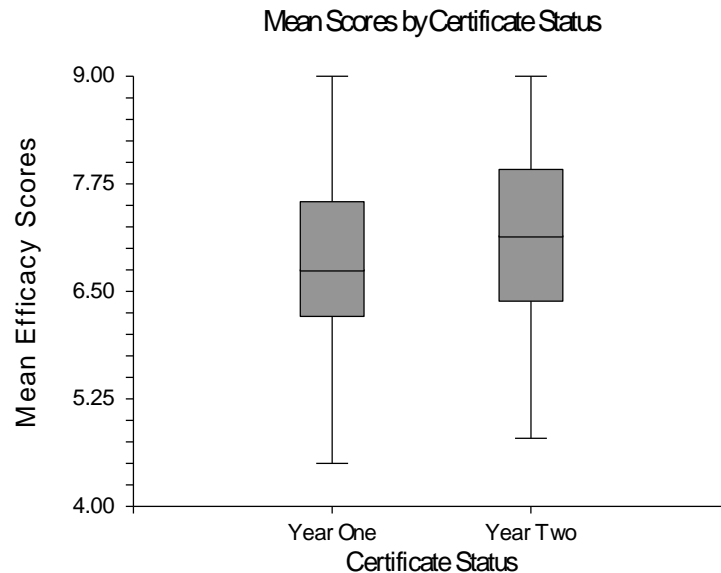


Figure 8. Intern certificate status as calculated by the mean efficacy score per respondent.

Professional development experiences. The reported professional development experiences were compared to the reported general information categories to determine if any statistical relationships in the efficacy levels of teaching interns were found.

Employing a two-sample t-test with two grouping variables, three statistically significant differences were discovered. Subsequently, ANOVA tests calculated the effect size of the relationships.

First, with a p-value of 0.02, a statistically significant difference was found between teacher interns' efficacy levels, certificate status, and participation in an induction program; specifically the efficacy scores of year-one teaching interns who did not participate in an induction program compared to the efficacy scores of year-two teaching interns who did participate in an induction program, as displayed in Table 12. The effect size for year-one teaching interns' efficacy levels and their participation in an induction program was calculated at 0.05, signifying a small effect. The effect size for year-two teaching intern's efficacy levels and their participation in an induction program was calculated at 0.15, signifying a moderate effect, as displayed in Table 14.

Table 12

Mean Efficacy Score by Intern Certificate Status and Induction Program Participation

Intern certificate status	Induction program	Respondents	Mean
Year one	Participant	35	6.83
Year one	Non-participant	24	6.72
Year two	Participant	76	7.23
Year two	Non-participant	28	6.93

Next, two statistically significant differences were found between teacher interns' efficacy levels, certificate status, and assignment of a mentor, as displayed in Table 13. First, with a p-value of 0.01, a statistically significant difference was found between the efficacy scores of year-one or year-two teaching interns who reported their assignment of a mentor as either no or unknown. Second, with a p-value of 0.01, a statistically significant difference was found between the efficacy scores of year-one teaching interns who reported their assignment of a mentor as no, or unknown, compared to the efficacy scores of year-two teaching interns who reported their assignment of a mentor as yes. The effect size for year-one teaching interns' efficacy levels and their assignment of a mentor was calculated at 0.29, signifying a large effect. The effect size for year-two teaching intern's efficacy levels and their assignment of a mentor was calculated at 0.08, signifying a small effect, as displayed in Table 14.

Table 13

Mean Efficacy Score by Intern Certificate Status and Assignment of a Mentor

Intern certificate status	Assignment of a mentor	Respondents	Mean
Year one	No/unknown mentor	15	6.35
Year one	Mentor assigned	44	6.93
Year two	No/unknown mentor	28	7.27
Year two	Mentor assigned	76	7.10

Only small effect sizes and no statistically significant differences in the efficacy levels of teaching interns were found when the professional development experience of attendance in an intensive preparation program was compared to the reported general information categories, as displayed in Table 14. Further, neither the general information categories of the school's location by county nor the category of preparation program were found to have any relationships of statistical significance to the mean efficacy scores per respondent and their professional development experiences.

Table 14

Effect Sizes, Labels per Certificate Status and Professional Development

	Intensive preparation		Induction program		Mentor assignment	
	Effect	Label	Effect	Label	Effect	Label
Year one	0.1005	Small	0.05	Very small	0.29	Large
Year two	0.0930	Small	0.15	Moderate	0.08	Very small

Efficacy survey subscales. Part one of the Arizona Teaching Intern Survey included the 24-item efficacy scale, which consisted of three subscales used to determine efficacy in student engagement, instructional strategies, and classroom management. The respondents' efficacy scores per item were separated into the three corresponding subscales, and a new subscale mean was found per respondent. A series of statistical calculations were conducted using two-sample t-tests to compare the respondents' efficacy means per subscale, the professional development experiences, and the reported general information categories. Subsequently, ANOVA tests calculated the effect sizes of

the relationships. The efficacy subscale scores which were found to have statistically significant differences to the professional development experiences were student engagement and instructional strategies. The only general information category found to have a statistically significant difference to the subscale scores and the professional development experiences was the teaching interns' certificate status, as seen in Table 15.

Table 15

Respondents' Mean Efficacy Subscale Scores by Intern Certificate Status

	Mean efficacy score year-one teaching interns	Mean efficacy score year-two teaching interns
Student engagement	6.34	6.76
Instructional strategies	6.85	7.22
Classroom management	7.16	7.46

With a p-value of 0.03, a statistically significant difference was found between year-two teaching interns' student engagement efficacy subscale score based on their participation in an induction program, as displayed in Figure 9. The effect size was calculated at 0.30, signifying a large effect.

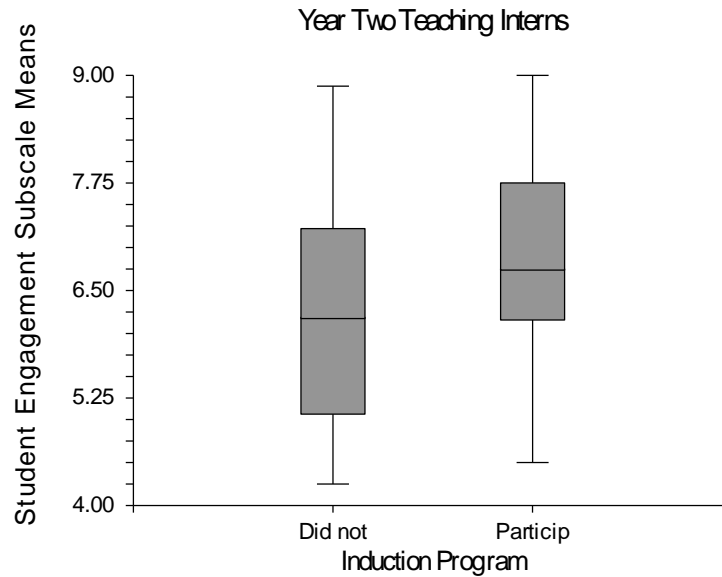


Figure 9. Year-two teaching interns' mean student engagement efficacy subscale score by participation in an induction program.

With a p-value of 0.04, a statistically significant difference was found between year-one teaching interns' instructional strategies efficacy subscale score based on their assignment of a mentor, as seen in Figure 10. The effect size was calculated at 0.30, signifying a large effect. The effect size for year-two teaching interns' instructional strategies efficacy subscale score and their assignment of a mentor was calculated at 0.06, signifying a small effect.

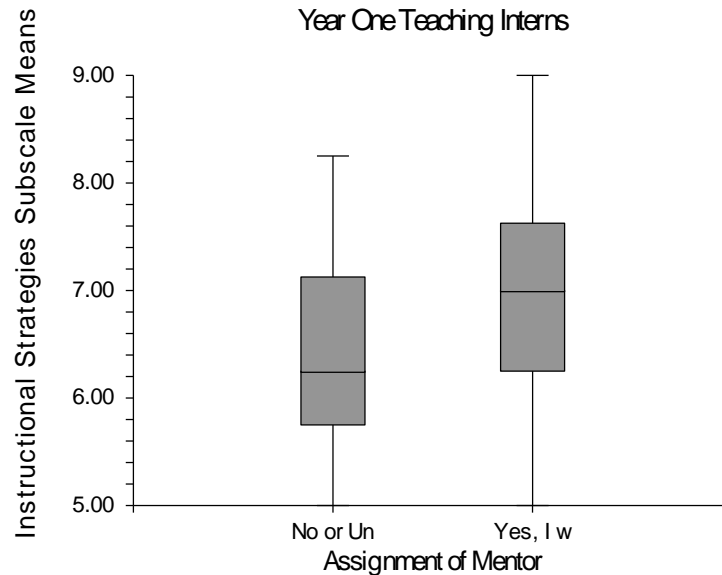


Figure 10. Year-one teaching interns' mean instructional strategies efficacy subscale score by assignment of a mentor.

No statistically significant differences were found between the efficacy subscale scores and attendance in an intensive preparation program, with or without the consideration of the general information categories. Additionally, no statistically significant differences were found between the classroom management subscale scores and the professional development experiences, with or without the consideration of the general information categories

Finally, linear correlation and regression analyses were conducted on each of the subscales, per certification status, to determine their predictive relationship to the mean aggregate efficacy scores of the respondents. The results of the analyses for year-one teaching interns found substantial variation that can be accounted for the aggregate efficacy scores by the student engagement subscale scores, as evidenced by the r-squared value of 0.75. In addition, the slope of the scatter plot and the correlation value, at 0.87,

indicated that the relationship was positive, as displayed in Figure 11. To enumerate, for every point of increase in the student engagement efficacy subscale score, a statistical prediction can be made that the aggregate efficacy score will increase by .75 percentage of one point.

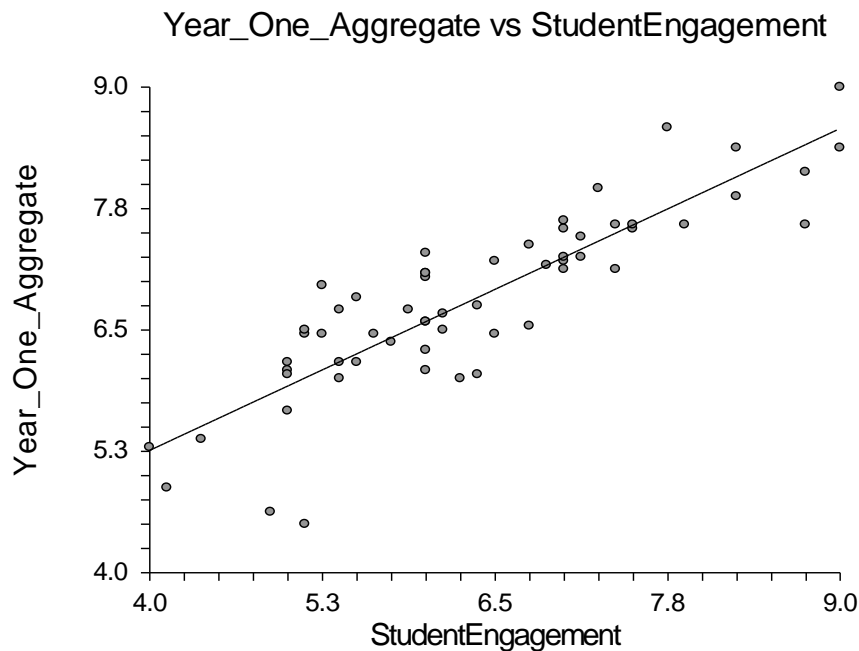


Figure 11. The relationship between the respondents' aggregate efficacy scores and the student engagement efficacy subscale scores for year-one teaching interns.

The results of the analyses for year-two teaching interns found substantial variation that can be accounted for the aggregate efficacy scores by the student engagement subscale scores, as evidenced by the r-squared value of 0.79. In addition, the slope of the scatter plot and the correlation value, at 0.89, indicated that the relationship was positive, as displayed in Figure 12. To enumerate, for every point of increase in the

student engagement efficacy subscale score, a statistical prediction can be made that the aggregate efficacy score will increase by .79 percentage of one point.

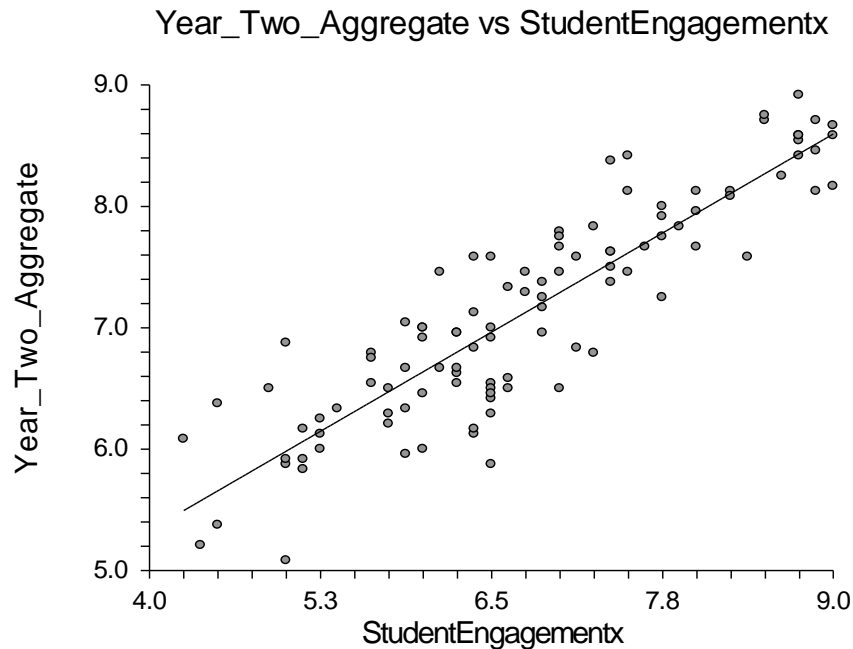


Figure 12. The relationship between the respondents' aggregate efficacy scores and the student engagement efficacy subscale scores for year-two teaching interns.

Summary of Data Findings

In analyzing the data collected in this study, numerous important findings were discovered. To begin, the response rate of this study was determined to hold external validity and respondents were found to be a non-biased representation of the population. Next, data collected in response to research question one revealed the aggregate mean efficacy score to be seven. The means of each efficacy subscale were found to be highest in classroom management, followed by instructional strategies, and finally student engagement; with the student engagement subscale found to have the highest predictive

relationship. Further, data collected in response to the research question two revealed that the professional development experiences did not show statistically significant differences, however, the mean scores were higher in each category when the teaching intern participated in the professional development. Lastly, the supplemental data revealed five important findings. First, a statistically significant difference was discovered between the mean efficacy score per respondent and their teacher intern certificate status. Second, a statistically significant difference was found between teacher interns' efficacy levels, certificate status, and assignment of a mentor; the effect sizes revealing a large effect on year-one teaching interns' efficacy levels but only a very small effect on year-two teaching interns' efficacy levels. Third, a statistically significant difference was found between teaching interns' efficacy levels, certificate status, and participation in an induction program; the effect sizes revealing only a very small effect on year-one teaching interns' efficacy levels but a moderate effect on year-two teaching interns' efficacy levels. Fourth, a statistically significant difference with a large effect was found between year-one teaching interns' instructional strategies efficacy subscale score and their assignment of a mentor. Finally, a statistically significant difference with a large effect was found between year- two teaching interns' student engagement efficacy subscale score and their participation in an induction program.

Chapter Five: Conclusions and Recommendations

Overview

The purpose of this descriptive and comparative study was to investigate the self-assessed efficacy levels of Arizona teachers who hold Teaching Intern Certificates, and more specifically, their perceived ability to influence student learning, and to examine to what extent, if at all, the self-reported efficacy levels differed based on the following professional development experiences: attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor. The following two research questions guided this study:

1. What are the self-reported efficacy levels of Arizona teaching interns with regard to influencing student learning?
2. To what extent, if at all, does the self-efficacy of Arizona teaching interns differ based on their attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor?

This quantitative non-experimental and cross-sectional study collected original data during the spring of 2010 from single groups of interns who hold a 2009-2010 Arizona Intern Certificate (Creswell, 2003). A two-part survey, referred to as the Arizona Teaching Intern Survey (ATIS), was employed. Part one documented the levels of Arizona intern credentialed teachers' efficacy to influence student learning using an acknowledged and reputable 24-item closed-ended survey named the Teachers' Sense of Efficacy Scale. Part two of the ATIS instrument collected data on three items pertaining to the teaching interns' professional development experiences. The professional

development experience items asked the participants to respond to the following: attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor. Additionally, general information data was collected, including year-one or year-two of intern certification status, county of the school's location, and certification program category.

In analyzing the data collected in this study, numerous important findings were discovered. To begin, the response rate of this study was determined to hold external validity and respondents were found to be a non-biased representation of the population. Next, data collected in response to research question one revealed the aggregate mean efficacy score to be seven. The means of each efficacy subscale were found to be highest in classroom management, followed by instructional strategies, and finally student engagement; with the student engagement subscale found to have the highest predictive relationship. Further, data collected in response to the research question two revealed that the professional development experiences did not show statistically significant differences, however, the mean scores were higher in each category when the teaching intern participated in the professional development. Lastly, the supplemental data revealed several important relationships between teaching interns' efficacy levels and their general information categories, their professional development experiences, and the efficacy subscales.

Presented in this chapter is an analysis of the study's findings and the resultant conclusions, recommendations for policy and practice, recommendations for further study, and final thoughts.

Explanation of the Findings

The explanation of this study's findings will be presented in the order in which the results were described in Chapter Four; specifically analyzing the findings of external validity, the first research question, the second research question, and the supplemental data investigations.

External Validity Findings and Analyses

The external validity was examined through the response rate and the representativeness of the respondents. The survey was administered via Survey Gizmo, one of several web survey tools, which have been found to have a lower response rate than mail surveys (Kraut et al., 2004). However, the practical and functional benefits of an online survey administration outweigh the risks of a lower response rate. The response rate, at 21.11%, was within the range of average online survey response rates and deemed valid.

The three general information categories of teaching intern certificate status, county of school's location, and category of certificate program were used to verify representativeness of the population. The general category of teaching intern certificate status did not represent the population because of the lower response rate from year one teaching interns. The first year of teaching, often described as the "survival year," comes with many challenges, such as "adjusting to the demands of teaching fulltime; negotiating colleague relationships; understanding classroom, school and community cultures; and coping with self" (Ewing & Smith, 2003, p. 16). The challenges and stressors that first-year teacher's experience are one probable explanation for the lower year-one response rate in this study. Acknowledging the difficulties with time management and workload,

the lack of representativeness from year-one teacher interns is reasonable. Further, it does not impede the validity of the respondents' data as confirmation of the respondents' representativeness was established through the other two general information categories of county of school's location and category of certificate program.

Research Question One Findings and Analyses

The first research question examined the self-reported efficacy levels of Arizona teaching interns with regard to influencing student learning. Part One of the Arizona Teaching Intern Survey examined the efficacy levels of the teaching interns using the Teachers' Sense of Efficacy Scale instrument. The 24-item instrument was developed with three subscales, each consisting of eight items, which indicate teachers' efficacy levels in the categories of student engagement, instructional strategies, and classroom management. Although the combined 24-item score and the disaggregated subscale scores may be used to assess efficacy levels, the authors of the Teachers' Sense of Efficacy Scale found that employing the entire efficacy score was most appropriate for pre-service teachers as the "subscale scores may have little meaning for prospective teachers who have yet to assume real teaching responsibilities" (Tschannen-Moran & Hoy, 2001, p. 801).

The population of this study does not have the experience of veteran teachers, nor can it be assumed that they have had experiences similar to pre-service teachers. Therefore, the researcher of this study used the entire 24-item efficacy survey score to determine the aggregate efficacy level of Arizona teaching interns. However, as the appropriateness of using the subscales for the population of this study was not defined by the instrument's authors, the individual survey items, with their associated subscale, were

analyzed to determine if they do, in fact, have meaning for the teaching intern population. The findings and analysis of the aggregate efficacy level are described first, followed by the findings and analysis of the itemized and subscale efficacy scores.

Aggregate efficacy findings. The mean efficacy score of Arizona teacher interns was calculated at 7.02, equivalent to that of other studies (Heneman et al., 2006; Tschannen-Moran & Woolfolk Hoy, 2001; Tsigilis, Koustelios & Grammatikopoulos, 2010). The authors of the efficacy survey instrument, Tschannen-Moran and Woolfolk Hoy (2001), established a mean efficacy score of 7.1 when conducting reliability testing. Similarly, researchers Heneman et al. (2006), described in Chapter Three for their examination of the construct validity of the Teachers' Sense of Efficacy Scale, found "very small percentages of responses below the midpoints of the scales, and with one exception, 70% or more of the responses were an average of 6.5 or higher" (p.13). Additionally, results of a study by Tsigilis et al. (2010) yielded a comparative high mean score.

The standard deviation in this study was observed to be 1.00, which corresponds to what Heneman et al. (2006) and Tschannen-Moran and Woolfolk Hoy (2001) noted in their studies, finding standard deviations of approximately 1.0. Several efficacy studies using the Teachers' Sense of Efficacy Scale noted having a narrow range in respondents' scores, which was also found in this study. The degree of range restrictions is troublesome as it creates challenges in calculating statistically significant differences (Heneman et al., 2006).

Aggregate efficacy analysis. The tendency of respondents in this study to have a strong upward bias in their mean efficacy score may be attributed to their voluntary

decision to enter into the profession and intensified by their opportunity to enter as a teaching intern. Feistritzer (2005a) found that more than one half of all teachers entering through an alternative path stated their probable inability to become certified without the alternative pathway. Teaching interns may feel gratitude for their opportunity to pursue teaching through an alternative path. Feelings associated with workplace gratitude and appreciation, such as loyalty, citizenship, and job satisfaction, can positively impact efficacy levels, which may result in increased employee retention and productivity (Kerns, 2006). According to Woolfolk Hoy and Burke-Spero (2005), teachers with higher efficacy levels appear to be more content with the profession, and as a result, are more likely to stay.

The results of this study were compared to the results of studies on traditionally-certified teachers. This study confirms negligible differences found in the efficacy levels of alternatively and traditionally-certified teachers, as investigated by Suell and Piotrowski (2006), Stone (2000), Wayman, Foster, and Mantale-Bromley (2003), Cochran-Smith et al., (2005) and the Institute of Education Sciences (2009). One possible explanation for those negligible differences could rest with the teachers' experiences, both mastery and vicarious, and their perceived operative capabilities (Bandura, 1994; 2007). In particular, traditionally-prepared teachers experience a student teaching practicum during which they are assigned a cooperating teacher, generally a master teacher, whose role is to support, coach, model, and mentor. During the practicum experience, the cooperating teacher models instructional practices and classroom management strategies for the student teacher. The student teacher, who is in the beginning formations of her own efficacy beliefs, witnesses an expert "in action"

(Bandura, 1997). Subsequently, when the traditionally- prepared teachers are certified and take on the responsibilities of their own classrooms, they compare the realities of their own performance to their established expectations of quality teaching (Bandura, 1977; Tschannen-Moran & Hoy, 2007; Tschannen-Moran et al., 1998; Weinstein, 1988). The failure to perform to those expectations may reduce their initial efficacy levels, causing lasting damage. Plourde (2002), as cited in Haverback and Parault (2008), found that “the realities of the classroom... may take away some of the idealism with which pre-service teachers enter the classroom” (p. 244). In contrast, alternatively-certified teachers do not have the established expectations by which to measure their performance. Any lowered efficacy beliefs attributed to their lack of preparation is likely compensated by the absence of internal expectation comparisons.

Itemized and subscale efficacy findings. The 24 survey items were individually analyzed, and the respondents’ mean efficacy scores per item were found. Of the four items with the highest mean, two represent the classroom management subscale, and two represent the instructional strategies subscale. In contrast, of the four items with the lowest mean, all four represent the student engagement subscale. Furthermore, seven of the eight items in the student engagement subscale had mean scores below the total mean score of seven.

Next, the means of each subscale were calculated at 6.6 for student engagement, 7.1 for instructional strategies, and 7.3 for classroom management. The subscale with the highest mean value in this study, classroom management, was found to be the subscale with the lowest mean value for the survey’s authors. Tschannen-Moran and Woolfolk Hoy (2001) found a mean of 7.3 for the student engagement and instructional strategies

subscales and a mean of 6.7 for the classroom management subscale. It can be assumed that the population sample used by Tschannen-Moran and Woolfolk Hoy (2001), as described in Chapter Three, were not largely comprised of those with alternative certifications; but rather more than 80% were traditionally-certified teachers. The disparity between the subscale scores, based on the differences in the populations, suggests that the use of the three subscales does provide useful and meaningful findings for the teaching intern population.

Finally, with evidence that the three-factor score does have meaning for the teaching intern population, the relationship between the means of the efficacy subscale scores and the aggregate efficacy scores were examined for predictive relationships. The results of the analyses indicated that the student engagement subscale had the highest predictive relationship; specifically finding that every point of increase in the student engagement efficacy subscale score, a statistical prediction can be made that the aggregate efficacy score will increase by .78 percent of one point.

Itemized and subscale efficacy analysis. An interesting difference was found between in the 2001 Tschannen-Moran and Woolfolk Hoy study and this study in the classroom management subscale. Classroom management was found to have the highest subscale mean score among Arizona teaching interns and the lowest among the population in the survey authors' study. Possible reasons for the disparity include the additional life experiences of alternative certified teachers, the conflict resolution skills developed in prior careers, and the higher average age of teachers entering through alternative pathways (Abell et al., 2006; Feistritzer, 2005a). The backgrounds and experiences commonly found in alternatively-certified teachers can aid in effective

classroom management strategies, as was found in a 2007 study. The study of alternatively certified teachers in New Jersey found teaching interns were confident in their classroom management skills (Barclay et al., 2007). Additional support for the disparity can be seen in a 2005 study, which found that to establish a learnable, teachable, positive classroom climate, teachers must have more than just thorough preparation in pedagogical knowledge and professional training; they must possess likeable personal characteristics (Açıkgöz, 2005). The personal factors that are indicative of effective classroom managers cannot be taught in teacher preparation programs or through professional development, according to Açıkgöz (2005).

The variations in the mean subscale scores support the results of a study by Houston, Marshall, and McDavid (1993), who found that alternatively-certified teachers had challenges in six areas, none of which was classroom management or instructional strategies, and all of which involve tasks related to either the job responsibilities of a teacher or student motivation and engagement. Concentrating on student engagement strategies, rather than instructional strategies or classroom management, as a primary focus of support offers greater returns on professional development investments. Because professional development contributes to efficacy, finding opportunities for professional development that most impact teacher intern efficacy levels will result in greater job satisfaction and higher retention. After all, schools lose their investment in professional development when a teacher leaves (National Commission on Teaching and America's Future, 2009).

Research Question Two Findings and Analyses

Research question two investigated to what extent, if at all, the self-efficacy of Arizona teaching interns differed based on their professional development experiences of attendance in an intensive preparation program prior to teaching, participation in a district-sponsored induction program, and assignment of a mentor. Professional development opportunities for teaching interns range in topics and are often selected by the district or school of the interns (Danielson & McGreal, 2000). However, ensuring opportunity, consistency, and accountability of support is important if all students are to receive the same quality of teacher. All teaching interns being certified through a state's departments of education allows for states to mandate certain professional development experiences, including the three selected independent variables.

Studying the efficacy levels of teachers' could, according to Tschannen-Moran and Hoy (2001), "provoke significant changes in the way teachers were prepared and supported in their early years in the profession" (p. 802). Professional development experiences of novice teachers have been found to have a positive relationship with teacher quality and retention (American Institute for Research, 2004-2005; Flanagan & Fowler, 2009; National Academy of Education, 2009; Strong, 2006; and Wong, 2005).

Efficacy and professional development findings. To compare the teaching interns' efficacy levels and the three professional development experiences, an analysis of variance calculation was conducted for each variable. The professional development experiences did not show statistically significant differences, however, the mean scores were higher in each category when the teaching intern participated in the professional development. The range restrictions in the data are one probable cause for the lack of

statistically-significance findings. Small effects in two of the three categories were found, including attendance in an intensive preparation program prior to teaching and assignment of a mentor, and a moderate effect was found for participation in a district-sponsored induction program. In sum, the scores from the respondents who participated in any of the three professional development experiences, when compared to those who did not participate, were not statistically significant, but were in a positive directional movement, each showing at least a small effect.

Efficacy and professional development analysis. Studies that have investigated the efficacy levels of novice teachers have found that novice teachers' beliefs are related to their perceptions of support and preparation (Henson, 2002; Pajares, 1992; Poulou, 2007; Tschannen-Moran et al., 1998). To illustrate, Henson found that "teacher efficacy is indeed malleable, but that change will likely occur only via engaging and meaningful professional development opportunities" (p. 144). Further confirmation of the relationship between efficacy and professional development can be found in a 2007 study. The purpose of the study was to investigate the "perceptions of the sources of personal teaching efficacy, the efficacy beliefs for instructional strategies, classroom management, and student engagement, and the relationship between the sources of personal teaching efficacy and efficacy beliefs" (Poulou, 2007, p. 195). Among the findings of the perceived sources of teaching efficacy, three of the top five were related to professional skills and knowledge development (Poulou, 2007). The other two sources were personality and practice (Poulou, 2007).

Self-efficacy beliefs are powerful indicators of future teaching behaviors with data indicating the strongest predictor for novice teachers are their beliefs in amount of

support and attentiveness they receive (Darling-Hammond et al., 2002; Pajares, 1992). According to Levine (2006a), the educational community “has an opportunity not only to improve new teacher efficacy but to enhance the effectiveness of current teachers through their professional development programs...[which] promises to have a significant impact on student achievement” (p. 41).

Supplemental Data Investigation Findings and Analyses

To provide a comprehensive investigation of the data collected from Arizona teaching interns, additional statistical analyses were conducted on the general information categories, the professional development experiences, and the efficacy subscales. The supplemental data analyses that follow were not specifically declared in this study’s research questions; nevertheless the findings may provide additional contributions the research questions and to the field of educational research.

General information category findings and analyses. General information was requested regarding the respondents’ category of certification program, the county of their school’s location, and their intern certificate status in Part Two of the Arizona Teaching Intern Survey. The general information categories, as reported by the respondents, were analyzed independently and collectively to determine if any relationships of statistical significance were found.

First, no statistically significant difference was found between the mean efficacy score per respondent and their category of certification program. The lack of association is consistent with a 2009 study that found that the effectiveness level of the teacher is not correlated with the amount or substance of the teacher preparation coursework (Institute

of Education Sciences). Additionally, Tschannen-Moran et al. (1998) found efficacy levels to be only marginally influenced by academic learning in pre-service coursework.

Next, no statistically significant difference was found between the mean efficacy score per respondent and the county location of respondents' school. The results of a study by Feistritzer (2005b) found that alternatively-certified teachers in larger urban areas were less satisfied than those in other categories of communities. Although accurate for this study as well, with the mean efficacy score of Maricopa County teaching interns approximately three percent lower than the mean efficacy score of other counties in Arizona, no significant relationships were found.

Finally, a statistically significant difference was discovered between the mean efficacy score per respondent and their teacher intern certificate status, with year-one teaching interns displaying a lower mean than year-two teaching interns. First-year teachers' efficacy beliefs were found to be associated with professional commitment and stress; noting ineffectual teachers as having low professional commitment and high stress (Tschannen-Moran et al., 1998). A longitudinal study of alternatively certified teachers discovered that growth and improvements were seen over the course of the first 15 months of their career, specifically in the areas of "desired teaching skills, academic attainment of students, and the ability to reflect on their personal roles" (Denton & Peters, 1988, p. 68). Similarly, Heneman et al. (2006) found that time accounts for twenty percent of a novice teachers' efficacy and subsequent performance. With that in mind, the increase in the mean efficacy scores of teaching interns' from year-one to year-two can be moderately accounted for by the additional time spent in the classroom suggesting that other factors also contribute to the increase.

Professional development experience findings and analyses. Support through development was thematically found in numerous research studies as integral to the retention and effectiveness of novice teachers (Fideler & Haselkorn, 1999; Goa, 2007; Smith & Ingersoll, 2004; Strong, 2006; Wong, 2005). The findings of those studies, as well as the curious findings of the second research question, prompted further investigation into the relationship between teaching interns' efficacy levels and their professional development experiences. To that end, the teaching interns' efficacy levels were compared not only to the reported professional development experiences, but also the reported general information categories, to determine if any statistical relationships were found. Two notable findings were discovered.

The first statistically significant difference was found between teacher interns' efficacy levels, certificate status, and assignment of a mentor. The finding contrasts with what Tschannen-Moran and Woolfolk Hoy (2001) found, namely that the efficacy levels of the population of teachers they surveyed were not correlated with support from colleagues. However, the finding is supported by a 2004-2005 study which had a more comparable population. The study concluded that the support received through mentoring or induction programs were reported by 72 percent of alternative pathway transition to teaching grantees as primary reasons for their likely retention in the field of education (American Institute for Research, 2004-2005). The support received from a mentor teacher is crucial, according to a 2001 study by Renwick. Renwick (2001) found that a majority of novice teachers had positive feeling associated with the support their mentor teacher provided. An explanation for the relationship between efficacy levels and mentoring can be found in Bandura's 1997 work. Bandura (1997) discovered that

efficacy beliefs are promoted by the successful modeling of a task, finding that “the greater the assumed similarity, the more persuasive are the model’s successes and failures” (p.87). Successful mentoring programs match their most effective and experienced teachers with new teachers so that their vast knowledge can be passed along with the most influence possible (Rice, 2004).

Interestingly, the effect sizes of the relationship found between teacher interns’ efficacy levels, certificate status, and assignment of a mentor revealed a large effect on year-one teaching interns’ efficacy levels but only a very small effect on year-two teaching interns’ efficacy levels. The large effect on the efficacy level of year-one teaching interns can be accounted for by their need for individual support and attention, which can be provided by a mentor. To increase the possibility of success for first-year teachers, personal support and contact are needed (Rice, 2004). Johnson and Kardos (2002) encouraged first-year teachers to be provided with mentors who they can access on short notice, mentors who make time to conduct observations, and mentors who offer helpful, supportive, and individualized advice. Mentors can help to alleviate the stress of year-one teaching interns by guiding them through the school culture, introducing them to the teaching staff, providing them with clear expectations, and allowing them access to an immediate support system (Brannan & Reichardt, 2002). In contrast, the very small effect on the efficacy level of year-two teaching interns can be accounted for by their diminished need for individualized support and their increase need to feel connected to a community of their peers (Flynt & Morton, 2009).

The second statistically significant difference was found between teaching interns’ efficacy levels, certificate status, and participation in an induction program.

Mondie (2009) concluded that if teachers are to have a higher level of self-efficacy, they need to be prepared with a variety of professional skills. The skills that are not acquired through their certification preparation programs will need to be cultivated through professional development. As teaching interns complete their certification preparation programs concurrent, not prior, to being the teacher of record, participation in professional development induction programs becomes more essential. Induction programs can offer immediate transfer of knowledge and skills. The questions and doubts that novice teachers bring to their schools require more than is traditionally provided through basic orientation meetings, school tours, and general policy reviews. Induction programs were found to be optimal when supported by the school, focused on the needs of novice teachers, and well-organized (Brill & McCartney, 2008). Novice teachers need induction programs that provide them access to experienced colleagues “who will take their daily dilemmas seriously...and provide feedback, help them develop instructional strategies...and share insights about students' work and lives” (Johnson & Kardos, 2002, p. 13). Studies investigating the impact of new teachers’ participation in induction programs found significant relationships to their sense of preparedness, retention, and quality teaching (Flanagan & Fowler, 2009; Johnson & Birkeland, 2003).

Interestingly, the effect sizes of the relationship found in this study between teacher interns’ efficacy levels, certificate status, and participation in an induction program revealed only a very small effect on year-one teaching interns’ efficacy levels but a moderate effect on year-two teaching interns’ efficacy levels. Similar findings were discovered in a 2008 study commissioned by The National Center for Education Evaluation and Regional Assistance within the U.S. Department of Education's Institute of Education

Sciences. The study found that induction programs had no impact of statistical significance on first-year teachers' practices, student academic achievement, or retention (Glazerman et al., 2008). Equally important, the study found no impact on first-year teachers' sense of preparedness or satisfaction (Glazerman et al., 2008). Although the study was expanded in 2009, the research questions and purpose did not measure the impact of induction programs on year-two teachers (Isenberg et al., 2009). However, comparable results were found in a 2004 study of first and second-year teachers.

Slaybaugh and Evans (2004) found that year-two teachers' perceptions of the value of their induction programs and their perception of their performance were significantly greater than the perceptions offered by year-one teachers. Induction programs intend to create a sense of community among novice educators. The increased effects of induction programs on year-two teachers' efficacy levels can be attributed to feelings associated with being part of a connected, supportive community of peers (Flynt & Morton, 2009). In contrast, the individual support and attention needed by year- one teachers cannot be provided through participation in an induction program.

Efficacy survey subscale findings and analyses. Upon finding the statistical relationships between teacher interns' efficacy levels, certificate status, and professional development experiences, further investigation was necessary into the survey subscales as they will inform of the topics which will provide the most impact for year-one and year-two teaching interns. The respondents' efficacy scores per item were separated into the three subscales, and using the new subscale mean scores, analyses were conducted.

First, a statistically significant difference with a large effect was found between year-one teaching interns' instructional strategies efficacy subscale score and their

assignment of a mentor. Mentoring programs for year-one teaching interns should model, describe, and offer advice on various instructional strategies, with particular concentration the efficacy survey subscale items found to have the lowest mean scores; specifically how to develop and implement instructional strategies appropriate for all learners (Tschannen-Moran & Hoy, 2001). Effective mentoring programs should include the following: full participation from new teachers, carefully selected mentors, initial and on-going mentor training, a focus on instructional strategies, and advocacy for new teachers (Garcia, 2010). Stein and Wang (1988) found that teachers who had a strong sense of self-efficacy are more willing to modify their instructional strategies than are teachers who have a low sense of self-efficacy.

Next, a statistically significant difference with a large effect was found between year- two teaching interns' student engagement efficacy subscale score and their participation in an induction program. In addition, analysis for year-two teaching interns found that for every point of increase in the student engagement efficacy subscale score, a statistical prediction can be made that the aggregate efficacy score will increase by .79 percentage of one point. Induction programs for year-two teaching interns should focus on student engagement strategies with particular concentration the efficacy survey subscale items found to have the lowest mean scores; specifically how to provide assistance to families when helping their children, how to motivate low-interest students, how to encourage students to be creative, how to help failing students' understanding, and how to reach the most challenging students (Tschannen-Moran & Hoy, 2001). Renwick (2001) found that induction programs provide new teachers with an increased level of cooperative interaction among colleagues. In 2009, The New Teacher Center

published lessons learned from the past 20 years of new teacher induction programs (Moir). Among the lessons, Moir (2009) found that induction programs accelerate the effectiveness of new teachers, they require system-wide dedication, and are most effective when they are accountable, not just amenable, to policies which compliment best-practices. Fulton, Yoon, and Lee (2005) found the benefits of induction programs include enhanced relationships, establishment of learning communities for new teachers, and fostering of professional development of novice teachers.

Conclusions and Discussions

Self-efficacy is the belief of individuals in their effectiveness and competency in a specific task without regard to how others would accomplish the same task (Woolfolk Hoy & Hoy, 2009). This study was conducted in the spring semester of the teaching interns' first or second year, during which time it is likely that the teaching interns' self-efficacy beliefs were in a conditional status. Bandura (1997) described individuals as likely to "hold their efficacy beliefs in a provisional status, testing their newly acquired knowledge and skills before raising their judgments of what they are able to do" (p. 83). According to Woolfolk Hoy and Hoy (2009), levels of efficacy are shaped during the early stages of a teacher's career and increasingly stabilize over time. Because student academic achievement, motivation and the students' own efficacy levels have shown to be related to the teachers' sense of their efficacy (Anderson et al., 1988; Ashton & Webb, 1986; Midgley et al., 1989; Moore & Esselman, 1992); improving the efficacy level of novice teachers is worth "what effort and care may be involved because, once established, efficacy beliefs of experienced teachers seem resistant to change" (Tschannen-Moran et al., 1998, p. 24).

This study, in addition to contributing to the field of educational research, addressed the multilayered problem that not all students receive the same quality of teacher, not all teachers are evaluated with appropriate and suitable methods, and not all teachers receive the early and targeted development that could raise their effectiveness. This study determined the effectiveness of teaching interns by employing the evaluation method of measuring efficacy levels, which was appropriate for this population. In addition to the efficacy levels of teaching interns being known, the efficacy levels were studied and compared to their professional development experiences and conclusions were found with respect to appropriate avenues of support, collaboration, and development. Four conclusions were derived from the study's findings and analyses, and are offered without consideration to order of importance.

The First Conclusion

New teacher efficacy is not necessarily tied to a specific certification pathway (Heneman et al., 2006; Tschannen-Moran & Woolfolk Hoy, 2001; Tsigilis et al., 2010). In fact, teachers entering through alternative routes to certification pathways may be more efficacious than their traditionally prepared peers (Cochran-Smith et al., 2005; Institute of Education Sciences, 2009; Stone, 2000; Suell & Piotrowski, 2006; Wayman et al., 2003; Woolfolk Hoy & Burke-Spero, 2005). Alternatively-certified teachers may be aided by the fact that they do not have the internal expectation comparisons embedded during the student teaching practicum of traditionally certified teachers (Bandura, 1977; Tschannen-Moran et al., 1998; Tschannen-Moran & Woolfolk Hoy, 2007; Weinstein, 1988). Furthermore, teaching interns' high self-efficacy levels may be attributed to their

voluntary decision to enter into the profession and intensified by their opportunity to enter as a teaching intern (Feistritzer, 2005a).

The Second Conclusion

Teachers' maturity and life experiences are more influential on their classroom management skills than are the certification pathways. The backgrounds, experiences, and higher average ages common to alternatively-certified teachers, as well as the conflict resolution skills likely developed in prior careers, provide them an advantage in classroom management (Abell et al., 2006; Barclay et al., 2007; Feistritzer, 2005a). The personal factors that are indicative of effective classroom managers cannot be taught in teacher preparation programs or through professional development (Açıkgöz , 2005).

The Third Conclusion

Professional development is important for all new teachers, but was determined to be of particular importance for teaching interns in an alternative certification program as they tend not to have the pedagogical preparation of their traditionally prepared peers. As teaching interns complete their certification preparation programs concurrent with, not prior to, being the teacher of record, having immediate transfer of knowledge and skills, learned through professional development, is essential (Brill & McCartney, 2008; Mondie, 2009). Retention and effectiveness of new teachers are associated with the support they receive through their professional development experiences (Fideler & Haselkorn, 1999; Goa, 2007; Smith & Ingersoll, 2004; Strong, 2006; Wong, 2005). Henson (2002) concluded that "teacher efficacy is indeed malleable, but that change will likely occur only via engaging and meaningful professional development opportunities" (p. 144).

The Fourth Conclusion

The unique concerns and needs of year-one teaching interns and year-two teaching interns require differentiated and targeted support. Year-one teaching interns need individual support and attention that can be provided by a mentor (Johnson & Kardos, 2002). Mentors provide immediate support systems to beginning teachers and assist them in navigating through the stresses and challenges of their first year (Brannan & Reichardt, 2002). Year-one teaching interns also require targeted assistance with planning and teaching using a variety of instructional strategies. Year-two teaching interns have progressed past their need for one-on-one support and now seek to be part of a connected, supportive community of peers, which induction programs can provide (Flanagan & Fowler, 2009; Flynt & Morton, 2009;; Johnson & Birkeland, 2003). After the first year, teaching interns' lesson planning and delivery skills will increase; then, as year-two teaching interns, they will need targeted assistance with strategies for student engagement.

Recommendations for Policy and Practice

Ensuring opportunity, consistency, and accountability of support is important if all students are to receive the same quality of teacher. Because there is limited time with which to influence teachers' efficacy levels, and in turn their effectiveness and performance, mandatory and targeted professional development should be implemented. Currently, Arizona has recommendations for professional development, but without mandates, no district or school has the obligation to follow them. However, as all teaching interns are certified through the Arizona Department of Education, the state would be within its purview to hold local education agencies accountable for providing

certain professional development experiences. As such, a targeted two-phase professional development plan entitled the Teaching Intern Professional Plan, or TIPP, should be implemented for all Arizona teaching interns. Because the most effective professional development experiences are supported by the school and focused on the needs of novice teachers; beyond requiring a TIPP, only general guidelines for each phase will be outlined.

TIPP- Phase One

The first phase targets year-one teaching interns and their need for individual support and attention. Mentors, within a formal mentoring program, should be required for all year-one teaching interns. Mentors should be carefully selected among the most effective and experienced teachers and matched to teaching interns. Mentors should be selected because of their accessibility, availability, and supportive disposition. Mentors should be required to attend initial and on-going mentor training, and to take on the primary role of assisting the teaching intern in their assimilation into the culture of the school. Mentoring programs for year-one teaching interns should focus on modeling, describing, and offering advice on various instructional strategies with specific guidance on how to develop and implement instructional strategies appropriate for all learners.

TIPP- Phase Two

The second phase targets year-two teaching interns and their need to feel part of a connected, supportive community of peers. Participation in a district-sponsored induction program should be required for all year-two teaching interns. Induction programs should have encouraging and continuous communication from a supervisor. Participants in induction programs should be provided shared planning times among grade levels or

content areas during their contract hours, and should be provided on-going, meaningful training seminars directed at the needs of the teaching interns. Induction programs for year-two teaching interns should focus on student engagement strategies with specific guidance on how to provide assistance to families when helping their children, how to motivate low-interest students, how to encourage students to be creative, how to help failing students' understanding, and how to reach the most challenging students.

By providing all teaching interns with the differentiated support they need and requiring each teaching intern to have a TIPP, Arizona could “provoke significant changes in the way teachers are prepared and supported in their early years in the profession” (Tschannen-Moran & Woolfolk Hoy, 2001, p. 802).

Recommendations for Further Study

Recommendations for further study were derived from the study's findings and interpretations of the findings. The recommendations are offered in three categories and without consideration to the order of importance as all have the potential to be meaningful studies.

Studies of Professional Development

- A study of the common characteristics of high-ranking induction and mentoring programs based on the efficacy scores of the participants. The professional development experiences of induction programs and mentoring were found to have a relationship to the efficacy levels of alternatively-certified teachers and ought to be studied in further depth in order to offer specific expectations and standards for policy and practice.

- A study comparing traditionally-certified and alternatively-certified first year teachers' efficacy levels to determine if one targeted professional development plan is appropriate for all beginning teachers. This study recommended a differentiated professional development plan for alternatively-certified beginning teachers and investigating if that plan is equally suitable for traditionally-certified beginning teachers would be of benefit to districts, schools, and teachers.
- A study investigating the components of the professional development experiences that teaching interns identify as most applicable. This study limited the professional development experiences of alternatively-certified teachers to intensive preparation programs, induction programs, and assignment of a mentor. However, other professional development experiences are likely to be identified by beginning teachers as applicable and relevant to their teaching assignment and therefore should be studied.

Studies of the Efficacy Survey Instrument

- A study investigating the 24 survey items to determine gaps that could be filled through professional development or certification coursework. The substance of the Teachers' Sense of Efficacy Scale survey items ought to be investigated in order to provide information about how to best service the professional development, training, or coursework needs of the survey respondents.
- A study investigating the external attributable causes of the mean efficacy score of "quite a bit" of influence on student learning. The Likert scale format of the Teachers' Sense of Efficacy Scale survey is anchored with descriptors, such as "quite a bit" of influence. The anchors are subjective and open to the

interpretation of the survey respondents. Therefore, investigating the external attributable causes of the anchors would provide tangible, objective measurements and would potentially identify areas in need of support.

Additional Studies of Interest

- A longitudinal study of teaching interns from year-one to year-two investigating the impact of time on efficacy levels. Time was shown to be of importance in this study and investigating the relationship between time and efficacy would provide further targeted intervention plans.
- A study of alternatively-certified teachers' efficacy levels in locations other than Arizona. The study's population was limited to teacher interns in Arizona; therefore, investigating the efficacy levels of alternative-certified teachers in locations with comparable and non-comparable demographics would provide a larger context for this and other studies' findings.

Final Thoughts

To ensure everyone is given an equal opportunity to succeed in life, every student deserves to have teachers who are competent. However, not all schools are able to provide that equal opportunity for their students, as many schools find it difficult to staff all of their classrooms--not to mention staffing with quality educators. Through an alternative route to certification, teaching interns in Arizona were able to assist in filling the teacher shortage gap by supplying classroom teachers to approximately 21,000 students.

With so many of Arizona's students impacted by the alternative route to teacher certification program, this study sought to determine the effectiveness of the teaching

interns by evaluating their self-perceived efficacy levels. Self-efficacy informs teacher effectiveness because “teachers’ judgment of their capability to impact student outcomes has been consistently related to teacher behavior, student attitudes, and student achievement” (Tschannen-Moran & Woolfolk Hoy, 2007, p. 954). In addition to the efficacy levels of teaching interns being known, the efficacy levels were studied and compared to their professional development experiences and conclusions were found with respect to appropriate avenues of support, collaboration, and development.

The findings of this study led to the conclusion that new teacher efficacy is not necessarily tied to a specific certification pathway; in fact, the life experiences of new teachers’ are more influential on their classroom management than their route to certification. Furthermore, it was determined that professional development is of particular importance for teaching interns in an alternative certification program as they do not have the pedagogical preparation of their traditionally prepared peers. Lastly, it was concluded that year-one teaching interns and year-two teaching interns have distinct needs and concerns; each year requiring specific avenues of support, collaboration, and development.

This study provided specific and targeted recommendations for Arizona’s alternative route to teacher certification program that support teaching interns, and accordingly, raise their self-efficacy levels and the quality of their teaching. Because there is limited time with which to influence teachers’ efficacy levels, and in turn their effectiveness and performance, mandatory and targeted professional development was recommended. As such, a targeted two-phase professional development plan would require mentors for all year-one teaching interns, which would address their need for

individual support and attention, and participation in a district- sponsored induction program for all year-two teaching interns, which would address their need to feel part of a connected, supportive community of peers.

Ensuring opportunity, consistency, and accountability of support is important if all students are to receive the same quality of teacher. It behooves all students if novice teachers, such as teaching interns, were provided “the kinds of supports that would lead to the development of strong, resilient self-efficacy beliefs” (Tschannen-Moran & Woolfolk Hoy, 2007, p. 955).

REFERENCES

- Açıkgöz, F. (2005). A study on teacher characteristics and their effects on student attitudes. *The Reading Matrix*, 5(2), 103-155. Retrieved from <http://www.readingmatrix.com/articles/acikgoz/article.pdf>
- Adcock, P. K., & Mahlios, M. (2005). *Nontraditional alternative teacher certification programs: Their purpose, design and participants*. Retrieved from http://www.acteonline.org/uploadedFiles/About_CTE/files/AlternativeTeacherCert-3.pdf
- Adelman, N., Policy Studies Associates, I., & And, O. (1986). *An exploratory study of teacher alternative certification and retraining programs*. (ERIC Document Reproduction Service No. ED277692)
- Advameg, Inc. (2009). *Arizona*. Retrieved from <http://www.city-data.com/states/Arizona.html>
- American Association of State Colleges and Universities (2006, October). Teacher induction programs: Trends and opportunities. *Policy Matters*, 3(10), 1-4. Retrieved from <http://www.aascu.org/media/pm/pdf/v3n10.pdf>
- American Institute for Research (2004-2005). *Transition to teaching annual performance report*. Retrieved from www.ed.gov/rschstat/eval/teaching/ttt-interim/ch5.doc
- Anderson, R., Greene, M., & Loewen, P. (1988). Relationships among teachers' and students' thinking skills, sense of efficacy, and student achievement. *Alberta Journal of Educational Research*, 34(2), 148-165.
- Abell, S., Arbaugh, F., Chval, K., Friedricshen, P., Lannin, J., & Volkmann, M. (2006). *Research on alternative certification: Where do we go from here?* Retrieved from www.stemtec.org/act/PAPERS/Sandra%20Abell.doc
- Arizona Department of Education (2005, May 3). *Draft: Arizona program standards for beginning-teacher induction*. Retrieved from <http://www.ade.state.az.us/asd/hqp/InductionStandards.pdf>
- Arizona Department of Education (2006, November 7). *Academic achievement: Alternative secondary path to certification*. Retrieved from www.ade.state.az.us/asd/altpath/
- Arizona Department of Education (2009, November 10). *Alternative path to certification*. Retrieved from <https://www.ade.state.az.us/asd/altpath/>
- Arizona Department of Education (n.d.). *Arizona Department of Education: teacher certification*. Retrieved from <https://www.ade.state.az.us/certification/>
- Arizona Education Association (2009). *Teacher turnover*. Retrieved from

<http://www.arizonaaea.org/profiles.php?page=130>

Arizona Math and Science Teacher Workforce Initiative (2008, May 28). *Increasing the pipeline of highly proficient mathematics and science teachers in Arizona*. Retrieved from ime.math.arizona.edu/fff/docs/White_Paper.doc

Arizona State Board of Education (2006, September 25). *Notice of exempt rulemaking: Title 7*. Retrieved from <http://www.ade.state.az.us/stateboard/Rules/approved/EmergencyTeachingIntern.pdf>

Armor, D., Conroy-Oseguera, P., Cox, M., King, N., McDonnell, L., Pascal, A., Pauly, E., & Zellman, G. (1976). *Analysis of the school preferred reading programs in selected Los Angeles minority schools* (Report No. R-2007- LAUSD). Santa Monica, CA: Rand Corporation (ERIC Document Reproduction Service No. ED130243).

Armstrong, D. G., Henson, K. T., & Savage, T. V. (2009). *Teaching today: An introduction to education* (8th ed.). Upper Saddle River, NJ: Pearson.

Ashton, P. T., & Webb, R. B. (1986). *Making a difference: Teachers' sense of efficacy and student achievement*. New York: Longman

Ashton, P. T., Olejnik, S., Crocker, L., & McAuliffe, M. (1982). *Measurement problems in the study of teachers' sense of efficacy*. Paper presented at the annual meeting of the American Educational Research Association, New York: New York.

Auwarter, A., & Aruguete, M. (2008). Effects of student gender and socioeconomic status on teacher perceptions. *Journal of Educational Research, 101*(4), 242-246.

Baltimore City Public Schools (n.d.). *New teacher summer institute and new teacher orientation/support*. Retrieved from http://www.bcps.k12.md.us/Careers/New_Teacher_Summer_Inst.asp

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice- Hall.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117-148.

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior, 4*, 71-81. New York: Academic.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman and Company.

- Bandura, A. (2007). Much ado over a faulty conception of perceived self-efficacy grounded in faulty experimentation. *Journal of Social and Clinical Psychology*, 26(6), 641–658. DOI:10.1521/jscp.2007.26.6.641.
- Barclay, R., Feistritzer, E., Grip, R., Haar, C., Seaton, G., Sherman, G., et al. (2007). *An analysis of the perspectives from alternative route teachers, alternative route instructors, and alternative route mentors*. Retrieved from <http://www.state.nj.us/education/educators/license/research/alternate.pdf>
- Baruch, Y., & Holtom, B.C. (2008, August). Survey response rate levels and trends in organizational research. *Human Relations*, 61, 1139 - 1160.
- Bassett, M., Campbell, G., Hirsh, E., Hupfeld, K., & Reichardt, R. (2004, February). *Alternative teacher preparation in Colorado: Moving from experimental to establish*. Retrieved from <http://aqt.civicore.com/Modules/Resources/Resources/11.pdf>
- Birkeland, S. E., & Peske, H. G. (2004, October 15). *Literature review of research on alternative certification*. Retrieved from <http://www.teach-now.org/NEAFullText.pdf>
- Bliss, T. (1990, Spring). Alternative certification in Connecticut: Reshaping the profession. *Peabody Journal of Education*, 67, 35-54. Retrieved from <http://www.jstor.org/pss/1492800>
- Boyd, D., Grossman, P., Lankford, H., Loeb, S., Wyckoff, J., & National Bureau of Economic, R. (2005). *How changes in entry requirements alter the teacher workforce and affect student achievement*. Retrieved from http://www.teacherpolicyresearch.org/portals/1/pdfs/how_changes_in_entry_requirements_alter_the_teacher_workforce.pdf
- Brady, K., & Woolfson, L. (2008). What teacher factors influence their attributions for children's difficulties in learning?. *British Journal of Educational Psychology*, 78(4), 527-544. Retrieved from <http://www.biomedsearch.com/nih/What-teacher-factors-influence-their/18166141.html>
- Brannan, L., & Reichardt, R. (2002). *Alternative teacher education: A review of selected literature*. Aurora, CO: Mid-continent Research for Education and Learning. Retrieved from http://www.mcrel.org/PDF/TeacherPrepRetention/5021RR_4007_AltLitReview.pdf
- Brill, S. & McCartney, A. (2008). Stopping the revolving door: Increasing teacher retention. *Politics and Policy*, 36(5) 750-774. DOI: 10.1111/j.1747-1346.2008.00133.x
- Brown, S. D. (2006, May). History teacher certification standards in the states. *The History Teacher*, 39, 367-380. Retrieved from <http://www.historycooperative.org/>

view.php

- Budig, G. A. (2006, October). A perfect storm. *Phi Delta Kappan*, 88(2), 114-116.
- Burke, M. A. (2003). School-business partnerships. In D. B. Hiatt-Michael (Ed.), *Promising practices to connect schools with the community* (94-104). Greenwich, CT: Information Age.
- Children's Action Alliance (2005, June 10). *A snapshot of the children on the Arizona border*. Retrieved from www.aecf.org/upload/publicationfiles/sw3622h38.pdf
- Chin, E., Young, J., & Floyd, B. (2004, February 9). *Placing beginning teachers in hard-to-staff schools: Dilemmas posed by alternative certification programs*. Retrieved from http://www.teach-now.org/frmRsr_ChinAACTE2004forweb.pdf
- Cochran-Smith, M., Zeichner, K., & American Educational Research Association (2005). *Studying teacher education: The report of the AERA panel on research and teacher education*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Cogshall, J. (2006, October). *Prospects for the profession: Public opinion research on teachers*. Washington DD: National Comprehensive Center for Teacher Quality. Retrieved from <http://www.tqsource.org/publications/October2006Brief.pdf>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Conant, J. B. (1963). *The education of American teachers*. New York: McGraw-Hill.
- Cook, C., Heath, F. & Thompson, R.L. (2000, Dec.). A meta-analysis of response rates in web- or internet-based surveys. *Educational and Psychological Measurement*, 60, 821 - 836.
- Cornett, L.M. (Spring, 1990), Alternative certification: State policies in the SREB states. *Peabody Journal of Education*, 67(3), 55-83. Retrieved from <http://www.jstor.org/stable/1492801>
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Danielson, C. (2007). *Enhancing professional practice: A framework for teaching* (2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.
- Danielson, C., & McGreal, T.L. (2000). *Teacher evaluation to enhance professional practice*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Darling-Hammond, L. (1999). The case for university-based teacher education. In R. A. Roth (Ed.), *The role of the university in the preparation of teachers* (13-30).

Philadelphia, PA: Falmer Press.

- Darling-Hammond, L., & Bransford, J. (2005). *Preparing teachers for a changing world: What teachers should learn and be able to do*. San Francisco, CA: John Wiley and Sons, Inc.
- Darling-Hammond, L., Chung, R., Frelow, F., & Fisher, H. (2002, September/October). Variation in teacher preparation: How well do different pathways prepare teachers to teach? *Journal of Teacher Education*, 53(4), 1-28.
- Darling-Hammond, L., Holtzman, D. J., Gatlin, S. J., & Heilig, J. V. (2005, October 12). Does teacher preparation matter? Evidence about teacher certification, Teach for America, and teacher effectiveness. *Education Policy Analysis Archives*, 13 (42), 1-51. Retrieved from <http://epaa.asu.edu/epaa/v13n42/>
- Denton, J. J., & Peters, W. H. (1988, September 27). *Program assessment report curriculum evaluation of a nontraditional program for certifying teachers*. College Station, Texas: Texas A&M University. (ERIC Document Reproduction Service No. ED300361)
- Diaz, C. F., Pelletier, C. M., & Provenzo, E. F.Jr. (2006). *Touch the future: Teach*. Boston, MA: Pearson Education, Inc.
- Easton, V.J., & McColl, J.H. (1997). *Statistics glossary v1.1*. The Statistical Educations through Problem Solving Consortium. Retrieved from <http://www.stats.gla.ac.uk/steps/glossary/index.html>
- Economic Development Research Program (2000). *Arizona's Native American tribes*. Retrieved from <http://edrp.arid.arizona.edu/tribes.html>
- EducationBug (2009). *Arizona public school district directory*. Retrieved from <http://arizona.educationbug.org/school-districts/>
- Eliassen, R. H., & Anderson, E. W. (1947, March 17). Investigations in teacher supply and demand reported in 1947. *Educational Research Bulletin*, 27(3), 57-83.
- Eubanks, S. C., & Weaver, R. (1999). Excellence through diversity: Connecting the teacher quality and teacher diversity agendas. *Journal of Negro Education*, 68(3), 451-459.
- Eustat (2007). *Standardisation and systematisation of response rate calculation*. Vitoria-Gasteiz, Basque Country: Basque Statistics Office.
- Ewing, R. A., & Smith, D. L. (2003). Retaining quality beginning teachers in the profession. *English Teaching: Practice and Critique*, 2(1), 15-32.
- Farkus, S., Johnson, J., Foleno, T. (2000). *A sense of calling: Who teaches and why*.

- Retrieved from http://www.publicagenda.org/files/pdf/sense_of_calling.pdf
- Feiman-Nemser, S. (n.d.). *Teacher preparation: Structural and perceptual alternatives*. Retrieved from <http://ncrtl.msu.edu/http/ipapers/html/pdf/ip895.pdf>
- Feistritzer, C. E. (2005a). *Profile of alternate route teachers*. Retrieved <http://www.ncei.com/PART.pdf>
- Feistritzer, C. E. (2005b). State policy trends for alternative routes to teacher certification: A moving target. *Conference on Alternative Certification: A Forum for Highlighting Rigorous Research*, 1-24. Retrieved from <http://www.teach-now.org/CEFState%20Overview%20FINAL4.pdf>
- Feistritzer, C. E., & Haar, C. K. (2006, October). *Research on alternate routes: Education research*. Retrieved from <http://www.teach-now.org/RESEARCH%20ABOUT%20ALTERNATE%20ROUTES.pdf>
- Fideler, E.F., & Haselkorn, D. (1999). *Learning the ropes: Urban teacher induction programs and practices in the United States*. Belmont, MA: Recruiting New Teachers, Inc.
- Flanagan, J., & Fowler, W. J. (2009, December 23). *Induction programs effect on beginning teachers' feelings of preparedness and plans to remain in teaching*. Retrieved from <http://www.sree.org/conferences/2010/program/abstracts/172.doc>
- Flood, P., & Milton, S. (2005, December). *Alternative certification in Florida third annual progress report*. Retrieved from <http://www.altcertflorida.org/pdf/Alt%20Cert%203rd%20Progress%20Report%20Formatted%20for%20Website%2012.16.pdf>
- Flynt, S.W., & Morton, R.C. (2009). The teacher shortage in America: Pressing concerns. *National Forum of Teacher Education Journal*, 19 (3), 1-5. Retrieved from <http://www.nationalforum.com/Electronic%20Journal%20Volumes/Flynt,%20Samuel%20Teacher%20Shortage%20in%20America.pdf>
- Friedman, I. (2000). Burnout in teachers: Shattered dreams of impeccable professional performance. *Journal of Clinical Psychology*, 56(5), 595-606.
- Fulton, K., Yoon, I., & Lee, C. (2005). *Induction into learning communities*. Washington DC: National Commission on Teaching and America's Future. Retrieved from www.nctaf.org
- Garcia, S. (2010). Mentoring teachers: The NTC induction model. *Notes from SCPID Group Study Visit: Santa Cruz New Teacher Center*. Retrieved from <http://mentoringteachers.wordpress.com/the-ntc-induction-model/>
- Glazerman, S., Dolfin, S., Bleeker, M., Johnson, A., Isenberg, E., Lugo-Gil, J., et al. (2008). *Impacts of comprehensive teacher induction: Results from the first year of*

- a randomized controlled study* (NCEE 2009-4034). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from <http://ies.ed.gov/ncee/pdf/20094034.pdf>
- Goa, L., & Stickler, L.M. (2008, March). *Teacher quality and student achievement: Making the most of recent research*. Washington DC: National Comprehensive Center for Teacher Quality. Retrieved from <http://www.tqsource.org/publications/March2008Brief.pdf>
- Goa, L. (2007). *The link between teacher quality and student outcomes: A research synthesis*. Washington DC: National Comprehensive Center for Teacher Quality. Retrieved from <http://www.tqsource.org/publications/LinkBetweenTQandStudentOutcomes.pdf>
- Guskey, T. R. (1981). Measurement of responsibility teachers assume for academic successes and failures in the classroom. *Journal of Teacher Education*, 32, 44–51.
- Guskey, T. R. (1982). Differences in teachers' perceptions of personal control of positive versus negative student learning outcomes. *Contemporary Educational Psychology*, 7, 70–80.
- Guskey, T. R. (1988). Teacher efficacy, self-concept, and attitudes toward the implementation of instructional innovation. *Teaching and Teacher Education*, 4, 63–69.
- Guskey, T. (1994). *Outcome-based education and mastery learning: Clarifying the differences*. (ERIC Document Reproduction Service No. ED368770)
- Hamilton, M.B. (2003). *Online survey response rates and times: Background and guidance for industry*. Cambridge, MA: Tercent, Inc. Retrieved from www.Supersurvey.com
- Harmony Hollow Software (2008). *The Hat 2.3*. Retrieved from <http://www.harmonyhollow.net/hat.shtml>
- Haverback, H., & Parault, S. (2008). Pre-service reading teacher efficacy and tutoring: A review. *Educational Psychology Review*, 20(3), 237-255. (ERIC Document Reproduction Service No. EJ804185)
- Hedding, J. (n.d.). *Arizona statistics: Taking a look at census 2000*. Retrieved from <http://phoenix.about.com/cs/living/a/census01.htm>
- Heneman III, H. G., Kimball, S., & Milanowski, A. (2006, October). The teacher sense of efficacy scale: Validation evidence and behavioral prediction (WCER Working Paper No. 2006-7). *Wisconsin Center for Education Research*, 1-21. (ERIC Document Reproduction Service No. ED496313)

- Henson, R. (2002). From adolescent angst to adulthood: Substantive implications and measurement dilemmas in the development of teacher efficacy research. *Educational Psychologist, 37*(3), 137-150. DOI: 10.1207/S15326985EP3703_1
- Hirsch, E., Koppich, J. E., & Knapp, M. S. (2001, February). Revisiting what states are doing to improve the quality of teaching: An update on patterns and trends. A working paper. *University of Washington: Center for the Study of Teaching and Policy, W-01-1*.
- Holmes Group, Inc. (1986). *Tomorrow's teachers: A report of the Holmes Group*. (ERIC Document Reproduction Service No. ED270454)
- Horne, T. (2009, January). *Highly qualified teachers equity plan update*. Retrieved from <http://www.ade.state.az.us/asd/hqp/EquityPlanUpdate-Jan2009.pdf>
- Houston, W. R., Marshall, F., & McDavid, T. (1993, November). Problems of traditionally prepared and alternatively certified first year teachers. *Education and Urban Society, 26*(1), 78–89.
- Ingersoll, R. M. (1999). The problem of under qualified teachers in American secondary schools. *Educational Researcher, 28*(2), 26-37.
- Institute of Education Sciences (2008, July). *Preparing teachers to teach in rural schools*. Retrieved from http://ies.ed.gov/ncee/edlabs/regions/central/pdf/REL_2008045.pdf
- Institute of Education Sciences (2009, February). *An evaluation of teachers trained through different routes to certification: Final report*. Retrieved from <http://ies.ed.gov/ncee/pubs/20094043/pdf/20094044.pdf>
- Isaac, S., & Michael, W. B. (1995). *Handbook in research and evaluation: For education and behavioral sciences* (3rd ed.). San Diego, CA: Educational and Industrial Testing Services.
- Isenberg, E., Glazerman, S., Bleeker, M., Johnson, A., Lugo-Gil, J., Grider, M., et al. (2009). *Impacts of comprehensive teacher induction: Results from the second year of a randomized controlled study — executive summary* (NCEE 2009-4073). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://www.mathematica-mpr.org/publications/PDFs/education/teacherinduction_es.pdf
- Ishler, R.E. (1995). *Tomorrow's teachers, schools, and schools of education*. Retrieved from http://findarticles.com/p/articles/mi_qa3651/is_199510/ai_n8718152/?tag=content;col1
- Johnson, J. A., Musial, D., Hall, G. E., Gollnick, D. M., & Dupuis, V. L. (2008). *Foundations of American education: Perspectives on education in a changing*

- world* (14th ed.). Boston, MA: Pearson Education, Inc.
- Johnson, S., & Birkeland, S. (2003). Pursuing a 'sense of success': New teachers explain their career decisions. *American Educational Research Journal*, 40(3), 581-617. DOI:10.3102/00028312040003581
- Johnson, S.M., & Kardos, S.M. (2002, March). Redesigning professional development: Keeping new teachers in mind. *Educational Leadership*, 59 (6), 12-16. Retrieved from <http://www.brookline.k12.ma.us/NR/rdonlyres/C432F1A6-FE01-43D0-8211-C8CCA8C19299/0/KeepingNewTeachers.pdf>
- Kauchak, D., & Eggen, P. (2008). *Introduction to teaching: Becoming a professional* (3rd ed.). Upper Saddle River, NJ: Pearson Education, Inc.
- Kerns, C.D. (2006). Gratitude at work. *Graziadio Business Report*, 9(4). Retrieved from <http://gbr.pepperdine.edu/064/gratitude.html>
- Klagholz, L. (2000). New Jersey: Growing better teachers in the garden state. *Thomas B. Fordham Foundation*, 1-33. (ERIC Document Reproduction Service No. ED439135)
- Kraut, R., Olson, J., Banaji, M., Bruckman, A., Cohen, J., & Couper, M. (2004). Psychological research online: Report of board of scientific affairs' advisory group on the conduct of research on the internet. *American Psychologist*, 59, 105-117.
- Lash, K. T. (2007, March 12). A textual-historical theory of the Ninth Amendment. *Stanford Law Review*, 2007; *Loyola LA Legal Studies Paper*, 2007-17, 1-38. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=953008
- Lederman, N. G., & Flick, L. B. (2003). Alternative teacher certification and beyond: A promise fulfilled. *School Science and Mathematics*, 103, Retrieved from <http://www.questia.com/googleScholar.qst;jsessionid=LZMGc4YTS4KG2bws7ty5sJNGn7vPQmT78rrlY3JV9c1gpmNhqqyb!-508003271!-1404068679?docId=5002537164>
- Leedy, P. D., & Ormrod, J. E. (2005). *Practical research: Planning and design* (8th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Legler, R. (2002, November). The impact of alternative certification in the Midwest: Policy issues. *North Central Regional Educational Laboratory*, 12, 1-18. Retrieved from (ERIC Document Reproduction Service No. ED475775)
- Levine, A. (2006a). Will universities maintain control of teacher education?. *Change*, 38(4), 36-43.
- Levine, A. (2006b). Educating school teachers. *The Education Schools Project*, 1-141.

Retrieved from http://www.edschools.org/pdf/Educating_Teachers_Report.pdf

- Lucas, T., & Robinson, J. (2002, October-November). Promoting the retention of prospective teachers through a cohort for college freshman. *The High School Journal*, 86, 3-14. (ERIC Document Reproduction Service No. EJ787157)
- Lynn P., Beerten R., Laiho J., & Martin J. (2001, October). Recommended standard final outcome categories and standard definitions of response rate for social surveys. *Working Papers of the Institute for Social and Economic Research*, paper 2001-23. Colchester: University of Essex.
- Matell, M. S., & Jacoby, J. (1972). Is there an optimal number of alternatives for Likert-scale items? Effects of testing time and scale properties. *Journal of Applied Psychology*, 56, 506-509.
- McCall, C. H. (2002). *Understanding statistical methods: A manual for students and data analysts*. Lincoln, NE: Writers Club Press.
- McDermott, K. A. (2005). In mint condition? The politics of alternative certification and pay incentives for teachers in Massachusetts. *Educational Policy*, 19(1), 44-62. DOI: 10.1177/089590480501900506
- McDonald, J.H. (2009). *Handbook in biological statistics* (2nd ed.). Baltimore, MD: Sparky House Publishing.
- Microbiology Bytes (2009). *Inferential statistics: Comparing groups I*. Retrieved from <http://www.microbiologybytes.com/maths/1011-20.html#>
- Midgley, C., Feldlaufer, H., & Eccles, J. (1989). Change in teacher efficacy and student self- and task-related beliefs in mathematics during the transition to junior high school. *Journal of Educational Psychology*, 81, 247-258.
- Milton, S., Flood, P., & Dukes, M. (2006, October). *Alternative certification in Florida fourth annual progress report*. Retrieved from <http://www.altcertflorida.org/pdf/4th%20Annual%20AC%20Report%2012-11-06.Intro.pdf>
- Moir, E. (2009). Accelerating teacher effectiveness: lessons learned from two decades of new teacher induction: the best induction programs blend support for novice teachers with expertise from veteran teachers, creating collegial groups that benefit all teachers and all students. *Phi Delta Kappan*, New Teacher Center: Santa Cruz, CA. Retrieved from <http://www.allbusiness.com/education-training/teaching-teachers-primary/13341858-1.html>
- Mondie, M. (2009). Teaching on the block: A model for pre-service teachers. *Online Submission*. (ERIC Document Reproduction Service No. ED506816)
- Moore, W., & Esselman, M. (1992). *Teacher efficacy, power, school climate and achievement: A desegregating district's experience*. Paper presented at the annual

- meeting of the American Educational Research Association, San Francisco.
- Morey, A. (2001). The growth of for-profit higher education: Implications for teacher-education. *Journal of Teacher Education*, 52, 300-311.
- Mouza, C. (2009). Does research-based professional development make a difference? A longitudinal investigation of teacher learning in technology integration. *Teachers College Record*, 111(5), p. 1195-1241. Retrieved from [www. tcrecord.org](http://www.tcrecord.org)
- National Academy of Education (2009, November 12). *Teacher quality: Education policy white paper*. Retrieved from http://www.naeducation.org/Teacher_Quality_White_Paper.pdf
- National Association of State Retirement Administrators (2002, October). *Phased retirement overview: summary of research and practices*. Retrieved from <http://www.nasra.org/resources/Phased%20Retirement%20Overview.pdf>
- National Center for Education Information (2007a). *Overview of alternative routes to teacher certification*. Retrieved from <http://www.teach-now.org/overview.cfm>
- National Center for Education Information (2007b). *Alternative teacher certification: A state by state analysis*. Retrieved from <http://www.teach-now.org/overview.cfm>
- National Center for Education Statistics (2006, December). *Projections of education statistics to 2016*. Retrieved from <http://nces.ed.gov/pubs2008/2008060.pdf>
- National Center for Education Statistics (2006-2007). *State education data profiles*. Retrieved from <http://nces.ed.gov/programs/stateprofiles/sresult.asp?mode=full&displaycat=1&s1=04>
- National Center for Education Statistics (2007). *Projections of education statistics to 2016*. Retrieved from http://nces.ed.gov/pubs2008/2008060_1.pdf
- National Center for Education Statistics (2008, June). *The condition of education 2008 in brief*. Retrieved from <http://nces.ed.gov/pubs2008/2008032.pdf>
- National Center for Education Statistics (2009). *Enrollment trends in public and private elementary and secondary schools*. Retrieved from <http://nces.ed.gov/fastfacts/display.asp?id=65>
- National Center for Education Statistics (n.d.). *National Center for Education Statistics: About us*. Retrieved from <http://nces.ed.gov/about/>
- National Commission on Excellence in Education (1983). *A Nation At Risk*. Retrieved from <http://www2.ed.gov/pubs/NatAtRisk/risk.html>
- National Commission on Teaching and America's Future (2009, Spring). *A Baby Boom tsunami: What does it mean for the teaching profession?*. Retrieved from

<http://www.nctaf.org/documents/PolicyBrief-BabyBoomTsunami-NCTAF.pdf>

National Comprehensive Center for Teaching Quality (2009, March). *Methods of evaluating teacher effectiveness*. Retrieved from http://www.tqsource.org/publications/RestoPractice_EvaluatingTeacherEffectiveness.pdf

National Education Association (2008). *Attracting and keeping quality teachers*. Retrieved from <http://www.nea.org/teachershortage/index.html>

National Foundation for the Improvement of Education (1999, February). *Creating a teacher mentoring program*. Retrieved from <http://www.neafoundation.org/publications/mentoring.htm#usefulness>

National Research Council (2001). *Testing teacher candidates: The role of licensure tests in improving teacher quality*. Washington DC: National Academies Press.

Noll, J. W. (2008). *Taking side: Clashing views on educational issues* (14th ed.). Dubuque, IA: McGraw-Hill.

Office of Education Research (1993, October). *Mentoring*. Retrieved from <http://www.ed.gov/pubs/OR/ConsumerGuides/mentor.html>

Ohmart, H. (1992). *The effects of an efficacy intervention on teachers' efficacy feelings*. Unpublished doctoral dissertation, University of Kansas- Lawrence, Kansas.

Pajares, M. F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, 62(3), 307–332.

Patten, M. L. (2005). *Proposing empirical research* (3rd ed.). Glendale, CA: Pyrczak Publishing.

Pepperdine University (2004). *Institutional review board: Consent instructions*. Retrieved from http://www.pepperdine.edu/irb/policies/Consent_Instructions.htm

Plourde, L. (2002). The influence of student teaching on pre-service elementary teachers' science self-efficacy and outcome expectancy beliefs. *Journal of Instructional Psychology*, 29, 245–254.

Poulou, M. (2007). Personal teaching efficacy and its sources: Student teachers' perceptions. *Educational Psychology*, 27(2), 191-218. (ERIC Document Reproduction Service No. EJ764157)

Princeton University (2007). *Data and statistical services: Interpreting regression output*. Retrieved from http://dss.princeton.edu/online_help/analysis/interpreting_regression.htm

Renwick, M. (2001). Support for beginning teachers. *Education Counts*. Ministry of Education, Wellington, New Zealand. Retrieved from <http://www.education>

counts.govt.nz/_data/assets/pdf_file/0005/7529/SupportforBeginTchrs.pdf

Rice, G.A. (2004). *A plan for attracting and retaining quality teachers in at-risk schools*. Remarks delivered at 2004 NCTAF Partner States' Symposium. Orlando, FL: National Commission on Teaching and America's Future.

Rogel, C. (2009, November 19). *Census release ranks Arizona's poverty rate 13th highest in nation*. Retrieved from <http://www.examiner.com/examiner/x-4805-Arizona-Rural-Headlines-Examiner~y2009m11d19-Census-release-ranks-Arizonas-poverty-rate-13th-highest-in-nation>

Rosnow, R. L., & Rosenthal, R. (1996). Computing contrasts, effect sizes, and counternulls on other people's published data: General procedures for research consumers. *Psychological Methods*, 1, 331-340.

Ross, J. A. (1994). The impact of an inservice to promote cooperative learning on the stability of teacher efficacy. *Teaching and Teacher Education*, 10 (4), 381-94.

Ryan, K., & Cooper, J. M. (2004). *Those who can, teach*. Boston, MA: Houghton Mifflin Company.

Sadker, M. P., & Sadker, D. M. (2005). *Teachers, schools, and society* (7th ed.). New York: McGraw-Hill.

Saklofske, D., Michaluk, B., & Randhawa, B. (1988). Teachers' efficacy and teaching behaviors. *Psychological Report*, 63, 407-414.

Sergiovanni, T. J. (2007). *Rethinking leadership: A collection of articles* (2nd ed.). Thousand Oaks, CA: Corwin Press.

Shields, P.M., Esch, C.E., Humphrey, D.C., Wechsler, M.E., Chang-Ross, C.M., Gallagher, H.A., et al. (2003). *The status of the teaching profession 2003*. Santa Cruz, CA: The Center for the Future of Teaching and Learning.

Shen, J. (1997). Has the alternative certification policy materialized its promise? A comparison between traditionally and alternatively certified teachers in public schools. *Educational Evaluation and Policy Analysis*, 19(3), 276-83. (ERIC Document Reproduction Service No. EJ554781)

Slaybaugh, J., & Evans, C. (2004). Second-year teachers' attitudes toward the teaching profession. *National Forum of Teacher Education Journal*, 14E (3), 31-36. Retrieved from <http://www.nationalforum.com/Electronic%20Journal%20Volumes/Slaybaugh,%20Jack%20Second-Year%20Teachers%20Attitudes%20Toward%20the%20Teaching%20Profession.pdf>

Sloane, P. D., Cohen, L. W., Konrad, T. R., Williams, C. S., Schumacher, J. G., & Zimmerman, S. (2008, September 2). Physician interest in volunteer service during retirement. *Annals of Internal Medicine*, 149, 317- 323. Retrieved from

<http://www.annals.org/content/149/5/317.full.pdf>

- Smartschoolsplus, Inc. (2008). *Phased retirement*. Retrieved from <http://www.smartschoolsplus.com/phasedret.html>
- Smith, T., & Ingersoll, R. (2004). What are the effects of induction and mentoring on beginning teacher turnover?. *American Educational Research Journal*, 41(3), 681-714. DOI:10.3102/00028312041003681
- Statistics Canada (2009, October). *Statistics Canada quality guidelines* (5th ed.). Retrieved from <http://www.statcan.gc.ca/pub/12-539-x/12-539-x2009001-eng.pdf>
- Stein, M., & Wang, M. (1988). Teacher development and school improvement: The process of teacher change. *Teaching and Teacher Education*, 4, 171–187.
- Stone, M. (2000). Are we adequately preparing teachers for California's class-size reduction. In J. McIntyre & D. Byrd Eds. *Research on effective models for teacher education* (pp.203-217). Thousand Oaks, CA: Corwin.
- Strong, M. (2005, December). Mentoring new teachers to increase retention: A look at the research. *New Research Brief* 5(1), Teacher Center at the University of California, Santa Cruz. Retrieved from http://www.newteachercenter.org/cgi-bin/norti_area/research.cgi
- Strong, M. (2006, January). Does new teacher support affect student achievement? Some early research findings. *New Research Brief* 5(1), Teacher Center at the University of California, Santa Cruz. Retrieved from http://www.newteachercenter.org/cgi-bin/norti_area/research.cgi
- Suell, J., & Piotrowski, C. (2006). Efficacy of alternative teacher certification programs: A study of the Florida model. *Education*, 127(2), 310-315. (ERIC Document Reproduction Service No. EJ765831)
- Survey Gizmo (2005-2010). *Survey Gizmo*. Retrieved from <http://www.surveygizmo.com/survey-features/>
- Target Brands, Inc. (2009). *E-gift cards*. Retrieved from http://www.target.com/b/ref=sc_iw_1_0/?node=1232829011
- Tatel, E. S. (1999, Winter). Teaching under-resourced schools: The Teach for America example. *Theory into Practice*, 38 (1), 37-45. Retrieved from <http://www.jstor.org/stable/1477206>
- Teach for America (2006). *Teach for America: Our mission and approach*. Retrieved from http://www.teachforamerica.org/mission/mission_and_approach.htm
- Telhaj, S., Hutton, D., Davies, P., Adnett, N., & Coe, R. (2004). Competition within schools: Representativeness of Yellis Sample Schools in a study of subject

- enrollment of 14-16 year olds. *Institute for Education Policy Research, Staffordshire University*, Working paper 2004/11. Retrieved from <http://www.staffs.ac.uk/schools/business/iepr/docs/Working-paper11.doc>.
- Townsend, T., & Bates, R. (Eds.) (2007). *Handbook of teacher education: Globalization, standards and professionalism*. Dordrecht, The Netherlands: Springer
- Trochim, W.M.K. (2006). *Research methods knowledge base*. Retrieved from <http://www.socialresearchmethods.net/kb/index.php>
- Tschannen-Moran, M., Woolfolk Hoy, A., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research*, 68, 202 - 248.
- Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: capturing an elusive construct. *Teaching and Teacher Education*, 17, 783-805. (ERIC Document Reproduction Service No. EJ640149)
- Tschannen-Moran, M., & Woolfolk Hoy, A. (2007, August). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education*, 23, 944-956. (ERIC Document Reproduction Service No. EJ769461)
- Tsigilis, N., Koustelios, A., & Grammatikopoulos, V. (2010). Psychometric properties of the Teachers' Sense of Efficacy Scale within the Greek educational context. *Journal of Psychoeducational Assessment*, 28(2), 153-162. DOI: 10.1177/0734282909342532
- United States Census Bureau (2003). *School enrollment surpasses 1970 Baby-Boom crest*. Retrieved from <http://www.census.gov/Press-Release/www/releases/archives/education/005157.html>
- United States Department of Education (2003, August). *Strengthen teacher quality: Research on teacher preparation and professional development*. Retrieved from <http://www.ed.gov/admins/tchrqual/learn/preparingteachersconference/whitehurst.html>
- United States Department of Education (2004, March). *New No Child Left Behind flexibility: Highly qualified teachers*. Retrieved from <http://www.ed.gov/nclb/methods/teachers/hqtflexibility.html>
- United States Department of Education (2008, February 25). *Troops-to-Teacher program*. Retrieved from <http://www.ed.gov/programs/troops/index.html>
- United States Department of Education (2009a). *Teacher shortage areas nationwide listing 1990-91 thru 2009-10*. Retrieved from <http://www.ed.gov/about/offices/list/oep/pol/tsa.pdf>
- United States Department of Education (2009b). *Elementary and secondary education: Improving basic programs operated by local education agencies*. Retrieved from

<http://www.ed.gov/programs/titleiparta/index.html>

- Varma, S. (2010). *Preliminary item statistics using point-biserial correlation and p-values*. Education Data Systems. Retrieved from http://www.eddata.com/resources/publications/EDS_Point_Biserial.pdf
- Ware, H., & Kitsantas, A. (2007). Teacher and collective efficacy beliefs as predictors of professional commitment. *Journal of Educational Research, 100*(5), 303-310. (ERIC Document Reproduction Service No. EJ767719)
- Wayman, J. C., Foster, A. M., & Mantale-Bromley, C. (2003). A comparison of the professional concerns of traditionally prepared and alternatively licensed new teachers. *The High School Journal, 86*(3), 35-40.
- Weinstein, C. S. (1988). Preservice teachers' expectations about the first year of teaching. *Teaching and Teacher Education, 4*, 31-40.
- What Works Clearinghouse (2008). WWC Quick Review of the Report "Making a Difference? The Effects of Teach for America in High School". *What Works Clearinghouse*. (ERIC Document Reproduction Service No. ED502028)
- Wilson, S.M., Floden, R., & Ferrini-Mundy, J. (2001). *Teacher preparation research: Current knowledge, gaps, and recommendations*. A research report prepared for the U.S. Department of Education. Seattle: Center for the Study of Teaching and Policy, University of Washington.
- Wilson, S.M., Floden, R., Education Commission of the States, D., American Association of Colleges for Teacher Education, W., & ERIC Clearinghouse on Teaching and Teacher Education, W. (2003). *Creating effective teachers: Concise answers for hard questions*. An Addendum to the Report "Teacher Preparation Research: Current Knowledge, Gaps, and Recommendations". (ERIC Document Reproduction Service No. ED476366)
- Wong, H.K. (2005). New teaching induction: The foundation for comprehensive, coherent, and sustained professional development. In H. Portner (Ed.), *Teacher Mentoring and Induction: The State of the Art and Beyond* (41-58). Thousand Oaks, California: Corwin Press.
- Woolfolk Hoy, A., & Burke-Spero, R. (2005). Changes in teacher efficacy during the early years of teaching: A Comparison of four measures. *Teaching and Teacher Education, 21*, 343-356.
- Woolfolk Hoy, A., & Hoy, W. K. (2009). *Instructional leadership: A research-based guide to learning in schools* (3rd ed.). Boston, MA: Pearson.
- Woolfolk, A. E., & Hoy, W. K. (1990). Prospective teachers' sense of efficacy and beliefs about control. *Journal of Educational Psychology, 82*, 81-91.

Zoomerang (2008). Survey samples size: Calculate sample size of survey respondents.
Retrieved from <http://www.zoomerang.com/Sample-Size/>

APPENDIX A

Letter Granting Permission of Research Study from
The Arizona Department of Education



State of Arizona
Department of Education

February 16, 2010

Dear Carlyn Ludlow,

After our many discussions regarding Alternative Routes to Teacher Certification, the Arizona Department of Education agrees that your research on Arizona Teaching Interns self-efficacy levels and its comparison to the professional development support they receive is a worthwhile study. Given the importance the state of Arizona has placed on improving teacher quality, ADE is eagerly interested in your topic.

This letter shall serve as written permission that the Arizona Department of Education will allow you, Carlyn Ludlow, doctoral candidate at Pepperdine University, to use the Arizona teaching intern certification database to contact and administer a survey to all of the 2009-2010 teaching interns. We understand that the surveys will examine the teaching interns' levels of self-efficacy and professional development experiences.

The Arizona Department of Education would like to receive a copy of your research findings if any important connections or recommendations are found.

Please contact me should you or Pepperdine University have any questions in regard to this letter of permission.

Sincerely,

A handwritten signature in black ink, appearing to read "Donald J. Houde", is written over a circular stamp or seal.

Donald J. Houde
Chief Information Officer
Deputy Associate Superintendent for Information Technology
Arizona Department of Education
602-364-1368
Donald.Houde@azed.gov

APPENDIX B

Approval for Data Extract and Release from The Arizona Department of Education

**Arizona Department of Education**

GUIDELINE:	Data Extract Request and Release Guidelines	Guideline No:	IT XX-YY-0906171500
Scope:	ADE	Effective:	
Expiration:	This guideline is to be reviewed, and either revised or allowed to renew unchanged by:		
	Key Contact(s): R. Rachkofski		

I. PURPOSE

The purpose of this guideline is to establish the authority and procedures for releasing data extracts of sensitive and confidential student detail information or aggregated data created from this data to associated schools, school districts and charter schools, and to such agencies or entities that may have a legitimate need to view them, and the legal right to do so.

II. GUIDELINE

It is the Arizona Department of Education's (ADE) operating principle to safeguard sensitive and/or confidential information pertaining to a student's identity, and the associated data related to the identified student when it is extracted from ADE databases and physically or electronically delivered to the appropriate school, locale education agency (LEA), charter school entity, or other duly authorized agency. Legal mandates require that data be submitted by educational entities to ADE. Those data or subsets of data are to be made available to those entities, or to any legally authorized agency, upon request. The chief administrator or a designated senior official of the educational entity should make a formal request. When other agencies, such as the Attorney General or Auditor General have a need and the right to possess any student-level data collected by ADE, both the process of requesting and the delivery of data should be properly documented for public inspection and auditing purposes to ensure that the transfer of information followed proscribed procedures.

III. PROCEDURE

A. The LEA or other agency requiring a data extract notifies ADE's Data Management Team of the specific data request and its intended use. This should be done by means of a letter on the LEA's or agency's letterhead, signed by the agency head, chief administrator, or a senior official. An alternate method of request can be via e-mail with a recognizable and verifiable e-mail return address. The requester will be sent the Request/Release form attached below. Pending the completion and return of the form along with the identity verification of the requester (i.e. photocopy of driver's license or employee badge), the request will be vetted by the Data Management team and the result of this process will be to authorize, reject (with cause), or further clarify the requirements with the requesting agent.

B. If the request is rejected, a Data Management representative will notify the requester and explain the reasons for that decision. Adjustments to the request may be made and resubmitted if appropriate.

C. If the request is authorized either directly or after needed clarifications have been made, an estimate of the delivery time will be made. The complexity of the request, workload, and staffing levels may all be contributing factors to this estimate.

D. The Data Management analyst will generate the extract and load it into a package on an encrypted Web server. A notification (with full instructions) will be sent to the recipient. The recipient will navigate to the site and click a link and enter the username and password previously assigned. Using this SSL (Secure Socket Layer) technology, the file will then be decrypted for the recipient.

E. For later reference, quality control inspection, and audit purposes, the original request, the extraction script, and the result set will be archived.

Arizona Department of Education

RELEASE/RECEIPT FOR DATA EXTRACT

Directions: Please complete all portions of this form. The completed form must be retained as a permanent record.

Please Describe the Data Requested, and its Intended Use

Full description of data request (include attachment if necessary):

The requested data is for Arizona teachers who possess Teaching Intern Certificates for the 2009-2010 academic year, including the first and last name of the teaching intern, the e-mail address, residential mailing address (including the street address, city, state, and zip code), the content area in which the intern certificate was issued, the interns' district of employment, the institution in which the teaching intern is enrolled for their teacher preparation coursework (IHE), and the issuance and expiration dates of the Teaching Intern Certificate.

Intended use for data:

The data will be used to support dissertation research for Pepperdine University's doctoral program in Educational Leadership, Administration, and Policy. Details of the research include the following purpose statement and research questions:

The purpose of this descriptive correlational study is to investigate the self-assessed efficacy levels of Arizona teachers who hold Teaching Intern Certifications, more specifically their perceived ability to influence student learning, and to discern what relationships, if any, exist between self-reported efficacy levels and the following professional development experiences: attendance in an intensive preparation course prior to teaching, participation in a district sponsored induction program, and appointment of a district provided mentor.

The study will be guided by the following research questions: What are the self-reported efficacy levels of Arizona teaching interns with regards to influencing student learning? What relationships, if any, exist between the self-reported efficacy levels of Arizona teaching interns and their attendance in an intensive preparation course prior to teaching, participation in a district sponsored induction program, and appointment of a district provided mentor?

The results of each survey and the names of the individuals taking the survey will be kept confidential and private by the researcher. Additionally, all teaching interns' personal contact information will remain confidential and will be protected from being used for any kind of purpose other than the administration of the study's survey instrument. The participants' responses will be collected through the online survey administration tool, Survey Gizmo (Widgix, LLC, 2005-2010). Response data will be compiled and downloaded by the researcher. Soft copies of the survey data and any Excel® and NCSS® spreadsheets used for data disaggregation will be saved to one file, entitled ATIS study, in the 'documents' section on the hard drive of the researcher's home office computer. The computer is password protected and uses a fingerprint identifier to gain access. The researcher is the only individual with access to the computer and accompanying password. No other person's fingerprint is stored as an identifier in the computer. Soft copies of the survey data and Excel® and NCSS® spreadsheets will be destroyed by permanently deleting the data through compression and defragmentation of the hard drive. Destruction of the data will be completed by June 1, 2010. Hard copies of the survey responses will not be printed.

The intent of the study is for nonprofit educational purposes and scholarly research only.

ADE Employee Who Is Authorizing the Release of Data

The undersigned ADE employee (a) understands that the information described above may include sensitive, personal, or confidential data, (b) affirms that she or he is duly authorized to release ADE information, and (c) hereby authorizes its release to the entity/person below.

Richard Rachkowski
(ADE Employee Signature)
RICHARD RACHKOWSKI
(ADE Employee Printed Name)

2-17-2010
(Date)
Data Mgmt
(ADE Department of Unit)

Person Who is Requesting the Data

The undersigned acknowledges receipt of information as described above, understands that it may include sensitive or personal or confidential information, and accepts responsibility for safeguarding it as appropriate. The undersigned is aware of the Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. §1232g; 34 CFR Part 99), understands that it is a federal law that protects the privacy of student educational records, and recognizes that there are severe penalties for its violation.

Carlyn Ludlow
(Signature)

2-17-2010
(Date)

Carlyn Ludlow
(Printed Name)

Pepperdine University Doctoral Candidate
(Requesting Agency, Department or Educational Entity)

ADE Employee Who is Actually Releasing the Data


The undersigned ADE employee affirms (1) that the person receiving the data extract described above was properly identified by photo credential as checked below, and (2) that ADE has received proper authorization from the responsible local education agency to release its data, as checked below. Proper written authorization is a letter of release on the requesting agency's letterhead signed (by the agency head, chief administrator, or a senior official), or other appropriate formal document including identifiable and verifiable e-mail.

1) I identified the person who is receiving the information by the following photo credential:

☒ driver's license ☒ employee badge ☐ other (describe): _____

2) I have attached a photocopy of the photo credential:

3) The responsible LEA/agency authorized release of this information by:

<input checked="" type="checkbox"/> written authorization	<input type="checkbox"/> other (describe): <u>Authorized by Highly Qualified Professionals c/o Jan Amato</u>
<u></u>	<u>9/17/2010</u>
(ADE Employee Signature)	(Date)
<u>MARY MASSEY P. CRUZ</u>	<u>for - IT - Data Mgt.</u>
(ADE Employee Printed Name)	(ADE Department or Unit)

through Transition to Teaching grant data

APPENDIX C

Permission to Use Teachers' Sense of Efficacy Scale

Part One of Arizona Teaching Intern Survey



ANITA WOOLFOLK HOY, PH.D.

PROFESSOR
PSYCHOLOGICAL STUDIES IN EDUCATION

Dear Carlyn Ludlow

You have my permission to use the *Teachers' Sense of Efficacy Scale* in your research. A copy of both the long and short forms of the instrument as well as scoring instructions can be found at:

<http://www.coe.ohio-state.edu/ahoy/researchinstruments.htm>

Best wishes in your work,

A handwritten signature in cursive script that reads "Anita Woolfolk Hoy".

Anita Woolfolk Hoy, Ph.D.
Professor

COLLEGE OF EDUCATION
29 WEST WOODRUFF AVENUE
COLUMBUS, OHIO 43210-1177

WWW.COE.OHIO-STATE.EDU/AHOY

PHONE 614-292-8774
FAX 614-292-7900
HOY.17@OSU.EDU

APPENDIX D

Teaching Intern Contact Request Letter

Dear Teacher,

Every day, you play a crucial role in shaping the lives of students in Arizona. I hope that your experience as a teacher has been rewarding, and that you find your position to be both meaningful and challenging. With this in mind, I have designed a study to investigate the perceptions of teaching interns in Arizona.

As a fellow educator, resident of Arizona, and parent of public school children, I have an interest in helping support all of Arizona's teachers. It is for this purpose that I have chosen to study the perceptions and experiences of Arizona's teaching interns for my doctoral dissertation. My doctoral degree will be awarded through Pepperdine University in the Education Leadership, Administration, and Policy program and my dissertation chairperson is Dr. Linda Purrington.

With the support and authorization of the Arizona Department of Education, I am inviting all individuals who hold/held teaching intern certificates in Arizona for the 2009-2010 academic year to participate in my study entitled, "*Efficacy of Alternatively Certified Teachers in Arizona*".

The study is designed to investigate the self-assessed efficacy levels of Arizona teachers who hold Teaching Intern Certifications, specifically their perceived ability to influence student learning, and to examine to what extent, if at all, the self-reported efficacy levels differ based on the following professional development experiences: attendance in an intensive preparation program prior to teaching, participation in a district sponsored induction program, and assignment of a mentor.

The reason for my contact today is to ask for your email address in order to electronically send you the survey.

Next Steps:

- Return your contact card, with your current email address, in the enclosed addressed stamped envelope, within five days of receipt. Returning your contact card will not obligate you to take part in the study, it will only provide you with the opportunity to participate. Your participation in my study is strictly voluntary.
- You will receive an introductory communication via e-mail from me on March 27, 2010. The introductory communication will describe much of what was described in this contact request letter but will provide you with a few additional details.

In order to service the students of Arizona, we must first support our teachers. As valued assets to the field of education, it is important that your experiences are acknowledged. For that reason, please take this opportunity to provide your email address so that your opinion may be known.

If you have any questions please contact me at XXXXX X or XXXXXX

With sincere appreciation,

Carlyn Ludlow
Principal Investigator
Pepperdine University
Graduate School of Education and Psychology
Educational Leadership Administration and Policy

Contact Card

Name _____

I would like to have the option to participate in the Arizona Teaching Intern Survey administered by Pepperdine University doctoral student, Carlyn Ludlow. My current email address is noted below.

Email _____

Please mail this contact card in the addressed stamped envelope provided.

APPENDIX E

Introductory Communication Letter to Teaching Interns

Dear Teacher,

Every day, you play a crucial role in shaping the lives of students in Arizona. I hope that your experience as a teacher has been rewarding, and that you find your position to be both meaningful and challenging. With this in mind, I have designed a study to investigate the perceptions of teaching interns in Arizona.

As a fellow educator, resident of Arizona, and parent of public school children, I have an interest in helping support all of Arizona's teachers. It is for this purpose that I have chosen to study the perceptions and experiences of Arizona's teaching interns for my doctoral dissertation. My doctoral degree will be awarded through Pepperdine University in the Education Leadership, Administration, and Policy program and my dissertation chairperson is Dr. Linda Purrington.

With the support and authorization of the Arizona Department of Education, I am inviting all individuals who hold/held teaching intern certificates in Arizona for the 2009-2010 academic year to participate in my study entitled, "*Efficacy of Alternatively Certified Teachers in Arizona*".

The study is designed to investigate the self-assessed efficacy levels of Arizona teachers who hold Teaching Intern Certifications, specifically their perceived ability to influence student learning, and to examine to what extent, if at all, the self-reported efficacy levels differ based on the following professional development experiences: attendance in an intensive preparation program prior to teaching, participation in a district sponsored induction program, and assignment of a mentor.

Through this study, you will have an opportunity to help shape the future for teaching interns in Arizona, as well as inform of your experiences of being a teaching intern. Please understand that your participation in my study is strictly voluntary. I realize that your feedback may not have been requested in this manner before; however, I want to hear from you – your opinion is important!

Next Steps:

- Tomorrow, you will receive an email with a link to a survey through the web survey tool Survey Gizmo. The survey is entitled, The Arizona Teaching Intern Survey.

- The survey will take no more than 20 minutes to complete and is comprised of 30 close-ended questions. You may complete the survey at home or in a location of your choosing.
- You will provide your consent to participate in the study prior to the first question of the survey.
- The survey will remain open for seven days, between March 28, 2010 and April 3, 2010.
- If you choose to participate in the survey, you will have the option to take part in a raffle awarding five \$20 Target e-gift cards.
- You will also have the option to request a summary of the results of the research at the end of the survey.
- Please know that individual responses will not be provided to Arizona's Department of Education or your district; survey answers are entirely confidential and anonymous.

In order to service the students of Arizona, we must first support our teachers. As valued assets to the field of education, it is important that your experiences are known. For that reason, please take this opportunity to provide me with your perceptions of being a teaching intern that are reflective of your teaching experiences.

Jan Amator, the Deputy Associate Superintendent for Highly Qualified Professionals at the Arizona Department of Education, offered this endorsement:

“Teaching interns, who impact more than 20,000 of Arizona’s children, need to be supported and developed to ensure all of our students receive the best quality teacher. To that end, I encourage you to participate in the Arizona Teaching Intern Survey. Your experiences and opinions matter to the Arizona Department of Education”.

Thank you for your participation in and support of this important study. If you have any questions please contact me at XXXXX.

With sincere appreciation,

Carlyn Ludlow
Principal Investigator
Pepperdine University
Graduate School of Education and Psychology
Educational Leadership Administration and Policy

APPENDIX F

Consent Form Used with a Waiver

Provided Prior to Question One of the Arizona Teaching Intern Survey Instrument

As you know from the introductory communication, my name is Carlyn Ludlow, and I am a doctoral student at Pepperdine University. You have been recruited to participate in my study entitled, *“Efficacy of Alternatively Certified Teachers in Arizona”*. This dissertation study is being conducted in partial satisfaction of the requirements for the degree of Doctor of Education in Leadership, Administration and Policy.

The purpose of the study is to investigate the self-assessed efficacy levels of Arizona teachers who hold Teaching Intern Certifications, specifically their perceived ability to influence student learning, and to examine to what extent, if at all, the self-reported efficacy levels differ based on the following professional development experiences: attendance in an intensive preparation program prior to teaching, participation in a district sponsored induction program, and assignment of a mentor.

I am inviting all individuals who hold/held teaching intern certificates in Arizona for the 2009-2010 academic year to participate in my study. Please understand that your participation in my study is strictly voluntary.

The following is a description of what your study participation entails, the terms for participating in the study, and a discussion of your rights as a study participant. Please read this information carefully before deciding whether or not you wish to participate.

1. If you should decide to participate in the study, you will be asked to complete the survey entitled “Arizona Teaching Intern Survey” to the best of your abilities. It should take approximately 20 minutes to finish the survey you have been asked to complete. Please complete the survey alone in a single setting.
2. Although minimal, there are potential risks that you should consider before deciding to participate in this study. The “probability of discomfort that will not be greater than those ordinarily encountered in daily life or during the performance of psychological examinations or tests” (Pepperdine University, 2004).
3. These risks may include feeling uncomfortable with the professional nature of the questions, feeling social pressure to participate in the study, fatigue, and the study being an imposition on your time.
4. To mitigate these risks, if you should decide to participate and find you are uninterested in completing the survey in its entirety, you have the right to discontinue at any point without being questioned about your decision. You also do not have to answer any of the questions on the survey that you prefer not to answer, just leave such items blank.
5. Your name and corresponding survey results will be held in confidence and will not be available to your district or to the Arizona Department of Education.

6. The data results will not be individually identified but rather will be used collectively to inform overall efficacy levels of teaching interns in Arizona and, if the data indicates, to provide recommendations for improving the efficacy levels for future teaching interns.
7. The electronic survey can be completed at your residence or in a location of your choosing.
8. Your involvement in the study will be limited to the amount of time to complete a 30 question survey, approximately 20 minutes. To reduce any impositions on your time, the survey may be completed at a time convenient to you.
9. Finally, you will be provided an option to request a summary of the research results by selecting a check box at the end of the survey.

The potential benefits to you for participating in the study include being part of possible improvements of the efficacy levels for future teaching interns and having the option to participate in a prize raffle. Five \$20 Target e-gift cards will be randomly awarded to those who complete the survey. The raffle will take place two days after the survey is closed. The raffle is optional and if you wish to participate you will select a box at the end of the survey.

You will have up to 7 days to complete the survey. After 5 days a reminder email will be sent to those individuals who have yet to complete the web survey. If the findings of the study are presented to professional audiences or published, no information that identifies you personally will be released. The data will be kept in a secure manner for at least three years at which time the data will be destroyed.

If you have any questions regarding the information that I have provided above, please do not hesitate to contact me at the address and phone number provided below. If you have further questions or do not feel I have adequately addressed your concerns, please contact Dr. Purrington, my dissertation committee chairperson, at XXXXX. If you have questions about your rights as a research participant, contact Dr. Doug Leigh, Chairperson of the Graduate and Professional School Institutional Review Board (GSP IRB), Pepperdine University, at XXXXXX.

By selecting the “accept” button below, you are acknowledging that you have read and understand what your study participation entails, and are consenting to participate in the study. If you would like documentation linking your identity to your responses, please complete an informed consent form, in addition to selecting the “accept” button. To complete the informed consent form, select the “print informed consent form” button at the end of the survey. The informed consent form can be printed, signed, and mailed to the address below. Thank you for taking the time to read this information, and I hope you decide to complete the survey.

Sincerely,
 Carlyn Ludlow
 Doctoral Student, Pepperdine University

APPENDIX G

Arizona Teaching Intern Survey Instrument

Overview

Thank you for consenting to participate in this study and, in advance, for your honest perceptions and experiences as a teaching intern in Arizona. The survey is comprised of two parts, 24 items about your beliefs as a teacher and six additional items, three relating to your professional development experiences prior to and during your time as a certified teaching intern and three requesting general information. The survey will take approximately 20 minutes to complete.

Part One

Part one of the survey is designed to help researchers gain a better understanding of the kinds of things that create challenges for teachers. Please respond to each of the questions by considering the combination of your current ability, resources, and opportunity to do each of the following in your present position. Your answers are confidential.

Directions: Please indicate your opinion about each of the questions below by marking any one of the nine responses in the columns on the right side, ranging from (1) “None at all” to (9) “A Great Deal” as each represents a degree on the continuum.	<div style="display: flex; justify-content: space-around; text-align: center;"> <div>None at all</div> <div>Very little</div> <div>Some influence</div> <div>Quite a bit</div> <div>A great deal</div> </div>								
1. How much can you do to get through to the most difficult students?	1	2	3	4	5	6	7	8	9
2. How much can you do to help your students think critically?	1	2	3	4	5	6	7	8	9
3. How much can you do to control disruptive behavior in the classroom?	1	2	3	4	5	6	7	8	9
4. How much can you do to motivate students who show low interest in school work?	1	2	3	4	5	6	7	8	9
5. To what extent can you make your expectations clear about student behavior?	1	2	3	4	5	6	7	8	9
6. How much can you do to get students to believe they can do well in school work?	1	2	3	4	5	6	7	8	9
7. How well can you respond to difficult questions from	1	2	3	4	5	6	7	8	9

your students?	
8. How well can you establish routines to keep activities running smoothly?	1 2 3 4 5 6 7 8 9
9. How much can you do to help your students value learning?	1 2 3 4 5 6 7 8 9
10. How much can you gauge student comprehension of what you have taught?	1 2 3 4 5 6 7 8 9
11. To what extent can you craft good questions for your students?	1 2 3 4 5 6 7 8 9
12. How much can you do to foster student creativity?	1 2 3 4 5 6 7 8 9
13. How much can you do to get children to follow classroom rules?	1 2 3 4 5 6 7 8 9
14. How much can you do to improve the understanding of a student who is failing?	1 2 3 4 5 6 7 8 9
15. How much can you do to calm a student who is disruptive or noisy?	1 2 3 4 5 6 7 8 9
16. How well can you establish a classroom management system with each group of students?	1 2 3 4 5 6 7 8 9
17. How much can you do to adjust your lessons to the proper level for individual students?	1 2 3 4 5 6 7 8 9
18. How much can you use a variety of assessment strategies?	1 2 3 4 5 6 7 8 9
19. How well can you keep a few problem students from ruining an entire lesson?	1 2 3 4 5 6 7 8 9
20. To what extent can you provide an alternative explanation or example when students are confused?	1 2 3 4 5 6 7 8 9
21. How well can you respond to defiant students?	1 2 3 4 5 6 7 8 9
22. How much can you assist families in helping their children do well in school?	1 2 3 4 5 6 7 8 9

23. How well can you implement alternative strategies in your classroom?	1	2	3	4	5	6	7	8	9
24. How well can you provide appropriate challenges for very capable students?	1	2	3	4	5	6	7	8	9

Part One of the Arizona Teaching Intern Survey is adopted, with permission, from the Teachers' Sense of Efficacy Scale authored by Tschannen-Moran & Woolfolk Hoy (2001) and is intended to be used for nonprofit educational purposes and scholarly research.

Part Two

Part Two directions read as follows; Part two of the survey is designed to better understand your professional development experiences and to examine to what extent, if at all, the self-reported efficacy levels of Part One differ based on those experiences. Please indicate your answers to the first three questions based on the kinds of experiences you have had prior to and during your time as a certified teaching intern in Arizona by selecting the most appropriate response. The final three questions request general information. Please note that unlike part one, response options change with each question. Your responses are confidential.

25. Enrollment in an intensive preparation program prior to the first year of teaching	<input type="checkbox"/>	Attended an intensive preparation program prior to year one of the Teaching Intern Certificate
	<input type="checkbox"/>	Did not attend an intensive preparation program prior to year one of the Teaching Intern Certificate
26. Participation in a district-sponsor induction program	<input type="checkbox"/>	Participating/participated in a district-sponsored induction program
	<input type="checkbox"/>	Did not participate in a district-sponsored induction program.
27. Assignment of a mentor	<input type="checkbox"/>	Yes
	<input type="checkbox"/>	No/Unknown

	<input type="checkbox"/>	Please check if you would like to receive a summary of the research results upon completion of the study.
<p>If either box above is checked, please provide a preferred e-mail address to the right of the e-mail address prompt.</p> <p>Please note that individuals who do not provide a preferred e-mail address will be excluded from participation in the raffle and unable to receive a summary of research results.</p>		<p><i>Disclaimer: all e-mail addresses will be held confidential and private by the researcher and will be used only for the purposes of sending the requested research summary or if selected as a raffle winner.</i></p> <p><i>E-mail addresses will not be included as part of the research findings.</i></p>
Email address:		

Print Informed Consent

APPENDIX H

List of Face Validity Panel Members

Name	Years of teaching experience	School level of employment	County in Arizona	Highest educational degree attained
J.A.	5	Elementary	Maricopa	MAED
E.K.	3	Elementary	Maricopa	MAED
ES	9	High School	Maricopa	MAED
BB	3	Elementary	Maricopa	MAED
VR	8	High School	Maricopa	MAED
CK.	7	Middle School	Maricopa	MAED
KW	6	Elementary	Maricopa	MAED

APPENDIX I

Pepperdine IRB Approval Letter

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

March 18, 2010

Carlyn Ludlow

Protocol #: E0310D05

Project Title: *Efficacy of Alternately Certified Teachers in Arizona*

Dear Ms. Ludlow,

Thank you for submitting your application, *Efficacy of Alternately Certified Teachers in Arizona*, for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Dr. Linda Purrington, have done on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - <http://www.nihtraining.com/ohsrsite/guidelines/45cfr46.html>) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b)(1) states:

(b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

Category (1) of 45 CFR 46.101, research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (a) research on regular and special education instructional strategies, or (b) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

In addition, your application to waive documentation of consent, as indicated in your **Application for Waiver or Alteration of Informed Consent Procedures** form has been approved.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* (see link to "policy material" at <http://www.pepperdine.edu/irb/graduate/>).

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact me. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,

A handwritten signature in black ink, appearing to be 'DL' with a long horizontal stroke extending to the right.

Doug Leigh, Ph.D.
Associate Professor of Education
Pepperdine University
Graduate School of Education and Psychology
6100 Center Dr. 5th Floor
Los Angeles, CA 90045
dleigh@pepperdine.edu
(310) 568-2389

cc: Dr. Lee Kats, Associate Provost for Research & Assistant Dean of Research, Seaver College
Dr. Doug Leigh, Chair, Graduate and Professional Schools IRB
Ms. Jean Kang, Manager, Graduate and Professional Schools IRB
Dr. Linda Purrington
Ms. Kristin Bailey