

Abstract

Title of Dissertation: STUDENT TEACHER EXIT PORTFOLIOS: IS IT AN
APPROPRIATE MEASURE AND A UNIQUE
CONTRIBUTION TOWARD THE ASSESSMENT OF
HIGHLY QUALIFIED TEACHER CANDIDATES?

Leslie Ann Jackson Simpson, Doctor of Philosophy, 2004

Dissertation directed by: Dr. James Dudley
Professor Emeritus, College of Education
Department of Education Policy and Administration

The student teacher portfolio, at the forefront of teacher education assessment issues during the past decade, was the topic of this study. The teacher education community has moved beyond the initial concerns about defining a teacher portfolio, identifying appropriate contents of a teacher portfolio, and determining the place of portfolios in a program's assessment system. The teacher education community is now concerned about whether the student teacher exit portfolio is an appropriate measurement of all teacher candidates and contributes possibly unique information to the assessment of the competency of teacher candidates.

This study investigated the possible influence of the demographic factors of gender, age, and certification levels of the teacher candidates on the assessment outcomes of student teacher exit portfolios. It also compared the outcomes of traditionally accepted assessments (student teaching grade, Praxis I tests, Praxis II tests, and overall grade point average) with the outcomes of the exit portfolio

assessment. This was an ex-post facto study, based upon existing data collected about each teacher candidate (n=76), with no treatment afforded the teacher candidates as part of the study.

Two conclusions were drawn from the findings of this study. First, the demographic factors of gender, age, and choice of certification level of the teacher candidates did not appear to influence the outcomes of the exit portfolio. The teacher candidates noted that they valued the portfolio process. Because of these two findings, the exit portfolio was deemed to be an appropriate assessment tool at this institution. Second, the exit portfolio results, compared with the four other assessments, did not indicate correlational statistics of a predictive quality. Therefore, the exit portfolio was considered to contribute information not offered by the other more traditional assessments of the competencies of teacher candidates.

STUDENT TEACHER EXIT PORTFOLIOS: IS IT AN APPROPRIATE
MEASURE AND A UNIQUE CONTRIBUTION TOWARD THE
ASSESSMENT OF HIGHLY QUALIFIED TEACHER
CANDIDATES?

by

Leslie Ann Jackson Simpson

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland at College Park in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2004

Advisory Committee:

Dr. James Dudley, Chair, EDPA (Professor Emeritus)
Dr. Gilbert Austin, Educational Research and Development, UMBC
Dr. Robert Carbone, EDPA (Professor Emeritus)
Dr. Wayne Slater, EDCI
Dr. Denis Sullivan, EDCI
Dr. Thomas Weible, EDCI

© Copyright by

Leslie Ann Jackson Simpson
2004

DEDICATION

This project would have never been contemplated nor completed without the full support of my partner, my husband, John Simpson. Thank you for carting the kids when I could not; fixing dinner so we would not starve; bringing home the paycheck so we kept a roof over our heads and could pay the tuition—all so I could complete this inexplicable goal.

This project is dedicated to the determined women in my family who set the goals high:

my grandmother, Madge Cheek, for her continuing quest to "learn something every day" and who was the first in her immediate family to finish high school

my mother, Alden Jackson, who was resolute that her five children would be college educated

my sister, Dr. Susan Getty, for leading the way in getting this thing done

to my three daughters, Emily, Jennifer, and Susanna, who all successfully completed their undergraduate degrees while mom was taking her sweet time completing this one

ACKNOWLEDGEMENTS

I would like to thank:

My cheerleaders, the "yes, you can" group – my mother , Alden Jackson, and sisters, Mary Jackson and Susan Getty, and my mother-in-law, Helen Simpson

My tech support, who came to the rescue more times than can be counted—
John Simpson

My brainstorming group, who kept my eyes on the goal and kept the conversation on topic—Donna Denison, Francis "Skip" Fennell, Ochieng'K'Olewe , Brian Lockard, Gay Jewell Love, Margaret Trader, Susan Travetto—all at the unnamed liberal arts college

My email buddies, who provided endless and timely support—Darlene Marceron, Dale McCleary, and Susan Wamsley

Dr. James Dudley, advisor and chair of my dissertation committee, who read much chaff to get to the wheat

My dissertation committee, for their encouragement and insightful contributions—Dr. Gilbert Austin, Dr. Robert Carbone, Dr. Wayne Slater, Dr. Denis Sullivan, and Dr. Thomas Weible

TABLE OF CONTENTS

List of Tables	vii
List of Figures.....	ix
Chapter I THE RESEARCH PROBLEM	1
Introduction	1
Considerations in Evaluating Teacher Candidate Quality	3
Rationale for the Study.....	7
Statement of the Problem	11
Research Questions	13
Professional Significance of the Study.....	15
Research Design	16
Conceptual Framework	18
Limitations of the Study	21
Delimitations of the Study.....	22
Assumptions of the Study	23
Definitions of Terms in the Study	24
Summary and Organization of the Study	27
Chapter II REVIEW OF RELATED LITERATURE	29
Historical Perspectives of Educational Reform Initiatives	30
A Nation at Risk	30
Goals 2000: Educate America Act	31
No Child Left Behind	33
Redesign of Teacher Education	34
Conceptual Framework for this Study	36
Recommendation One: Knowledge, Skills, And Dispositions	37
Recommendation Two: Acquisition of Knowledge, Skills, And Dispositions	42
Recommendation Three: Sorting of Candidates.....	48
Portfolio Assessments	52
Portfolios in Teacher Education	53
Considerations in Evaluating Teacher Candidate Quality	71
Gender.....	72
Traditional and Non-Traditional Ages.....	74
Elementary, Secondary, K-12 Certification.....	77
Summary	80
Chapter III RESEARCH DESIGN AND METHODOLOGY.....	81
Research Questions	82
Research Design	84
Setting.....	85

Participants	87
Research Procedures	89
Permission to Conduct Study.....	89
Procedures.....	90
Instrumentation.....	91
Student Teacher Exit Portfolios.....	91
Praxis I and Praxis II.....	95
Overall Grade Point Average.....	98
Student Teaching Grades	100
Survey of Former Teacher Candidates	102
Data Analysis Procedures.....	105
Summary	110
 Chapter IV ANALYSIS AND RESULTS	 111
Statement of Problem	111
Review of Research Procedures	114
Teacher Candidates.....	115
Findings	116
Research Question 1A	116
Research Question 1B.....	117
Research Question 2A	121
Research Question 2B.....	123
Research Question 3A	127
Research Question 3B.....	129
Research Question 4A	133
Research Question 4B.....	135
Research Question 4C.....	137
Research Question 5	139
 Chapter V. SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS	 144
Restatement of Research Problem.....	145
Review of Methodology.....	145
Summary of Findings	147
Research Questions One, Two, and Three.....	147
Research Question Four.....	149
Research Question Five	150
Conclusions	151
Appropriate for All Teacher Candidates?.....	151
Unique Contribution to Teacher Candidate Assessment?	153
Recommendations and Implications	155
Recommendation for Replication of This Study	156
Recommendation for Stabilized Scoring Protocols.....	157
Recommendation for Consideration of Teacher Candidates' Concerns.....	159

Appendix A	Holmes Group Recommendations	161
Appendix B.	Carnegie Forum Recommendations	162
Appendix C.	Goodlad's Postulates	163
Appendix D.	INTASC Principles	166
Appendix E.	Request to College Institutional Research Review Board ...	167
Appendix F.	Permission from College Institutional Research Review Board.....	169
Appendix G.	Application to University Institutional Research Review Board	173
Appendix H.	Permission from University Institutional Research Review Board	177
Appendix I.	Student Teacher Exit Portfolio Scoring Sheet	179
Appendix J.	Student Teacher Exit Portfolio Scoring Guidelines.....	180
Appendix K.	Former Teacher Candidate Survey	188
Appendix L.	Distribution of Survey Respondents.....	193
References	194

LIST OF TABLES

1.	Theorists' Contribution to Constructivist Education	45
2.	Praxis I and II Results (as reported for Title II Report, 2001-2002)	87
3.	Research Procedure Time Line	91
4.	Range of Total Portfolio Scores by Semester	93
5.	Range of Scores for Each Standard in Exit Portfolio	94
6.	Grade Computation	99
7.	Research Questions, Instrumentation, and Data Analysis.....	109
8.	Differences of Female/Male Performance on Total Score on Exit Portfolio	117
9.	Differences of Female/Male Performance on Each of 10 INTASC Standards on Exit Portfolio	118
10.	Differences of Traditional/Non-Traditional Age Performance on Total Score on Exit Portfolio	122
11.	Differences of Traditional/Non-Traditional Age Performance on Each of 10 INTASC Standards on Exit Portfolio	124
12.	Summary of ANOVA Results for Certification Areas/Levels of Teacher Candidates on Total Score of Exit Portfolio	128
13.	Mean Scores of Certification Levels on Total Score of Exit Portfolio	128
14.	Summary of ANOVA Results for Certification Areas/Levels of Teacher Candidates on Each of 10 INTASC Standards on Exit Portfolio	139
15.	Scheffé Results for Certification Areas/Levels of Teacher Candidates, INTASC Standard Five Score	132
16.	Mean Scores of Certification Levels on Standard Five of Exit Portfolio	133

17.	Correlation of Portfolio Assessment and GPA, Student Teaching Internship Grade, Praxis I and Praxis II by Gender	135
18.	Correlation of Portfolio Assessment and GPA, Student Teaching Internship Grade, Praxis I and Praxis II by Age Groups.....	136
19.	Correlation of Portfolio Assessment and GPA, Student Teaching Internship Grade, Praxis I and Praxis II by Certification Levels	138
20.	Survey Question One	140
21.	Survey Question Two.....	141
22.	Survey Question Three.....	142
23.	Findings of Significant Differences on Each of 10 Standard Scores on Portfolio, by Gender, Age Group, and Certification Level	153
24.	Findings of Relationships Between Portfolios and Other Assessments by Gender, Age Groups, and Certification Levels.....	155

LIST OF FIGURES

1.	Teacher Candidate Groups	88
2.	Overall Grade Point Average	100
3.	Distribution of Student Teaching Internship Grade	102

CHAPTER I

THE RESEARCH PROBLEM

"Each state agency must develop a plan to ensure that all teachers are 'highly qualified' no later than the end of the 2005-2006 school year."

(No Child Left Behind, 2002)

Introduction

Concern about the quality of teacher candidates and the quality of teachers already in the classroom is evident in contemporary policy decisions and educational reform efforts (Darling-Hammond & Sclan, 1996; Goodlad, 1990; Goodlad, 1994; Holmes Group, 1995; National Commission on Teaching and America's Future, 1996; No Child Left Behind, 2002). In recent years, that attention has turned to teacher education programs or, specifically, the processes used to evaluate teacher competence (National Education Goals Panel, 1994; State Department of Education, 1995; U.S. Department of Education, 1991). One important recommendation to promote or encourage first-rate teaching is to "ensure that all prospective teachers undergo a rigorous program of education or preparation and screening before they are permitted to operate as autonomous professionals" (Darling-Hammond, Wise, & Klein, 1999, p. 49).

One difficulty in determining if a teacher candidate is fully qualified and competent for independent classroom practice is the historical inadequacy of assessments of prospective teachers (Barton & Collins, 1993; Darling-Hammond et al., 1999; Haney, 1990; Lyons, 1998b; Stone, 1998; Wolf, 1991). Frustration with paper-pencil tests and inadequate resources for the comprehensive observation of teacher candidates in the classroom has driven the teacher education community to embrace alternative methods of assessing the knowledge, skills, and dispositions of

prospective teachers (Barton & Collins, 1993; Long & Stansbury, 1994; Wolf & Dietz, 1998). These alternative methods have tended to use multiple combinations of assessments, such as standardized national exams, internship experiences, and portfolios, which appear to provide a more encompassing view of the readiness of teacher candidates to begin their independent classroom duties (Kilbane & Milman, 2003; Long & Stansbury, 1994; Lyons, 1998b).

During the past decade of the reform of teacher education, with the encouragement of accrediting bodies, performance-based assessments such as portfolios have become standard in many teacher education programs (NCATE, 2000; SDE, 1995), and have been adopted by many programs (Kilbane & Milman, 2003; Martin-Kniep, 1999; Wolf & Dietz, 1998). The student teacher exit portfolio has become the final evidence provided by the teacher candidate indicating that the candidate has developed all of the competencies necessary to become a certified professional educator (Constantino & DeLorenzo, 2002; Kilbane & Milman, 2003; Martin-Kniep, 1999; Wolf & Dietz, 1998).

Student teacher exit portfolios are a recent addition to teacher education assessment. As the portfolio process has developed and matured during the past fifteen years of use, the teacher education community has come to an understanding about the possibilities of portfolio assessments as evidence of teacher candidate quality and competence (Loughran & Corrigan, 1995; Lyons, 1998a; Shulman, 1998). The portfolio process has been characterized as a "dynamic process with interacting elements that become braided into the whole process of learning to teach" (Lyons, 1998b, p.18). These elements include a set of goals or standards by which the student teacher intern will be judged. The construction of portfolios or the gathering of artifacts as a body of evidence on the student intern's learning and competence in both subject knowledge and pedagogy is at the crux of the exercise (Bird, 1990; Lyons,

1998a; Shulman, 1998). The process also includes conversations with mentors and student teachers discussing the intern's practice, as well as reflections on the content of the portfolio (Bird, 1990; Lyons, 1998b; Shulman, 1998).

As with many performance-based assessments, the exit portfolio has been fraught with difficulties in process, procedures, and evaluation (Cizek, 1991; Naizer, 1997; Stone, 1998). Much has been published as anecdotal reports on the experience of establishing exit portfolios within teacher education programs (Barton & Collins, 1993; Campbell, Cignetti, Melenyzer, Nettles, & Wyman, 2001; Constantino & DeLorenzo, 2002; Gellman, 1992; Ryan & Kuhs, 1993; Stone, 1998; Wolf, 1991; Wolf & Dietz, 1998). However, there is a dearth of scientific evidence that exit portfolios serve as an appropriate measurement of a student teacher's knowledge, skills, and dispositions ascribed to professional teachers. Does a student teacher exit portfolio simply duplicate evidence already available through other assessment measures or does it provide unique information that justifies its addition to the teacher education repertoire of assessments of teacher candidates?

Considerations in Evaluating Teacher Candidate Quality

The pool of teacher candidates includes both genders, several age groups, and people who have been attracted to the various levels and areas of certification. It may be thought that these demographic type factors could influence the candidates' interest and ability to satisfactorily complete the portfolio assessment tasks.

Gender. Gender issues need to be considered as a possible factor in influencing the successful completion of the student teacher exit portfolio assessment tasks for two reasons. First, the increasingly scientific research verifying a biological predilection of gender strengths (AAUW, 1999; Given, 2002; Jensen, 1998; Moir & Jessel, 1991; Sadker & Sadker, 1994; Sousa, 2001) lends more robust credence to

previous arguments that gender should be a factor in instruction and assessment decisions in school settings. Second, the preponderance of female involvement in the field of education at all levels brings into question the appropriateness of various educational activities for all participants' success in teacher education programs (Darling-Hammond & Sclan, 1996; National Center for Education Statistics, 1993; Wolfe, 2001). Therefore, gender of teacher candidates was considered in the analysis of data in this study.

Traditional and Non-Traditional Ages. Many teacher education programs attract both traditional age undergraduate students and non-traditional age students interested in changing careers and pursuing teacher certification. In the research literature about teacher development, Fuller (1969, 1974) developed a theory of teacher development and "concerns theory." This team, from the University of Texas, proposed a theory of professional development that delineated the professional concerns of traditional age undergraduate preservice teachers from the concerns of older and more experienced teacher candidates (Fuller, 1969, 1974). Teacher educators who work with older teacher candidates perceive them as more motivated, pragmatic, self-directed and task oriented than traditional age preservice students (Beder & Darkenwald, 1982). As the number of non-traditional age teacher candidates increase in preservice teacher education programs, it is important to understand whether the non-traditional age teacher candidates' support needs are different from traditional age preservice students' needs in successfully completing the teacher education program (Bendixen-Noe & Redick, 1995). It has been suggested by the literature that differences in the age of candidates also indicate differences in personal and professional characteristics of the teacher candidates, which bear on the competence of these teacher candidates (Bendixen-Noe & Redick, 1995; Post, 1991;

Post & Killian, 1992). Therefore, age of the teacher candidates was a consideration in the analysis of teacher candidate assessment data collected.

Elementary, Secondary, K-12 Certification. A third factor to be considered is the elementary, secondary and K-12 certification levels selected by each teacher candidate. Educational research concerning the differences between those candidates who chose to become elementary classroom teachers and those who chose to become secondary classroom teachers has discovered that a basic issue involved the candidates' motivation for becoming teachers at all (Book & Freeman, 1986; Brookhart & Freeman, 1992; Fox, 1961; Skopin, 1996). While both groups of candidates were interested in working with youngsters, an overwhelming majority of elementary candidates in this study are motivated by their interest in helping "students gain a sense of personal achievement and self-esteem" (Book & Freeman, 1986, p. 48). A majority of secondary candidates in this reported study chose to become teachers so they could "apply what they learned in their major field and to help students gain knowledge and understanding of subject matter they consider to be important" (Book & Freeman, 1986, p.48).

Another notable difference was the elementary candidates' significant experience with children in learning settings prior to entry into a teacher education program in comparison to the lack of experience by secondary level candidates working with age-appropriate children prior to entry in a teacher education program (Book & Freeman, 1986). It was reported that elementary candidates had an expectation that both course work and field experiences would support "learning to teach" while secondary candidates were less likely to believe that their professional sequence of courses and "field work" would make an important contribution to their professional knowledge (Book & Freeman, 1986). It could be hypothesized that these two differences in attitude toward their preparation to become professional educators

could have an impact on the results of assessment measures of their teaching competencies.

Another difference impacting elementary and secondary teacher candidates is the wide variety of subject-specific standards that have been developed and implemented in teacher education programs in the last decade (Kendall & Marzano, 1996). Although the Interstate New Teacher Assessment and Support Consortium (INTASC) Standards have been universally embraced for the overall guiding principles of an accredited teacher education program, the subject-specific standards are utilized at the course level (Hartzler-Miller, 1999). Perhaps the variety of standards applied to each subject area could have an impact on the results of candidate assessments. Therefore, choice of certification levels (elementary, secondary, and K-12) for each candidate was a consideration in the analysis of teacher candidate assessment data collected.

This research study sought to provide a perspective on the student teacher exit portfolio as a contributing tool for assessing preservice teacher competency. In this study, the population of student teachers included male and female subjects who are traditional age degree candidates and male and female subjects who are non-traditional age degree candidates. It also included students who were attempting to earn certification as elementary classroom teachers, as secondary (grades 6-12) classroom teachers, or as classroom teachers of specialty subject areas, which spanned k-12 grades. Is the student teacher exit portfolio assessment process appropriate for all of these teacher candidates, no matter the age, the gender, or the certification level? Does the exit portfolio contribute unique assessment information for all teacher candidates?

Rationale for the Study

The ongoing school reform movement of the past two decades, beginning with the provocative and incriminating report, *A Nation at Risk* (1983), turned attention to whether teachers were capable of delivering a challenging curriculum to progressively more diverse groups of students. The mission of our schools has been described as effectively teaching all children (Snow, Burns, & Griffin, 1998). This requires that teachers be prepared to address the extensive diversity in experiences that children bring with them to school. This diversity may include a wide range of languages and cultures, disabilities, learning styles and intelligences, which in turn requires an equally deep and varied repertoire of teaching strategies from the instructors (Darling-Hammond et al., 1999; Snow et al., 1998).

The complexity of teaching and learning has been illuminated by educational research in recent decades (Carnegie Forum, 1986; Christensen, 1996; Dill, 1990; Donmoyer, 1996; Grossman, Wilson, & Shulman, 1989; Holmes Group, 1986; McDiarmid, 1990; Shulman, 1986; Shulman, 1987). We now know that students have differing learning styles and rates of development (Carbo, Dunn & Dunn, 1986; Gardner, 1993; Piaget, 1973). We know that psychological factors influence motivation and learning (Gage & Berliner, 1992; Good & Brophy, 1994; Wang, Haertel, & Walberg, 1994). We know that prior experiences and learnings mediate the processing of information presented in formal instruction (Donovan, Bransford, & Pellegrino, 1999; Rosenblatt, 1994; Rumelhart, 1980; Wittrock, 1986).

Several presentations of a similar knowledge base for teaching are reflected in recently developed professional standards and current licensing requirements (Interstate New Teacher Assessment and Support Consortium, 1992; National Board for Professional Teaching Standards, 2001; National Council for Accreditation of Teacher Education, 2000). There appears to be substantial agreement about the major

domains of knowledge required as a basis of professional teaching. These domains include areas of subject-related and pedagogical knowledge, the skills necessary for managing the learning by all students, and the personal dispositions or characteristics required for being an effective classroom teacher (Carnegie Forum, 1986; Holmes Group, 1986; Reynolds, 1989; Shulman, 1987). Discussions about the knowledge base for teaching must also include the concept of assisting prospective teachers in their development of reflective habits toward teaching (Cruikshank, 1991; Schon, 1991). Teacher candidates also are believed to need to evaluate and integrate knowledge in their classroom practice, as well as assess the needs of their students and the demands of creating positive classroom context (Marzano, Brandt, Hughes, Jones, Presseisen, Rankin, & Suhor, 1988; Wiggins & McTighe, 2002).

An important attribute of all the recently created standards is that they are performance-based—that is, the standards describe the behaviors teacher candidates must demonstrate or perform as evidence they have the necessary knowledge, skills, and dispositions to become effective classroom teachers (The Council of Chief State School Officers, 2002). This performance-based approach to teacher certification clarifies the criteria for assessment and licensing, placing more emphasis on abilities teachers develop rather than the specific courses they must have on their college transcripts.

The efforts establishing teaching standards used research about good classroom practice to define the kinds of knowledge and understandings teachers should demonstrate in an integrated fashion (Carnegie Forum, 1986; Holmes Group, 1986; Reynolds, 1989). The view of teaching articulated in these performance-based standards demands, as the INTASC report suggested, "that teachers integrate their knowledge of subjects, students, the community and curriculum to create a bridge between learning goals and learners' lives" (INTASC, 1992, p.8).

A major problem with establishing performance-based criteria as the standards for teacher education programs is the difficulty posed to fairly and appropriately evaluate teacher candidates. Policymakers have established teaching tests such as National Teachers Exam (NTE) and the Praxis tests, by Educational Testing Service, as screening examinations for teacher candidates. Objective testing has been adopted as an alternative to relying on the more traditional, yet subjective, practice of assessing the culminating experience of the student teaching internship in a classroom. It has not been established that these multiple choice screening tests can document the teacher candidate's ability to teach well and to teach responsibly (Riggs & Riggs, 1990-91). These tests do not allow for demonstration of the integration of teacher knowledge, skills, and disposition in the complex school settings that epitomize real classroom teaching, as may be observed in the supervision of the student teaching internship. Haney, Madaus, and Kreitzer (1987) reported that research does not confirm the construct validity and predictive nature of these teacher exams—it is not established that these exams actually test what knowledge is required for effective teaching nor does it predict which teacher candidate will become an effective teacher. There is also discussion within the teacher education community about the equity of these tests (Riggs & Riggs, 1990-91). Are they fair to all of the various groups of candidates such as both genders, all races and ethnic groups, all ages, and all certification levels?

As a consequence of dissatisfaction with the existing standardized tools for evaluating teacher competence, a range of new techniques and strategies for teacher assessment has been recently developed and put into use in initial teacher certification decisions. These alternative assessment methods have been influenced by the work in performance-based programs already established by the RAND Corporation in California (Klein & Stretcher, 1991), by Alverno College (Diez & Hass, 1997), by the

Teacher Assessment Project at Stanford University (Shulman, 1991), and by the National Board of Professional Teaching Standards (NBPTS, 2000). These assessments include on-the-job evaluations, simulated teaching, interviews, portfolios, open-ended paper and pencil tests, and closed paper and pencil tests such as multiple-choice exams (Darling-Hammond et al., 1999).

One of the alternative assessment tools that has become part of performance-based assessment systems within many teacher education programs is the student teacher exit portfolio. In fact, during the past decade, many state Boards of Education and other accrediting bodies have mandated the student teacher exit portfolio as an assessment tool for determining whether a candidate is qualified to successfully exit teacher education programs (SDE, 1995; NCATE, 2000). The portfolio is thought to be a tool that may tap teacher thinking and reflection upon their multifaceted, integrated performance; portfolios are thought to provide potentially rich evidence of teacher candidates' knowledge, skills, and dispositions (Barton & Collins, 1993; Bird, 1990; Stone, 1998).

The student teacher exit portfolio is expected to be based upon a universally accepted set of standards such as the INTASC standards. These standards target well-defined knowledge, skills and dispositions, and verify that the material in the portfolio is representative of the teacher candidate's true capabilities (Campbell et al., 2001; Constantino & DeLorenzo, 2002; Glatthorn, 1996; Kilbane & Milman, 2003).

During the last decade of implementing teacher portfolios as an exit assessment from teacher education programs, many reports have been published on the pros and cons, the promises and pitfalls of the use of portfolios in determining whether or not teacher candidates have accomplished established outcomes (Stone, 1998; Wolf & Dietz, 1998). This has been an evolving effort, becoming more sophisticated in process, product, and evaluation, as experience instructed both the

teacher educator and the teacher education candidates (Glatthorn, 1996; Lyons, 1998a; Stone, 1998).

There exists very little research confirming the construct validity and predictive nature of the teacher portfolio. A search of the literature does not provide any information regarding how effective this assessment tool is in sorting and screening teacher candidates into groups of candidates with potential to become independent quality classroom practitioners from those who do not exhibit such possibility. This study attempted to make a first step toward what the outcomes of this particular assessment may tell us about the suitability of teacher candidates for quality classroom teaching. This first step looked at determining the appropriateness of the portfolio assessment by relating portfolio assessments with the other, more traditionally accepted assessments available in teacher education. An assessment tactic which includes multiple assessments is a far richer approach than a single measure, as has been prescribed in some licensing scenarios (Darling-Hammond et al., 1999). Being able to assure teacher education stakeholders that student teacher exit portfolios are appropriate assessments of teacher candidates will add an authentic and justifiable assessment measure to the teacher education repertoire.

Statement of the Problem

The concept of teacher portfolios is at the forefront of teacher education assessment issues, as it has been during the past decade of teacher education reform. A quick perusal of the agendas for recent teacher education conferences confirms this as an issue within the teacher education community (American Association of Colleges of Teacher Education, 2003; Association for Teacher Education, 2003). The teacher education community has moved beyond the initial concerns about identifying what is a teacher portfolio, what should be in the portfolio, and how does a portfolio

fit into the assessment system of the program. The teacher education community is now concerned about whether student teacher exit portfolios contribute as an appropriate tool and provide unique information to the assessment of the competency of teacher candidates.

As more teacher education programs are mandated by their states to be nationally accredited by the National Council for Accreditation of Teacher Education (NCATE), more teacher education programs are required to evaluate their teacher candidates with student teacher exit portfolios as part of their assessment plans. It is important that this be a suitable measure of the teacher candidates' competence in the classroom.

Accrediting bodies have instructed teacher education programs to tie the teacher portfolios to the set of teaching standards adopted as the framework for the teacher education programs (SDE, 1995; NCATE, 2002). This tie to standards leads the teacher education community to believe that the portfolio experience is an appropriate one. Is it? Is this an assessment experience that is unbiased and appropriate for all candidates, male and female, no matter the age or prospective level of certification? This study investigated whether the demographic factors of age, gender, and choice of certification level may have influenced the outcomes of the student teacher exit portfolio. This study also explored the comparison of the outcomes of traditionally accepted assessments (such as the grade awarded for student teaching internship, the Praxis tests now required in this state for certification, and the overall grade point average from the student's academic career) with the assessment outcomes on student teacher exit portfolios.

Research Questions

In order to explore the appropriateness of student teacher exit portfolios for all teacher candidates, regardless of gender, or age, or choice of expected certification area, and how the portfolio related to other assessment tools, the following research questions were designed:

1. What differences, if any, are revealed between male and female performance on the student teacher exit portfolio as determined by INTASC Standards?
 - A. For the overall scores of the student teacher exit portfolio?
 - B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio:
 - INTASC #1 Subject area knowledge and pedagogy
 - INTASC #2 Child development, appropriate learning activities
 - INTASC #3 Adapting for diverse learners
 - INTASC #4 Critical thinking, problem solving, performance skills
 - INTASC #5 Motivation and creating a learning environment
 - INTASC #6 Effective verbal, nonverbal, and media communication skills
 - INTASC #7 Knowledge of students, community, and curriculum goals
 - INTASC #8 Formal and informal assessment strategies
 - INTASC #9 Reflective practitioner, to grow professionally
 - INTASC #10 Fosters relationships with colleagues, parents, community

2. What differences, if any, are revealed between traditional age degree teacher candidates' and non-traditional age degree teacher candidates' performance on the student teacher exit portfolio as determined by the INTASC Standards?
 - A. For the overall scores of the student teacher exit portfolio?
 - B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio.
3. What differences, if any, are revealed between elementary certification area, secondary certification area, and K-12 certification area teacher candidates' performance on the student teacher exit portfolio as determined by the INTASC Standards?
 - A. For the overall scores of the student teacher exit portfolio?
 - B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio.
4. Is there a correlation between the Student Teacher Exit Portfolio assessment and the three other exiting assessments (Overall GPA, Student Teacher Internship grade, the Praxis I and II test scores) that are traditionally accepted and used in teacher education programs for initial certification?
 - A. Correlation between the assessments by gender (male and female)
 - B. Correlation between the assessments by age (traditional age candidates and non-traditional age candidates)
 - C. Correlation between the assessments by certification levels (elementary, secondary, K-12)

5. How do teacher candidates rate the various assessment measures (Overall GPA, Student Teacher Internship grade, the Praxis I and II test scores, and Student Teacher Exit Portfolios) of their knowledge, skills, and dispositions?

These research questions attempted to relate the demographic variables of age, gender, and certification levels with performance results on the teaching portfolio. Are there statistically significant differences between the results of each of the represented groups? The questions also explored comparisons between performance on exit portfolios with multiple assessments including the grade for student teaching internship, the score on Praxis I tests, and the overall grade point average. The result of the inquiry into these questions established portfolio assessment as either an appropriate assessment or an assessment in need of further thought or refinement.

Professional Significance of the Study

Abundant literature on the problems, pitfalls, and promises of teacher portfolios exists for both preservice and inservice teachers (Barton & Collins, 1993; Bird, 1990; Grant & Huebner, 1998; Snyder, Lippincott, & Bower, 1998; Stone, 1998; Wolf, 1991; Wolf & Dietz, 1998; Zidon, 1996; Zubizarreta, 1994). Teacher educators are now in need of more specific information concerning whether or not the student teacher exit portfolio actually does all that the teacher education community believes that it does. The potential significance of this study is twofold.

First, stated policy by accrediting bodies suggested that student teacher portfolios are a quality means for deciding whether or not a teacher candidate should be recommended for certification (NCATE, 2000; SDE, 1995). Does the process and product of student teacher exit portfolios provide the necessary information in light of the high stakes attributed to it? In accreditation reviews, teacher portfolios become

part of the record that the department submits as evidence their candidates are meeting standards—learning what they need to know to become effective teachers. Does the student teacher exit portfolio provide new information or make a unique contribution in the assessment of teacher candidates in determining these critical requirements?

Second, teacher educators seem to assume that all teacher candidates are equally equipped to satisfy the myriad tasks affiliated with the assembling of a student teacher exit portfolio. The results from these research questions provided teacher educators with information about the successful or less successful performance of certain groups of student teachers on completion of the student teacher exit portfolio. This study provided more information about whether or not teacher educators need to be doing more to support the portfolio experience for any specific group of teacher candidates. Is the student teacher exit portfolio an appropriate assessment for all categories of teacher candidates, regardless of gender, age, or choice of certification levels?

Research Design

Scientific and anecdotal research literature exists on the why and how-to of teacher portfolios for both preservice and inservice teachers (Bird, 1990; Campbell et al., 2001; Ryan & Kuhs, 1993; Stone, 1998; Wolf, 1996; Wolf & Dietz, 1998). Teacher educators are now in need of more specific information concerning whether or not the teacher portfolio actually does all that the teacher education community believes that it does. This study was designed to begin the task of establishing the use of student teacher exit portfolios as one of several assessment tools for teacher education programs to use in determining the suitability of teacher candidates to become certified classroom teachers. Although the research methodology will be fully

discussed in Chapter Three of this text, this section of Chapter One gives a brief overview.

This ex-post facto study, a type of causal-comparative research, was based on the comparisons of various groups of teacher candidates on the assessment results on the student teacher exit portfolios (Fraenkel & Wallen, 2000). These teacher candidates (n=76) completed their student teaching internship during three academic semesters at one teacher education program.

The teacher candidates were compared according to their already determined groups of gender, age, and the level of teaching certification being sought (elementary, secondary, K-12). The means of the results of each group were calculated and the differences in mean portfolio scores were assessed for magnitude by using a series of independent t-tests. Analysis of variance was performed to ascertain the differences in portfolio scores for the three identified certification levels (elementary, secondary, K-12) of the teacher candidates.

Correlational statistics were used to investigate the relationship of portfolio scores with combinations of each of the four more traditionally accepted assessment tools, including overall grade point average, Praxis I test scores, Praxis II tests scores, and the student teaching internship grade. These findings were aggregated by the teacher candidate groups of gender, age, and certification level.

A paper/pencil survey was sent to all teacher candidates who were subjects of this study. The purpose of the survey was to include the opinions of teacher candidates about the five identified measures of their teaching knowledge, skills, and dispositions. The researcher was then able to include anecdotal information about the assessment experience from the perspective of the participating teacher candidates.

These quantitative statistical manipulations of the methods of assessment and the demographic variables assisted the researcher in building an argument for the

inclusion, exclusion, or revision of student teacher exit portfolios within the assessment system of this teacher education program.

Conceptual Framework

This study was influenced by the recommendations of Darling-Hammond, Wise, and Klein (1999) for the development of assessment objectives for teacher candidate assessment systems. These recommendations were targeted in three specific areas of concern that have been the subject of much research during the past two decades of teacher education reform.

First, the authors (Darling-Hammond et al., 1999) recommended that an assessment system for teacher candidates should reflect the knowledge, skills, and dispositions all professional teachers are expected to master as a minimum requirement for responsible practice. This recommendation coincides with the standards-based efforts developed during the past fifteen years of reform. Standards-based teacher education was promoted by three major influential policymaking groups of the late eighties and early nineties: the Holmes Group, the Carnegie Forum, and Goodlad's Center for Educational Renewal. Several later efforts towards establishing standards-based teacher education were led by the National Board of Professional Teaching Standards (NBPTS, 2001) and the National Council for Accreditation of Teacher Education (NCATE, 2002).

It was the contention of these groups that standards for the preparation of all prospective classroom teachers would assist in the recognition of teaching as a profession (Goodlad, 1990; The Carnegie Forum, 1986; The Holmes Group, 1986).

Second, Darling-Hammond et al. (1999) suggested that an assessment system for teacher candidates should be constructed so as to encourage the acquisition of the required professional knowledge, skills, and dispositions. This concept is aligned with

the learning theory known as constructivism. Based upon the research and theoretical work of Jean Piaget and Lev Vygotsky, constructivism holds that individuals create or construct their own new understandings or knowledge (Vadeboncoeur, 1997). The learner accomplishes this development of new understanding or knowledge through interaction of what they already know and believe and the ideas, events, and activities with which they come in contact (Abdal-Haqq, 1998; Canella & Reiff, 1994; Richardson, 1997; von Glaserfeld, 1996). The constructivist approach to learning and teaching "makes explicit that different individuals, depending on their experiences, knowledge and their cognitive structures at the time will understand a given presentation differently" (Danielson, 1996, p. 23).

Implicit in constructivism is the notion that observation of student performance will inform the teacher as to next steps in instruction, thus the intent of the assessment process is to improve the performance rather than simply audit it (Wiggins, 1993). A similar application to teacher education implies the same outcome—that performance will be enhanced by assessment because the instructor and student will be able to make instructional decisions based upon appropriate next steps. Curriculum-embedded assessment is the norm with constructionists believing that assessment is key to reflection, learning, and growth (Szabo & Lambert, 2002).

The third recommendation by these authors, Darling-Hammond, Wise, and Klein (1999), was that an assessment system for teacher candidates should reliably and validly sort those candidates who are adequately prepared for responsible independent practice from those who are not. The main objective of this recommendation is to "seek approaches that will surmount the shortcomings of many states' current approaches to assessment" (Darling-Hammond et al., 1999, p. 91). These authors decry the lack of validity in state-required testing of prospective classroom teachers as evidenced by the failure to include "good representations of the tasks of teaching or

the reasoning process teachers must apply to the problems of teaching practice" (Darling-Hammond, et al., 1999, p. 91). They also complain that these high-stakes tests fail the test of reliability since they do not test candidates under comparable circumstances or on comparable tasks (Wise & Darling-Hammond, 1987).

Developing performance tasks that can assess candidates in comparable ways on key tasks of teaching is essential to the question of reliability of assessment measures of all teacher candidates. The universal acceptance of the sets of standards developed by INTASC and NBPTS, endorsed by the National Council for Accreditation of Teacher Education and other professional organizations, lends credence to the question of *what* is to be assessed. Performance assessment, as has come to be expected in teacher education during the two decades of reform, indicates an assessment of professional teaching practice that surfaces from a context-sensitive understanding of pedagogical and personal principles that are the work of teaching (Tellez, 1996).

Validity, within a performance assessment climate, is associated with the thoughtful consideration of teachers' needs and the value of processes including decision making, documentation, and representation (Tellez, 1996). Validity is established both in the interpretation and use of the data produced by an assessment technique. Performance assessment focuses attention on the use and interpretation of information that articulates teachers' understandings about the contexts of their experiences as well as their understandings of those experiences (Tellez, 1996).

These three recommendations and the associated research have guided the work involved in this study. The teacher education program has directed attention toward all three areas of concern. First, the student teacher exit portfolio questions were framed by the adopted set of standards by this particular teacher education program. Second, the student teacher exit portfolio assessment questions were framed

by the notion of how the process and product not only informed the reviewer about the capability of the teacher candidate but also how it informed the candidate about their own strengths and needs. Third, the student teacher exit portfolio assessment scores were reviewed for inter-rater reliability in a first look at validity issues.

Limitations of the Study

When reviewing the findings and conclusions of this study, the reader should keep the following limitations in mind:

1. Different scoring scales and rubrics have been used in each of the three semesters included in this study. While this is evidence of the evolution of the learning by the teacher educators involved in this process, it also meant that accommodations of the different scoring needed to be made when comparing for statistical purposes. This is explained further in Chapter Three.
2. A core group of raters have been involved in the evaluation process each semester. These raters could be expected to become more sophisticated each time they participate in the scoring of student teaching portfolios. Additional raters have been added to the team of raters each semester, which complicates the process of training and scoring the products.
3. The study was sited at a small liberal arts college with a small contingent of both teacher educators and student teachers. Because randomization techniques were not employed, this study's results cannot be generalized to any other population. Generalizability is also limited because of the size of the sample of possible teacher candidates (n=76).

4. Unequal populations are inevitable in each of the identified variable areas because of the small size of the sample. There existed differences in the number of subjects in each category: secondary/elementary, male/female, traditional ages/non-traditional ages. Each semester included a differing distribution of student teachers in each variable category.
5. Another category of demographic variables that has not been mentioned in this report is the racial or ethnic differences in a population of teacher candidates. Because there existed only one teacher candidate who was identified as other than American Caucasian, race or ethnicity could not be considered in this study.
6. The teacher candidates included in this study were those students who had been academically successful and had been deemed by faculty to have the knowledge, skills, and dispositions necessary to become successful classroom teachers. The less successful candidates were no longer in the program. This prior screening of candidates meant the teacher candidates included in the student teacher internship semester, and in this study, were a select group of students.

These limitations should be considered as the reader ponders the information discussed in Chapter Four, Analysis and Results, and in the reading of Chapter Five, Summary of Findings, Conclusions, and Recommendations.

Delimitations

When reviewing the findings and conclusions of this study, the reader should keep the following delimitations in mind:

1. The population for this study was limited to the teacher candidates of one institution of higher learning. The researcher chose to limit the scope of the study to this institution because of availability and access to the teacher candidates and associated data.

Assumptions of the Study

When reviewing the findings and conclusions of this study, the reader should keep the following assumptions in mind:

1. The INTASC Standards, adopted as the framework of both the teacher education program and the student teacher exit portfolio, are a genuine and justifiable set of knowledge, skills, and dispositions related to success as an effective classroom teacher. The INTASC standards are universally accepted by the teacher education community and adopted by many teacher education programs as the framework for their curriculum.
2. The raters of portfolio assessments in this study are consistent in rating the evidence provided by each student teacher. Inter-rater reliability for this portfolio review process at this college has been tested but, because of the changes in scoring each semester, is not applicable across semesters. The same core group of raters scored all of the same certification subject areas (for example, math portfolios were scored by one team of raters) each semester. The exception was elementary student teacher portfolios, which were rated by multiple teams, but included a core group of raters, who have worked each semester.
3. The assessment measures identified for comparison to the Student Teacher Exit Portfolio are reasonably valid and reliable measures used

by other respected institutions of higher education and are mandated by teacher education accrediting bodies. Overall GPA, Student Teacher Internship grade, the Praxis I and II test scores are considered by the teacher education community as reasonably valid and reliable measures of teacher candidate competency.

The researcher made no attempt to prove or disprove the assumptions listed and described. The reader of this report must keep these assumptions in mind as the study report is considered.

Definition of Terms in the Study

These terms are used throughout the paper describing this study. The definitions supplied for each term are found in the teacher education research literature:

1. Portfolios: "an organized, goal-driven documentation of professional growth and achieved competence in the complex act called teaching" (Campbell et al., 2001, p. 3).
2. Exit portfolios: "are a final selection of artifacts that provide substantial evidence of a teacher candidate's level of mastery related to performance standards and the goals of the program" (Constantino & DeLorenzo, 2002, p. 3). For a description of this Education Department's interpretation of an Exit Portfolio, refer to p. 91 in Chapter Three.
3. Performance-based: "the standards describe what teachers should know and be able to do rather than listing courses that teachers should take in order to be awarded a license" (The Council of Chief State School Officers, 2002, p.4).

4. Performance assessments: "a recent trend in student evaluation that attempts to measure real student performance on significant tasks; the focus is on what we want the student to be able to do. Also called authentic assessment" (Ryan & Cooper, 2004,p. 527).
5. Teacher education programs: "seeks to account for four sets of curricular intentions: general education, specialized subject matter thought relevant to what teachers must teach, foundational studies in the field of education, and both observation of and participation in teaching" (Goodlad, 1994, p. 160).
6. INTASC Standards: "principles established by the Interstate New Teacher Assessment and Support Consortium. These standards were chosen because of their general applicability for teachers of all disciplines and all levels, preschool to grade twelve" (Campbell et al., 2001, p. 4).
7. Knowledge: The National Council for Accreditation of Teacher Education identifies five types of knowledge in their Professional Standards discussion:
 - a. content knowledge: "the subject matter or discipline that teachers are being prepared to teach ...also refers to the professional field of study" NCATE, 2002, p. 53)
 - b. general knowledge: "theoretical and practical understanding generally expected of a liberally educated person. General education includes developing knowledge related to the arts, communications, history, literature, mathematics, philosophy, sciences, and the social studies, from multicultural and global perspectives" (NCATE, 2002, p.53)

- c. pedagogical knowledge: "the general concepts, theories, and research about effective teaching, regardless of content areas" (NCATE, 2002, p. 55).
 - d. pedagogical content knowledge: "the interaction of the subject matter and effective teaching strategies to help students learn the subject matter. It requires a thorough understanding of the content to teach it in multiple ways, drawing on the cultural backgrounds and prior knowledge and experiences of students" (NCATE, 2002, p. 55).
 - e. professional knowledge: "the historical, economic, sociological, philosophical, and psychological understandings of schooling and education. It also includes knowledge about learning, diversity, technology, professional ethics, legal and policy issues, pedagogy, and the roles and responsibilities of the profession of teaching" (NCATE, 2002, p.56)
8. Skills: "the ability to use content, professional, and pedagogical knowledge effectively and readily in diverse teaching settings in a manner that ensures that all students are learning" (NCATE, 2002, p. 56).
9. Dispositions: "the values, commitments, and professional ethics that influence behaviors toward students, families, colleagues, and communities, and affect student learning, motivation, and development as well as the educator's own professional growth. Dispositions are guided by beliefs and attitudes related to values such as caring, fairness, honesty, responsibility, and social justice" (NCATE, 2002, p.53)

10. Appropriate: "suitable for a purpose or use" (Webster's Desk Dictionary, 1990, p.41); "neither advantage nor disadvantage is held by any specific group of teacher candidates: all groups have equal opportunity for success" (researcher interpretation).

These definitions will assist the reader in understanding the meaning of each term as the researcher intended them.

Summary and Organization of the Study

Chapter One presented an introduction to the topic of student teacher exit portfolios through a rationale, a statement of the problem, and research questions. The professional significance of investigating the legitimacy of the use of student teacher exit portfolios as an assessment of teacher candidate competency was established in Chapter One. Also included in this chapter was the overview of the research methodology, the limitations, assumptions, and delimitations underlying this study. The definitions of terms used in this report were also delineated in Chapter One.

In Chapter Two, the related supporting research is reviewed. A detailed description of federal and state initiatives that have impacted teacher education reform set the context for this study. The conceptual framework for this line of inquiry was developed from the line of thought about assessment objectives outlined by Darling-Hammond, Wise, and Klein (1999). Constructivism, as related to the assessment objectives, and performance assessment, as the preferred means for assessment in a constructivist classroom, are described. Portfolio assessment, one of the major types of performance assessment, has been used in K-12 classrooms for more than a decade. Portfolios have only recently been adapted to teacher education and the assessment of teacher candidates. Research related to each of these topics is addressed in Chapter Two.

Chapter Three is a description of the methods and procedures used in the design and development of the study, the instrumentation, and the data collection procedures. In Chapter Four, the data is presented and analyzed. The findings of the study, conclusions drawn from the findings, and recommendations for future study or action are listed in Chapter Five.

CHAPTER II

REVIEW OF RELATED LITERATURE

"Interns should be assessed through a developmental portfolio review process. This process should be based upon rigorous performance criteria applied to a portfolio created at entrance, developed during the internship, and concluded upon exit from the internship" (Redesign of Teacher Education, SDE, 1995).

This chapter reviews the research relevant to the topic of student teacher exit portfolios. This review first presents an historical perspective of federal and state educational reform initiatives that have directed and motivated change in teacher education curriculum content and assessment. This is followed by a conceptual framework, as suggested by the work of Darling-Hammond, Wise, and Klein (1999), which supports the study. The third section discusses and analyzes the adaptation of portfolio assessment to teacher education. The last section of Chapter Two discusses the factors possibly affecting candidate progress in student teacher exit portfolio assessments including (a) gender, (b) age, and (c) the level of certification.

In order to understand the motivation for change in teacher education practices, in both curriculum and assessment, the reader needs to be familiar with three recent definitive educational reform efforts at the federal level that have affected teacher education programs. These three federal initiatives include *A Nation at Risk*, *Goals 2000: Educate America Act*, and *No Child Left Behind Act of 2001*. A teacher education reform initiative at the state level, stimulated by the federal efforts, has also impacted this particular teacher education program, especially in the area of teacher candidate assessment. This state level initiative is known as the *Redesign of Teacher Education*.

Historical Perspectives of Educational Reform Initiatives

During the past several decades the federal government has become involved in teacher education reform efforts at an implementation level, affecting not just what is taught in teacher education, but also how it is taught and evaluated. The provocative report issued in 1983, *A Nation at Risk: The Imperative for Educational Reform*, was a call for reforms from pre-school through college. "The Commission was created as a result of the Secretary of Education's concern about the widespread public perception that something is seriously remiss in our educational system" (National Commission on Excellence in Education, 1983, p.6). The report gave clear indications of the areas of deficiency, set goals for improving each of these areas, and made recommendations for repairing those identified areas. One of the five specific areas of concern was teaching, especially the preparation of teachers and the professional life of teachers (NCEE, 1983).

A Nation at Risk

This report (NCEE, 1983) indicated in its findings that (1) teaching, as a profession, did not attract the most academically able students, (2) the teacher education programs needed substantial improvements; (3) the working life of classroom teachers was unacceptable; and 4) that serious shortages of teachers existed in key subject areas. The commission made seven recommendations for the improvement of teaching and teacher education. However, only two of the seven recommendations were directly related to teacher education and the preparation of candidates for the classroom.

First, a recommendation by the Commission stated that teacher candidates should be required to meet high educational standards, to demonstrate an aptitude for teaching, and to demonstrate competence in an academic discipline. As part of this

recommendation, teacher education programs were to be held accountable for how well their graduates met these criteria (NCEE, 1983).

The second recommendation by the *A Nation at Risk* report impacting teacher education was that experienced teachers should be deeply involved in the redesign of teacher preparation programs and in the evaluation of teacher candidates as they progress through these preparation programs (NCEE, 1983).

While many of the recommendations of *A Nation at Risk* have received serious consideration, the same recommendations, or suggestions closely related, were made in subsequent reports and directives. As a result of slow progress on these *Nation At Risk* (1983) recommendations, President George H. W. Bush convened an education summit with the National Governors' Association in Charlottesville, Virginia in September 1989.

Goals 2000: Educate America Act

President George H. W. Bush and the 50 U.S. Governors adopted six goals to lead educational reform that would "lift the nation's schools out of mediocrity, social decay, and national decline" (White, 1994, p.18A). These goals were announced in the State of the Union Address in February 1990. The goals, later known as *Goals 2000: Educate America Act*, were signed into law in March 1994 by President William J. Clinton (Schwebel, 1994). The goals were established to promote changes that would lead to greater opportunities for all students to achieve at higher levels.

Goal Four of the *Goals 2000: Educate America Act* was directed toward improvement in teacher education. Goal Four stated, "the Nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all American students for the next century" (U.S. Department of Education, 1994, Sec

102, p. 1). This was a broad goal supported by four specific objectives encompassing preservice through inservice professional development. First, "All teachers will have access to preservice teacher education and continuing professional development activities that will provide such teachers with the knowledge and skills needed to teach to an increasingly diverse student population with a variety of educational, social, and health needs" (USDE, 1994, Sec 102, p.1). Second, "all teachers will have continuing opportunities to acquire additional knowledge and skills needed to teach challenging subject matter and to use emerging new methods, forms of assessment, and technologies" (USDE, 1994, Sec 102, p. 1). The third objective, "states and school districts will create integrated strategies to attract, recruit, prepare, retrain, and support the continued professional development of teachers, administrators, and other educators, so that there is a highly talented work force of professional educators to teach challenging subject matter" (USDE, 1994, Sec 102, p.1). The fourth objective for attaining this goal states, "partnerships will be established, whenever possible, among local educational agencies, institutions of higher education, parents, and local labor, business, and professional associations to provide and support programs for the professional development of educators" (USDE, 1994, Sec 102, p. 1).

The Goal Four data from 1994-2000 indicated that teacher education status remained much as it was at the time of the law enactment in 1994. In 1997 approximately 63% of secondary teachers in the shortage areas of math and science had a degree in that subject area (down from 65% in 1994). In 1997 approximately 27% of all new teachers had participated in a formal teacher induction program (up from 22% in 1994). In 1994 and 1997 approximately 85% of all teachers report being involved in a professional development activity during the school year (USDE, 1997). With little progress being made in meeting the *Goals 2000* targets, it was not

surprising that teacher education goals were part of the next federal mandate in education reform, the *No Child Left Behind* legislation of 2002.

No Child Left Behind

President George W. Bush proposed what became a landmark educational reform package, endorsed by both houses of Congress, now known as *No Child Left Behind Act of 2001*. This law embodies four key principles: "(1) stronger accountability for results; (2) greater flexibility for states, school districts, and schools in the use of federal funds; (3) more choices for parents of children from disadvantaged backgrounds; and (4) an emphasis on teaching methods that have been demonstrated to work" (U.S. Department of Education, 2002, p.9). Many of the various components of federal education policy were included in this historic piece of legislation, now all under one umbrella. This encompassed Title I programs related to academic support of disadvantaged students, Title II programs related to teacher education, Title III programs supporting efforts with limited English speaking students, Title IV programs which address safety issues in the schools, and Title V programs designed for promoting innovative programs. Teacher education programs were impacted specifically by the Title II, Part A requirements of this legislation.

The new legislation required that "all teachers are 'highly qualified' no later than the end of the 2005-06 school year" (NCLB, 2002, p.57). A "highly qualified" teacher was defined in the law as "a teacher with full certification, a bachelor's degree, and demonstrated competence in subject knowledge and teaching skills" (NCLB, 2002, p. 57). This has been interpreted by different states in different ways. Each state was required to develop and submit a plan for bringing all of the teachers into compliance with being "highly qualified" (NCLB, 2002). The higher education community, particularly teacher education departments, worked to build awareness of

changes in content requirements and changes that affected certification of teacher candidates. Teacher education departments in individual colleges and universities were now held accountable for the qualifications of their graduates (Leak, 2003). As the requirements of the *No Child Left Behind* legislation become better disseminated and understood, more changes should be occurring in teacher education programs nationwide (Leak, 2003). At this time, it is not yet clear whether *No Child Left Behind* (2002) will be any more successful in the implementation of recommended changes in education than its federal predecessors.

In the state where this study was conducted, an already implemented teacher education reform mandate, *Redesign of Teacher Education* (1995), readily supported the changes required in *No Child Left Behind* (2002).

Redesign of Teacher Education

In response to the criticisms of teacher preparation contained in *Goals 2000: Educate America Act*, this state developed a mandate, known as the *Redesign of Teacher Education* (SDE, 1995), for change in teacher education in all state higher education institutions that prepared teacher candidates for the classroom. This mandate was developed through collaboration of all teacher education stakeholders in this state, including state education officials, teacher educators, school administrators, classroom teachers, and parents. It embraced eight basic principles directing teacher education efforts in this state (SDE, 1995). First, all teacher candidates were required to have a solid foundation in appropriate academic disciplines. Second, multiple paths to teacher certification were provided for the variety of teacher candidates interested in becoming classroom teachers. Third, teacher education programs were required to include school-based professional training. Fourth, a teacher education program was required to provide teacher candidates with opportunities to teach children with

diverse backgrounds in culturally diverse settings. Fifth, systemic linkage must have been made between teacher education redesign and school improvement efforts. Sixth, accountability and assessment must have been implemented throughout the teacher education program. Seventh, the teacher education program must have promoted (a) a view of learning to teach as a career-long process and (b) the importance of a professional development plan for each teacher which supports his/her growth as a teacher. Last, the teacher candidate population must reflect diversity of ethnicity, gender, and age. These eight principles applied to all teacher preparation programs in the state and are still the criteria for accreditation of teacher education programs (SDE, 1995). The principles endorsed in *Redesign of Teacher Education* are the basis for re-accreditation of all teacher education programs in the state.

There are several specific concepts among the twenty-one recommendations in the *Redesign of Teacher Education* report that were related to this study of student teacher exit portfolios. The task force (SDE, 1995) recommended that teacher education programs be performance-based in design and include performance based assessments measuring the candidates' knowledge in academic areas and pedagogy (recommendation #4). It also asserted that teacher education programs should assess candidates through a developmental portfolio review process (recommendation #14). "This process should be based upon rigorous performance criteria applied to a portfolio created at entrance, developed during the student teaching internship, and concluded upon exit from the internship" (SDE, 1995, p.3). Recommendation # 15 stated that an assessment team should ensure that the exit portfolio requirements be fully met before recommending the candidate for certification (SDE, 1995). These recommendations are fully investigated during the reaccreditation process of teacher education program.

The teacher education program in the study has been in the process of incorporating the assessment requirements of the Redesign for the past several years. The process of developing an assessment system as described in the recommendations has raised some serious questions about the contribution of student teacher exit portfolio assessments to the whole assessment system.

The next section of this chapter reviewed the conceptual framework and associated research and theoretical concepts that support the work of this study of teacher candidate assessments, specifically the student teacher exit portfolio.

Conceptual Framework for this Study

This study was influenced by the recommendations of Darling-Hammond, Wise, and Klein (1999) for the development of assessment objectives for teacher candidate assessment systems. These recommendations were targeted in three specific areas of interest, which have been the subject of much research during the past two decades of teacher education reform. First, the authors (Darling-Hammond, Wise, & Klein, 1999) recommended that an assessment system for teacher candidates should reflect the knowledge, skills, and dispositions all professional teachers are expected to master as a minimum requirement for responsible practice. Second, Darling-Hammond et al. (1999) suggested that an assessment system for teacher candidates should be constructed so as to encourage the acquisition of the required professional knowledge, skills and dispositions. The third recommendation of these authors, Darling-Hammond, Wise, and Klein (1999), was that an assessment system for teacher candidates should reliably and validly sort those candidates who are adequately prepared for responsible independent practice from those who are not. Each recommendation is discussed with the related theoretical concepts.

Recommendation One; Knowledge, Skills, and Dispositions

First, the authors (Darling-Hammond, Wise, & Klein, 1999) recommended that an assessment system for teacher candidates should reflect the knowledge, skills, and dispositions all professional teachers are expected to master as a minimum requirement for responsible practice. This recommendation coincides with the standards-based efforts developed during the past fifteen years of teacher education reform. Standards-based teacher education was promoted by three major influential policymaking bodies of the late eighties and early nineties: the Holmes Group, the Carnegie Forum, and Goodlad's Center for Educational Renewal. Several later efforts towards establishing the nationally accepted standards for standards-based teacher education were led by the National Board of Professional Teaching Standards (NBPTS, 2001), the Interstate New Teacher Assessment and Support Consortium (INTASC, 1991), and the National Council for Accreditation of Teacher Education (NCATE, 2000). It was the contention of these groups that standards for the preparation of all prospective classroom teachers would assist in the recognition of teaching as a profession and lead to better preparation of neophyte classroom teachers (Goodlad, 1990; The Carnegie Forum, 1986; The Holmes Group, 1986).

The Holmes Group. The Holmes Group grew out of a series of deliberations among education deans on the problems associated with the perception of generally low quality of teacher preparation in the United States. Their initial discussions focused on the lax standards for teacher education that had been tolerated for many decades. Weak accreditation policies and weak implementation practices were on the agenda. The historic disinterest in teacher preparation in the academic life of major research universities also received special attention. These factors were clearly not independent from each other in the opinion of those involved in the initial discussions. In the fall of 1983, the Johnson Foundation agreed to sponsor a meeting of 17

university deans who were willing to consider alternative ways of involving major research universities in an effort to enhance the quality of teacher education. Several months later, the Johnson Foundation hosted a follow-up meeting, this time attended by a number of the chief academic officers and 23 deans of research institutions. These leaders reviewed and approved a two-phase plan calling for the development of rigorous new standards for teacher education and their implementation in the leading research universities in each of the fifty states. The Carnegie Corporation of New York, the Ford Foundation, the Johnson Foundation, the New York Times Foundation, and the U.S. Department of Education eventually provided the financial support for the first phase of the plan.

It was a two-year process to agree upon goals for the improvement of teacher education. The Holmes Group (1986) agreed to a set of five goals that were directed toward the working conditions for teachers and the content standards for entry into the profession of teaching (see Appendix A for recommendations from The Holmes Group).

The breadth of the Holmes Group agenda testifies to the problems and the complexities of the undertaking in attempting to improve teacher education. Improvement of the quality of education in our schools cannot occur without improving the quality of the teachers in them. Fully developed curriculum plans, plentiful instructional materials, efficient classrooms, and even enlightened and intelligent administrators cannot overcome the negative effects of weak teaching or match the positive effects of competent teaching. Although leadership, resources, and working conditions in schools may influence those who choose to teach in the classroom, these attributes do not directly affect students' learning as much as effective, quality teachers. The entire informal and formal curriculum of the school is filtered through the minds and hearts of classroom teachers, making the quality of

school learning dependent on the quality of the teachers in the school. The stated goals of the Holmes Group were intended to direct the efforts of the research universities in developing such quality classroom teachers (The Holmes Group, 1986).

The Carnegie Forum. In January 1985, the Trustees of Carnegie Corporation of New York established the Carnegie Forum on Education and the Economy. This group quickly established a Task Force on Teaching as a Profession, which was directed to report its findings and recommendations on "changes necessary in our schools to provide the best chance for higher quality education for all our children" (Carnegie Forum on Education and the Economy, 1986, p.6). The Task Force invited "influential national leaders representing many interests and a range of constituencies ... including governors, leaders of the teachers' unions, chief state school officers, teacher educators, state legislators, business executives, and educational statesmen" (Carnegie, 1986, p. 6). Four purposes were put forth for the Task Force: "(1) to remind Americans, yet again, of the economic challenges pressing us on all sides; (2) to assert the primacy of education as the foundation of economic growth, equal opportunity and a shared national vision; (3) to reaffirm that the teaching profession is the best hope for establishing new standards of excellence as the hallmark of American education; and (4) to point out that a remarkable window of opportunity lies before us ..." (Carnegie, 1986, p.7).

In the Task Force justification for their proposals, they reiterated the importance of teachers to the general quality of education available within the schools. In their justification, if our standard of living is to be maintained, our schools must graduate the vast majority of their students with achievement levels thought possible for only the privileged few. The American mass education system, designed in the early part of the twentieth century for a factory-based economy, will not succeed unless it not only raises but redefines the essential standards of excellence. The

education system must strive to make quality and equality of opportunity compatible with each other. Students must be active learners, busily engaged in the process of bringing new knowledge and new ways of knowing to bear on a widening range of increasingly difficult problems. The Task Force stated the focus of schooling must shift from teaching to learning, from passive acquisition of facts and routines to the active application of ideas to problems. That transition makes the role of the teacher more important, not less. Teachers must be people of "substantial intellectual accomplishment" (Carnegie, 1986, p. 25). Teachers must be people who can communicate their knowledge to others, can motivate students to strive toward the same levels of intellectual accomplishment, and are capable of creating environments in which young people not only learn but also build a knowledge base upon which they will want to continue to learn (Carnegie, 1986).

The Task Force outlines three challenges that must be met if we are to obtain teachers of high intellectual ability (Carnegie, 1986). It was suggested that the standards for teacher candidates be raised. Another suggestion was that ways must be found to retain those teachers with effective skills and to recruit others like them. The third challenge was that the structure of the educational system must be redesigned to take maximum advantage of those highly skilled teachers.

To accomplish all of the needs listed above, the Task Force (Carnegie, 1986) made eight recommendations, which ranged from suggestions for establishing a set of standards to guide the determination of teacher competency, setting the knowledge base for teachers, to restructuring the school workplace conditions for teachers (see Appendix B for Recommendations from the Carnegie Forum for Education and the Economy).

The professionalization of the teacher work force is the key to improvement of the nation's education system (Carnegie, 1986). Professionalization promises much

greater returns on our investment by reorienting policy to enhance the productivity of teachers. For this to happen, the public must be convinced that this major investment in education will provide tangible results. The recommendations of this Task Force were intended to set the stage for "major long-term improvement of America's competitive position in world markets, for wider participation in an expanding economy across the social spectrum, and for an educated citizenry capable of preserving democracy well into the 21st century" (Carnegie, 1986, p. 107).

Goodlad's Center for Educational Renewal. In *Teachers for Our Nation's Schools*, John Goodlad (1990) examined the immediate problems of teacher preparation and the long-term issues of excellence. Based on his extensive five-year study of teacher education, Goodlad concluded that teachers were both poorly prepared to teach and to renew or restructure their schools. He documented conditions that thwart quality teacher preparation such as politicized state-mandated curricula and credentialing requirements, the preeminence of scholarly publishing over teaching at the universities, and the low prestige of education departments within college communities.

Goodlad (1990) identified specific changes that schools of education must make to enable them to recruit and develop resourceful and innovative teachers. Included in the plan was a call for institutional commitment and support, the delegation of curriculum requirements, program autonomy, and protected budgets. Goodlad identified 19 postulates that he perceived as setting the conditions necessary for effective teacher education. These postulates addressed issues in both policy and curriculum (see Appendix C for Goodlad's Postulates for the Improvement of Teacher Education).

Goodlad (1990) argued that strong professions are marked by a relatively large, complex, rapidly accumulating body of professional lore requiring years of

sustained study for its mastery, as well as a code of ethics designed to guide the professional behavior of practitioners. He also contended that professional programs in strong professions respond to knowledge production and scholarly norms, keeping an eye on the validation of research in practice and the changing requirements of licensure. Goodlad's (1990) studies of teacher education programs led his research team to develop three specific conclusions supporting the proposition that teaching is a weak profession on the brink of becoming stronger. First, there was a knowledge base sufficient to justify teaching as a profession. But for an occupation to become a recognized profession, a knowledge base must be a product of scholarly effort and approval, codified, and shared within the profession. Second, the process of codifying teaching knowledge base was just beginning in 1990. Goodlad acknowledged the knowledge base existed in scholarly annals and was not yet shared with practitioners. The third Goodlad conclusion was that teacher education curriculum was absent or inadequate within the 1990 teacher education programs. In the absence of accessible, relevant knowledge and potent curricula, both the teacher educator and the teacher were left to their intuitive and practical interpretations of the necessary professional knowledge. Goodlad argued that "instead of scholarly productivity and knowledge codification continually fueling curriculum development, curricula overly reflect practice and prepare future teachers for prevailing conditions and circumstances" (Goodlad, 1990, p.268). To create productive tensions for the integration between sound theory and sound practice, Goodlad recommended that it was necessary to allocate resources, effort, creativity, and leadership.

Recommendation Two: Acquisition of Knowledge, Skills, and Dispositions

Darling-Hammond et al. (1999) suggested that an assessment system for teacher candidates should be constructed so as to encourage the acquisition of the

required professional knowledge, skills and dispositions. This concept is aligned with the learning theory derived from the work of cognitive psychologists including the Swiss psychologist Jean Piaget, and the Russian psychologist Lev Vygotsky (Ryan & Cooper, 2004). According to the ideas gleaned from the work of these two researchers, "in order for new information to be internalized by the learner, it must be integrated into the learner's pre-existing knowledge base. This process of integration is referred to as constructivism" (Ryan & Cooper, 2004, p. 286). Knowledge of the learner's previous understandings requires that assessment be an integral part of the instructional plan (Fosnot, 1996; Richardson, 1997).

Constructivism in Education. A learning or meaning-making theory, constructivism is an epistemology offering an explanation of the nature of knowledge and how human beings learn. "Constructivism is a psychological and philosophical perspective contending that individuals form or construct much of what they learn and understand" (Bruning, Schraw, & Ronning, 1995, as cited in Schunk, 2000, p.229). It highlights the notion that individuals create or construct their own new understandings or knowledge through the interaction of what they already know or believe and the ideas, events, and activities which they experience (Abdal-Haqq, 1998; Cannella & Reiff, 1994; Fosnot, 1996; Richardson, 1997; Schunk, 2000; von Glaserfeld, 1996). Knowledge is acquired through involvement with content instead of imitation or repetition of behaviors (Gredler, 2001; Kroll & Black, 1993; Richardson, 1997). Learning activities in constructivist settings are distinguished by active engagement, inquiry, problem-solving, and collaboration with others (Abdul-Haqq, 1998; Fosnot, 1996; Richardson, 1997). Rather than the authority on knowledge and information, the constructivist teacher is characterized as a guide, facilitator, and co-explorer who encourages learners to question, challenge, and formulate their own ideas, opinions, and conclusions (Abdul-Haqq, 1998; MacKinnon & Scarff-Seatter, 1997).

While there are commonly accepted attributes of constructivism as described above, there are also different interpretations of it. Two major issues shape these interpretations: (1) education for individual development versus education for social change and (2) the degree of influence that social context has on individual cognitive development (Fosnot, 1996; Gredler, 2001; Richardson, 1997; Schunk, 2000; Vadeboncoeur, 1997). These two interpretations are acknowledged as "psychological constructivism," developed through the work of Jean Piaget, and "social constructivism" developed through the work of Lev Vygotsky (See Table 1, Contributions to Constructivist Theory).

How does constructivist theory, the building of new knowledge by the learner through experiences and challenges to prior knowledge, impact the content and practices of teacher education?

Table 1

Theorists' Contribution to Constructivist Education

Theorist	Name of Theory	Key Principles	Application to Education
Jean Piaget	Psychological Constructivism	<ol style="list-style-type: none"> 1. Individual's cognitive development is focus. 2. Discovery or experiential learning 3. Create incongruity; probe student beliefs 	<ol style="list-style-type: none"> 1. Teachers need to understand stages of cognitive development in their students 2. Children need rich classroom environments that facilitate active construction of knowledge 3. Classroom inputs need to challenge students' existing schemata
Lev Vygotsky	Social Constructivism	<ol style="list-style-type: none"> 1. Relationship between individual learner and the social and cultural environment is focus 2. Knowledge is developed within and by a community of learners 3. Collaborative learning 4. Integration of social factors with personal factors produces learning 	<ol style="list-style-type: none"> 1. Zone of proximal development –potential development under adult or peer guidance 2. Instructional scaffolding – supported learning that is gradually withdrawn as learner becomes competent or independent with task or situation 3. Cooperative learning – a group approach to specific problem to be solved or task to be accomplished 4. Reciprocal teaching in which the teacher models certain learning behaviors; student becomes the teacher: discussion integral to success of modeling

Constructivism in Teacher Education. While it may inform and influence practice, constructivism is a theory of learning, not a theory of teaching (Fosnot, 1996). Translating theory into practice is both complex and inexact (Fosnot, 1996; MacKinnon & Scarf-Seatter, 1997). However, education research literature documents several large and small-scale efforts to implement constructivist classrooms (DeJong & Grooms, 1996; Edwards, 1996; Greene, 1996; Gould, 1996; Julyan & Duckworth, 1996; Kaufman, 1996; Richardson, 1997; Schifter, 1996).

Constructivist teacher education generally reflects two major traditions: the developmental tradition and the social reconstructionist tradition (Canella & Reiff, 1994). Programs influenced by the developmental tradition attempt to teach students how to teach in a constructivist, generally Piagetian, manner. These teacher preparation programs typically feature substantial direct instruction in theory and practice, often without corresponding opportunities for inquiry, discovery, or self-examination (Canella & Reiff, 1994).

Programs influenced by social reconstructionist tradition attempt to help teacher education candidates explore their own prior knowledge and attitudes about teaching and learning. Teacher candidates need to comprehend how these understandings developed and to explore the effects the understandings have on actions and behavior (Burk & Dunn, 1996). They must learn to consider alternate actions and behaviors that may be more serviceable in teaching. Critical consideration and formalized reflection on course knowledge and everyday practical experiences are incorporated in the teacher education program of study (Dangel & Guyton, 2003; Fosnot, 1996; Richardson, 1997).

Kroll and LaBloskey (1996) described a constructivist teacher education program as one that helps teacher candidates form personal theories, make predications about behaviors and outcomes based upon those theories, and then change their ideas based on their experiences and observations. Hausfather (1996) and Kaufman (1996) both described learning situations where teacher candidates learn new material and reflect on their own learning processes as well. Kaufman (1996) referred to two aspects of learning: (1) that of the content, and (2) that of the learning and teaching processes specific to that content. In this constructivist framework, teachers became researchers in their own classrooms, collecting data about how they and the children learn content and process, and then making instructional decisions

based upon reflection of the data collected (Kroll & LaBloskey, 1996). Prospective teachers became expert kid watchers, placing in the context of their understanding of developmental theory what they observed about children's responses to classroom instruction and classroom climate. On the basis of knowledge about child development and learning, the teacher candidates learn to devise appropriate learning situations for their students. Prospective teachers must consider their changing understandings of children's learning and the process of teaching, essentially becoming active and reflective researchers in their own classrooms (Black & Ammon, 1992; Kroll & Black, 1993).

The overarching challenge constructivism presents to teachers and teacher educators is the formidable task of translating a learning theory into a theory of teaching (MacKinnon & Scarf-Seatter, 1997), which in turn raises questions about what teachers need to know and be able to do. For teacher educators this involves balancing the need to acknowledge the different discipline-specific requirements of teaching with the need to model constructivist methods in teacher education courses and practicums. Richardson (1997) also notes the limits of a perspective on teaching that values students' understandings at the expense of right answers. Student knowledge becomes individual; 30 different students may arrive at 30 different understandings or interpretations of a concept, all of which are not equally appropriate. Several authors (Kaufman, 1996; Kroll & LaBloskey, 1996) cite the importance of teacher educators' modeling constructivist approaches that engage students in interdisciplinary exploration, collaborative activity, and field-based opportunities for experiential learning, reflection, and self-examination if future teachers are to be able to employ these strategies in schools.

A final challenge faced by educators is the pitfall of regarding constructivism as the only viable theoretical framework for teaching and learning. It is one way of

thinking about how knowledge and understandings are formed, but it is not the only way. Nor are various interpretations of constructivism necessarily incompatible with one another (MacKinnon & Scarf-Seatter, 1997; Oldfather et al., 1994). Prospective teachers should be exposed to varying perspectives and given opportunities to develop the discretion needed to choose the most appropriate skills to implement their instructional choices.

Recommendation Three: Sorting of Candidates

Darling-Hammond, Wise, and Klein (1999) also recommended that an assessment system for teacher candidates should reliably and validly sort those candidates who are adequately prepared for responsible independent practice from those who are not. The main objective of this recommendation is to "seek approaches that will surmount the shortcomings of many states' current approaches to assessment" (Darling-Hammond et al., 1999, p.91). These authors decry the lack of validity in state-required testing of prospective classroom teachers as evidenced by the failure to include "good representations of the tasks of teaching or the reasoning process teachers must apply to the problems of teaching practice" (Darling-Hammond et al., 1999, p. 91). Wise and Darling-Hammond (1987) complain that these high-stakes tests fail the test of reliability, or the amount of measurement error yielded by the assessment, since they do not test candidates under comparable circumstances or on comparable tasks.

Performance or authentic assessment has been suggested as an alternative to these paper-pencil selected response tests so denigrated by many in the field of teacher education (Darling-Hammond et al., 1999; Grover, 1991; Murnane, Singer, Willet, Kemple, & Olsen, 1991; Naizer, 1997; Sikula, 1990; Tellez, 1996; Wise and Darling-Hammond, 1987). Performance assessments permit teacher candidates to show what

they can do in real situations (Wiggins, 1992). The difference between describing how a skill should be performed and actually knowing how to perform it is an important distinction in educational assessments (Airasian, 2001).

There are several factors influencing the growing popularity of performance assessment in teacher education aside from the list of complaints about more traditionally accepted selected response assessments (Ryan & Miyasaka, 1995). First, increased emphasis on problem-solving, higher level thinking, and real-world reasoning skills has created a reliance on performance and product assessments to demonstrate student learning (Airasian, 2001). Second, performance assessment can provide some students who do poorly on selected response type tests an opportunity to show what they know and understand in alternative ways (Airasian, 2001). Performance assessment, as has become expected in teacher education during the past several decades of reform, indicates an assessment of professional teaching practice that surfaces from a context-sensitive understanding of pedagogical and personal principles that are the work of effective teaching (Tellez, 1996).

Lamon and Lesh (1992) suggest that the key element in effective performance assessment is the formulation of tasks, observations, and scoring procedures that allow the instructor to track the cognitive processes the student brings into play while coping with the task or problem in the assessment. Lamon and Lesh (1992) go on to suggest that performance tasks are more likely to evolve rather than simply be written. The evolution of a task is a consequence of three processes: (1) analysis of the domain to determine the particular concepts and processes of interest; (2) development of tasks that seem to elicit the thinking required; and (3) the experiences of students with the task to reveal the variety of approaches and the nature of thinking that students bring to bear on the task (Lamon & Lesh, 1992).

Validity, within a performance assessment climate, is associated with the thoughtful consideration of teachers' needs and the value of processes including decision making, documentation, and representation (Tellez, 1996). Validity, the meaningfulness and usefulness of the results, is established both in the interpretation and use of the data produced by an assessment technique. Performance assessment focuses attention on the use and interpretation of information that articulates teachers' understandings about the contexts of their experiences as well as their understandings of those experiences (Tellez, 1996). Validity, the question of whether a measurement instrument is in fact assessing that which we want to measure, is a vital link to the impact of performance assessment in teacher education (Gellman, 1992).

Consideration of the adoption of performance assessment tools, such as the portfolio, indicates the importance of determining exactly what is to be assessed in a particular situation (Gellman, 1992; Tellez, 1996). Portfolio assessment would seem to have an advantage in assessing those characteristics of teaching that cannot be measured by traditional selected response modes of testing or limited observations of teaching episodes. From the standpoint of validity, portfolio assessments have the advantage of enabling the evaluation of a much larger and more varied sample of teacher performance than more traditional assessments (Gellman, 1992). The universal acceptance of the sets of standards developed by INTASC and NBPTS, endorsed by the National Council for Accreditation of Teacher Education (NCATE) and other professional organizations, lends credence to the question of *what* is to be assessed (Long & Stansbury, 1994).

Developing performance tasks that can assess candidates in comparable ways on key tasks of teaching is essential to the question of the reliability of assessment measures of all teacher candidates (Darling-Hammond et al., 1999). Although portfolios tend to be very personal and idiosyncratic in many respects, they can be

prepared to respond to a standard task or set of tasks (Wolf, Whinery, & Hagerty, 1995). In preparing portfolios, there may be wide disparities in the kinds and types of material submitted or there may be differences in the specific materials submitted. Nonetheless, there is a common set of criteria on which to evaluate the set of products contained within the portfolio. If there is adequate inter-rater reliability in the use of the criteria or the rubrics developed for this assessment, an acceptable level of reliability can be obtained for this assessment tool (Gellman, 1992; Wolf, 1991). For example, in a description of the Teacher Assessment Program at Stanford (Wolf, 1991), each individual being assessed was provided a standard task. The portfolio recorded the performance as assigned to those tasks. There was an agreed upon scoring key shared with students prior to the task being evaluated. Each product was evaluated using the scoring key. Considerable agreement and clarity on the performance criteria was evident.

While performance assessment, including portfolios, certainly has its limitations, promoters argue, it is an assessment tool that can access a wide array of teaching tasks that would be difficult to assess through the traditional assessment methods. If teacher educators wish to include performance assessment, particularly portfolios, for the evaluation of professional proficiency, the teacher education community must take steps to assure that the procedure used meets appropriate criteria for both reliability and validity. In order to accomplish this aspect of performance assessment, considerable attention must be given to the determination of what aspects of performance should be measured, what type of evidence would exemplify proficiency, how the evidence will be evaluated, who the raters will be, and how will the raters be trained. Appropriate attention to the issues of validity and reliability in the use of performance assessment tools is essential to the universal acceptance of these tools.

The three recommendations by Darling-Hammond, Wise, and Klein (1997) and the associated research described in this section of the chapter have guided the work involved in this study. Attention of the study was directed toward all three areas of concern. First, the student teacher exit portfolio questions were framed by the adopted set of standards, the INTASC standards, for this particular teacher education program. Second, the student teacher exit portfolio assessment questions and tasks were determined by the notion of both formative and summative assessment. In other words, the process and product not only may inform the reviewer about the capabilities of the teacher candidate but also may inform the candidates about their own strengths and needs in the development of professional knowledge, skills, and dispositions. Third, the student teacher exit portfolio assessments were reviewed for reliability and validity by this particular teacher education department.

Portfolio Assessments

Portfolios have existed for many years to showcase the skills and knowledge of the portfolio developer, usually in fields of study other than education. Artists and art-related fields, such as architects, photographers, and designers, have been most prominent in the use of portfolios as evidence of expertise in a given field of interest or study (Bird, 1990; Kilbane & Milman, 2003). A similar presentation is used by pilots, lawyers, and social workers that record information about their professional development and experiences in logs, folders, and files (Bird, 1990). During the rise of authentic assessments in the classroom in the 1980s, portfolios began to be used as an assessment tool for students in K-12 classrooms, particularly in the area of language arts and writing (Black, Daiker, Sommers, & Stygall, 1994; Stiggins, 2001; Valencia, Hiebert, & Afflerbach, 1994). It was a natural extension for educators to consider portfolios as a means for exhibiting and assessing the complexities of

teaching skill and knowledge that are not captured through traditional supervisory observations (Bird, 1990; Glatthorn, 1996; Wolf, 1991). The 1990s saw an increased interest by teacher educators and certification specialists in the teaching portfolio as an additional avenue for teacher candidates to demonstrate professional competence and professional growth and development (Barton & Collins, 1993; Kimball & Hanley, 1998; Loughran & Corrigan, 1995; Lyons, 1998; Shulman, 1998; Snyder, Lippincott, & Bower, 1998).

Portfolios in Teacher Education

The overwhelming acceptance of teaching portfolios by teacher education programs, state certification officers, national accreditation bodies, and teacher education associations speaks to the perception that these tools may be able to capture the complexities of teaching and learning as no other assessment tool currently in use (Grant & Huebner, 1998). As first defined by Shulman (1992), and later clarified by Wolf (1994), "a portfolio is the structured documentary history of a carefully selected set of coached or mentored accomplishments substantiated by samples of work and fully realized only through reflective writing, deliberation, and serious conversation" (Wolf, 1994, p. 111). Grant and Huebner (1998) highlighted the notion that portfolios must be a collaborative venture, coached and discussed by fellow teacher candidates, teacher education faculty, and the teachers involved in the required fieldwork of the classroom. Only through "portfolio conversation," a concept championed by Grant and Huebner (1998) and Wolf, Whinery, and Hagerty (1995), can the thinking and pedagogical decisionmaking behind the documented teaching be understood. This is considered a necessary element to develop explicit teaching knowledge, increase professional autonomy, and to make public the standards for effective teaching (Grant & Huebner, 1998).

Many teacher educators advocate teaching portfolios for the purpose of assessment of teacher candidates (Tellez, 1996). In 1998, 32 states were considering adoption of teaching portfolios as an assessment tool for either preservice teacher candidates or inservice teachers to earn certification (Lyons, 1998). Both teacher educators and teacher candidates accept teaching portfolios as an assessment tool. But there remains an important distinction between the creation of portfolios and the evaluation of portfolios. Furthermore, there remains a major issue about the contents of portfolios being able to articulate and demonstrate the knowledge, skills, and dispositions necessary for effective teaching. Teacher educators need to be thoughtful about the essential difference between the creation of teaching portfolios themselves and related assessment issues (Bird, 1990; Snyder, Lippincott, & Bower, 1998; Lyons, 1998; Moss, 1998; Stone, 1998; Tellez, 1996; Wolf & Dietz, 1998).

The implementation of teacher portfolio assessment in preservice teacher education contexts has been increasing during the decade of the 1990s (Bird, 1990; Campbell, Cignetti, Melenzyer, Nettles, & Wyman, 2001; Lyons, 1998; Wolf, 1991). A lack of research documentation is of concern, but may simply represent the lag between design and implementation of practice and the opportunity for research or research reporting (Bird, 1990; Herman & Winters, 1994; Wolf, Whinery, & Hagerty, 1995). What has been reported is a description of the design and implementation process incorporating teaching portfolios into teacher education programs (Constantino & DeLorenzo, 2002; Glatthorn, 1996; Martin-Kniep, 1999; Wyatt & Looper, 1999).

The next section of this chapter will explore the reports currently published connected to the conceptual framework for this study and its three areas of concern in the use of teaching portfolios as part of the assessment system of teacher education programs and their teacher candidates.

Knowledge, skills, and dispositions. Darling-Hammond, Wise, and Klein (1997) recommended that an assessment system for teacher candidates should reflect the knowledge, skills, and dispositions all professional teachers are expected to master as a minimum requirement for responsible classroom practice. How has this been implemented in the use of teaching portfolios as a major assessment tool in preservice teacher education programs?

Bird (1990) and Shulman (1998) argued that simply borrowing the concept of "portfolio" from the many other professions that have utilized the format for many years does not make the tool automatically useful as an assessment tool for prospective teachers. For example, the value of an architect's portfolio comes from the shared understanding of the "mission, operations, and lore" (Bird, 1990, p. 243) of the architects' viewing and making judgements about the contents of that portfolio. Thus it is with a teacher portfolio—the potential of the assessment tool cannot fulfill its promise without the development of common understandings about the necessary knowledge, skills, and dispositions for effective teaching. The process of defining effective teaching requires both a refined language for discussion of practice and the establishment of the norms of a profession so that a closer, more fruitful examination of teachers' practices can be accommodated (Bird, 1990; Lyons, 1998; Shulman, 1998; Snyder, Lippincott, & Bower, 1998).

The art and science of teaching is a complex and challenging activity that cannot be totally and succinctly described by any one set of goals, standards, or analysis of duties (Campbell et al., 2001). Many professional organizations, such as the National Council of Teachers of Mathematics and the National Association for the Education of Young Children, have developed professional goals for teachers related to their particular targeted area of interest. The professional goals established by these organizations are called by a variety of names, including standards, principles,

performance domains, outcomes, proficiencies, and competencies (Campbell et al., 2001). These efforts are all attempts to reflect the knowledge, skills, and dispositions that define effective teachers and teaching.

In the teacher education reform efforts of the mid 1980s, the several national level efforts linked teacher professionalism with teacher assessment based upon a set of standards. In *A Nation Prepared: Teachers for the Twenty-first Century*, the Carnegie Forum (1986) suggested that professional teaching standards be created. The idea was to "establish standards for high levels of competence in the teaching profession, to assess the qualifications of those seeking certification, and to grant certification to those who meet the standards" (Carnegie, 1986, p. 62). The Holmes Group (1986) concurred with a recommendation for setting high standards related to assessment requirements for entering the profession of teaching. In 1991, the National Board for Professional Teaching Standards established five propositions in its fundamental statement of policy, *What Teachers Should Know and Be Able to Do* (NBPTS, 1991). These propositions guide the Board's work in developing standards for each of the targeted certification areas. "The Board's vision of the teacher is complex and demanding. It acknowledges that even state-of-the-art assessments probably cannot fully capture teaching's complexities and the standards it eventually will ask candidates to meet..." (Haertel, 1991, p.11).

Portfolio assessment systems, as developed during the 1990s, are at the heart of a vision of education of teachers as a profession (Lyons, 1998). Standards of rigor and excellence form the basis for the curriculum and performance assessment of teacher education (Lyons, 1998; Shulman, 1998; Snyder et al., 1998). The adoption of standards as a guide for both curriculum and assessment also had the effect of promoting some of the very knowledge, skills, and dispositions considered to be indicative of effective teachers. For example, evidence of effective learning and the

fostering of the candidates' own learning are expected components of today's teacher education assessment systems (Loghran & Corrigan, 1995). Collaboration is a new norm of teaching—creating collaborative, interpretive communities of teacher learners who can critically question their own teaching practices (Shulman, 1998; Wolf, Whinery, & Hagerty, 1995).

The subject of this study, a particular teacher education program, adopted a set of standards developed by the Interstate New Teacher Assessment and Support Consortium (INTASC) sponsored by the Chief State School Officers' Consortium on Licensure (INTASC, 1991). The INTASC standards were developed by study of the goals of many professional associations and the National Board of Professional Teaching Standards (NBPTS). The INTASC standards are a general or core set of expectations for all teaching, written in terms of performance and knowledge (INTASC, 1991). According to Campbell et al. (2001), these standards have received wide acceptance and use (see Appendix D: INTASC Standards).

The student teaching exit portfolio is an ongoing assessment throughout the education program but is also the final undertaking in a teacher education program's performance assessment system. It is based on rigorous standards and high expectations. The system, while consistent and demanding, nevertheless encourages individuality and imaginative professional development through the flexibility afforded by the portfolio, both as a measure of effective teaching and a means of professional growth (Kimball & Hanley, 1998). The rich and subtle life of a classroom can be presented and assessed through these student teacher exit portfolios with actual documentation of a teacher's work, of student work, with analyses and reflections by a teacher candidate (Kimball & Hanley, 1998).

Teacher candidates should be evaluated, receive feedback, and set goals for themselves under the authentic conditions of what teachers must do to be successful in

the classroom and with the mentoring of experienced classroom teachers (Kimball & Hanley, 1998). The student teacher exit portfolio offers opportunity for the teacher candidate to document their teaching knowledge, skills, and dispositions, as guided by acknowledged national standards for effective, quality teaching.

Encourage the acquisition of the required professional knowledge, skills and dispositions. Darling-Hammond, Wise, and Klein (1997) recommended that assessment systems should encourage the acquisition of the required professional knowledge, skills and dispositions. An assessment system does not simply run parallel to the teacher education program: it is a fundamental part of the learning experiences in which the teacher candidates are engaged (Kimball & Hanley, 1998). When the assessment process is grounded in evidence directly linked to authentic candidate performance and improvement, it forces an examination of how the teacher education curriculum is preparing the candidates. When the assessment process involves ongoing discussions, explanations, and feedback about the candidate's performance, understanding, and learning of the students with whom he or she works, communication opportunities become a means for deeper understanding and new ways of considering different learning settings and different learners (Kimball & Hanley, 1998). Authentic or performance assessment, which includes portfolio assessment, offers this opportunity to each teacher candidate.

Wiggins (1989) addressed the criteria for defining authentic assessment that is applicable to both K-12 assessment and teacher education assessment. Wiggins (1989) recommended two criteria for authentic assessment: (1) that an assessment mirror the challenges, work, and standards engaging practicing professionals; and (2) that it actually involve the student interactively with opportunities for explanation, dialogue, and inquiry. Newmann and Wehlage (1993) suggested that authentic or performance assessment should engage students (1) in constructing meaning from

their documented experiences, (2) in using well designed questioning and research, and (3) in "the production of discourse, products, and performances that have value or meaning beyond success in schools" (p. 8). If the assessment system includes the possibility for collaboration through discussion about the contents of the portfolio, includes the possibility of presentation and explanation of the contents of the portfolio to the raters, many of the questions regarding authenticity of effort and individuality of the process will have been erased. The process of portfolio assessments has been described as offering this opportunity to teacher candidates (Campbell et al., 2001; Constantino & DeLorenzo, 2002).

The Teacher Assessment Project (TAP) was a piloting program at Stanford that involved the use of portfolios as one element of that reform effort (Bird, 1990; Shulman, 1998; Wolf, 1991). In the design of the portfolio project, every portfolio entry had to be a collaborative effort involving coaching or mentoring (Grant & Huebner, 1998; Wolf, Whinery, & Hagerty, 1995). The documentation needed to include some evidence that another professional person (a mentor, teacher, fellow teacher candidate) had some chance to review, discuss, or coach a portfolio entry (Shulman, 1998). Stanford faculty's insistence on collaboration was connected to Vygotsky's socio cultural theory of learning (Grant & Huebner, 1998; Shulman, 1998). The idea of collaboration on portfolio entries was nested in the concept of "distributed expertise" across the community of learners (Vygotsky, 1986). The theorist indicated that the sharing of ideas and thought made the end result that much stronger than if the learner was expected to accomplish the task or solve the problem as an individual (Vygotsky, 1986). In a collaborative group, the learner will have the opportunity to engage in an instructional activity that is challenging to perform independently while being supported by capable peers. The group environment can challenge the learner to perform at a maximum level of their potential development

(Jennings & Di, 1996). Stanford 's education faculty came to believe that "thinking is a social activity, initially shared among people but gradually internalized to reappear again as an individual achievement" (Grant & Huebner, 1998, p. 158).

As teacher candidates collect artifacts or evidence of their teaching practice for the teaching portfolio, reflect on them in writing, and discuss these pieces and reflections with peers and instructors, those instructors are privileged with access to students' next likely areas of accomplishment. As teacher candidates involve themselves in the process of portfolio development, their current abilities seem to become what previously were only potential abilities in their zones of proximal development (Wagner & Brock, 1996). The proximal zone for each teacher candidate changes continually, as students achieve cognitive awareness of their own strengths, needs, and modes of learning. Participation in portfolio assessment to document a candidate's own teaching competencies provides numerous opportunities to engage in such empowering professional experiences as reflective thinking, social interaction with professional peers, becoming an informed decision maker, and setting professional goals (Wagner, Brock, & Agnew, 1994). In other words, the act of developing a teaching portfolio may actually teach the candidates about teaching and their own strengths and needs in developing their competencies.

Reliable and Valid Sorting of Candidates. The question of reliability and validity of portfolio assessment continues to thwart wholesale acceptance of the process by all educational community stakeholders. As with K-12 portfolios, establishing acceptable standards for the reliability and validity of student teaching exit portfolios is the source of on-going debate between advocates and skeptics of the student teaching portfolio process (Barton & Collins, 1993; Cizek, 1991; Gellman, 1992; Herman & Winters, 1994; Naizer, 1997). This portfolio tool is intended as a high-stakes assessment, influencing the awarding of teacher certification, and is,

therefore, required to demonstrate to the education community a certain level of accuracy in evaluating the performance of knowledge, skills, and dispositions for teacher candidates (Herman & Winters, 1994; Naizer, 1997).

Dissatisfaction with more traditional assessment methods in teacher education has resulted in the adoption of student teaching exit portfolios, among other alternative assessments. Several advantages have been cited for this method of evaluation of teacher candidates. It was argued by Gellman (1992) that it is important to differentiate between those benefits that reflect the qualities of effective teaching and those that reflect the qualities of good assessment, although these two concepts are not mutually exclusive. In citing the advantages of portfolio assessment, Shulman (1988), for example, argued that portfolios may provide evidence of the complexities of teaching and learning over a period of time as well as provide teacher candidates the opportunity to discuss and reflect upon their teaching behaviors and actions. While the ability to document performance over time is most certainly related to the validity of portfolios, the ability to discuss and reflect on the performance may not necessarily be related to the validity or reliability of the process as a method of evaluation. This stated advantage of the use of portfolios in teacher education is only relevant to the validity of the assessment if the teacher education program specifically wants to assess the candidates' ability to engage in such discussion and reflection (Gellman, 1992). Gellman (1992) posed two basic questions relative to the use of portfolios in teacher education as a tool for validly and reliably sort the competent candidates from the not so competent candidates. First, what is it that teacher educators want to assess? The second question: whether or not portfolio assessment is a more valid and reliable process than other methods of assessment for measuring the qualities and characteristics of teacher candidates (Gellman, 1992).

The adoption of nationally designed sets of professional teaching standards has somewhat settled the question of what the teacher education community wants and needs to assess in teacher candidates (Constantino & DeLorenzo, 2001; Gellman, 1992; Shulman, 1998). If a performance task is "one that simultaneously requires the use of knowledge, skills and values that are recognized as important in a domain of study" (Gitomer, 1993, p. 244), it is important to establish a consensus of those understandings. The development of standards occurs through careful consideration and discussion of qualities within an area of study and derives from the ideas, concepts, and common understandings of the discipline (Gitomer, 1993). Standard setting within an assessment context requires more than the identification of the important concepts of teacher education in knowledge, skills, and dispositions. It must also include the following: (1) a shared understanding of criteria used to judge performance, (2) scale or rating definition, and (3) judgment protocol (Gitomer, 1993). These aspects of standard setting will be discussed in the context of the validity of performance assessment later in this section.

The questions regarding validity and reliability of portfolio assessments are now on the research agenda of teacher educators. Validity is characterized by Messick (in Moss, 1992) as "the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores or other forms of assessment" (p. 13). Messick (1994) argued that the issues of consequences, evidence, and fairness are at the heart of validity and need to be applied fully to performance assessments. Stiggins (1987) suggested that the validity relates to assurances that "performance ratings reflect the examinee's true capabilities and are not a function of the perceptions and biases of the persons evaluating the performance" (p.35). According to Moss (1998), validity alludes to the "soundness of

the interpretations and any consequent actions based on the evidence available" (p. 203) in a performance assessment, specifically a portfolio assessment.

Linn, Baker and Dunbar (1991) proposed that there are several factors that must be considered with validity of performance assessments. The first factor requiring consideration is that of consequences of the assessment. Messick (1989) argued that validating the new assessments involves the development of a consequential basis for rating interpretation and use of those ratings. For example, if an assessment leads instructors to spend more time on concepts and content included in the new assessment and less time teaching content that is not included, these are consequences that must be taken into account in judging the validity of the results. If performance-based assessments, such as portfolios, are to realize the potential indicated by its advocates, it will be essential that the consequential basis of validity be given much greater prominence among the criteria that are used for judging assessments (Linn, Baker, & Dunbar, 1991). High priority must be given to the collection of evidence about the intended and unintended effects of assessments on the ways instructors and teacher candidates spend their time and think about the teacher education standards. It cannot be assumed that a more authentic assessment will result in classroom activities that are more conducive to learning. What constitutes a portfolio can vary widely from one setting to another. This gives rise to questions that can affect the validity of the portfolio experience (Linn et al., 1991). How is the use of time influenced by the portfolio process? How much support and assistance is provided in the development of portfolio entries? How were decisions reached about what entries to include in a portfolio? Considering validity in terms of consequences forces attention on aspects of assessment process that may not be intended or anticipated by designers of performance assessments, in this case, portfolios.

The concepts of directness and transparency, proposed by Frederickson and Collins (1989), are relevant to the discussion of the consequence criterion. These two concepts, thought to be important characteristics of a performance assessment, may have intended and unintended effects on teaching and learning. Directness, assessment items reflecting exactly what is to be measured, is important because concentrating on direct indicator measures may have the effect of also focusing instructional attention. Similarly, transparency, the sharing of scoring or evaluation criteria, is considered important because understanding the basis on which performance will be judged may facilitate the improvement of performance on that particular assessment. Both directness and transparency are presumed to be a means to the end of more desirable educational and assessment outcomes. However, evidence is needed that directness and transparency do affect the intended or unintended consequences in more than a theoretical framework (Frederickson & Collins, 1989).

The second criteria proposed by Linn and his colleagues (1992) is that of fairness. The criterion of fairness needs to be applied to any assessment, including performance assessments. Judgements about fairness of an assessment are apt to depend heavily on the uses and interpretations that are made about the assessment results. Performance assessments for high-stakes purposes are unfair if: (1) students are not provided with equal opportunity to demonstrate their knowledge, skills and dispositions, thus providing biased results; (2) these biased results are used to judge teacher candidates' strengths and needs; and (3) this distorted view of the candidates is used to make decisions which would limit the candidates' professional opportunities. This concept of fairness is related to differing outcomes for specific groups of students, as identified by their racial group, socio-economic group, gender group, age group, linguistic group, physical disability group, or ethnic group (Lam, 1995). Gaps

in performance among groups exist because of differences in familiarity, exposure and motivation on the performance assessment tasks (Linn et al., 1991). Substantial changes in instructional strategies and resource allocation are required to give students adequate preparation for complex, time-consuming, open-ended assessments. Fairness is not dependent on the relative magnitude of group differences, however. The question of fairness on performance assessments is not limited to the selection of tasks but also applies to the scoring or rating of responses (Linn et al., 1991).

Messick (1994) argued that the issues of consequences and fairness are at the heart of validity and need to be applied fully to performance assessment. Stiggins (1987) suggested that validity relates to assurances that "performance ratings reflect the examinees' true capabilities and are not a function of the perceptions and biases of the persons evaluating the performance" (p.35). The training and calibration of raters is critical to this concept of fairness (Linn, et al., 1991).

As reported in the research literature, independent raters usually judge individual items, entries, or artifacts of an assessment and then combine these independent scores into a single number (Arter & Spandel, 1995; Popham, 2000; Salend, 1998). Moss (1998) has argued for an alternative to this: that the assessment of all data relating to an individual be reviewed by a community of raters or interpreters who examine the data in order to develop rational, consistent judgements of the whole performance assessment or, specifically, portfolio assessment. The National Board of Professional Teaching Standards uses the combination model, and the University of Southern Maine's Extended Teacher Education Program uses the community of raters or interpretive model (Kimball & Hanley, 1998). Regardless of what approach is used to evaluate performance assessments, it is essential that the rating and actions based upon the ratings be supported by a rigorous and critical review when consequential decisions, such as recommendations for teacher

certification, are made (Moss, 1998). Guarantees of fairness are essential to the acceptance of performance assessment results (Lam, 1995).

The third criteria suggested for the validity of performance assessments by Linn, Baker, and Dunbar (1991) discusses generalizability. In this case, generalizability refers to whether or not the rating or scoring of one performance task is indicative or related to the scoring or rating of another similar performance task. Generalizability theory provides a natural framework for investigating the degree to which performance assessment results can be generalized (Cronbach, Gleser, Nanda, & Rajaratnam, 1972; Shavelson, Webb, & Rowley, 1989). At minimum, information is needed on the magnitude of variability due to raters and to the sampling of tasks. Shavelson et al. (1989), investigating generalizability on science hands-on tasks, found that performance results were highly task specific. Limited generalizability from task to task is consistent with research in learning and cognition (Greeno, 1989). It seems clear that limited generalizability across tasks needs to be taken into account in the design of an assessment program (Linn et al., 1991). The traditional expectation of reliability is subsumed under this generalizability criteria but will be discussed later in this section.

A fourth criteria proposed for determining the validity of performance assessment is the cognitive complexity of the performance tasks (Linn, Baker, & Dunbar, 1991). Advocates promise that performance assessments will place greater emphasis on problem solving, comprehension, critical thinking, reasoning, and metacognitive processes than traditional assessments (Linn et al., 1991). These will require that criteria for judging all forms of assessment must include attention to the thought processes and strategies that teacher candidates are required to use in order to successfully complete the task. Judgments regarding the cognitive complexity of an assessment need to start with task analysis but also need to consider student familiarity

with the tasks and how candidates approach the solution or performance of the task (Linn et al., 1991).

Content quality was the fifth criteria proposed by Linn, Baker, and Dunbar (1991) in considering the validity of performance assessments. The content of the performance assessment tasks needed to be consistent with the best current consensus of the understanding of what is necessary to know and do in teacher education (Dwyer, 1993). At the same time, the performance tasks must be reflective of what are judged to be aspects of quality that will stand the test of time (Dwyer, 1993). More importantly, the tasks designed to measure teacher education's knowledge, skills, and dispositions should be worthy of the time and efforts of teacher candidates and their raters (Linn et al., 1991). These considerations are especially important in view of the limited sampling that is likely to occur with performance-based assessments such as portfolios. Regardless of the format of the performance tasks, misconceptions can be encouraged by poor quality assessments (Popham, 2000). One strategy to assure content quality of newer assessments is to involve subject matter experts not only in review of tasks but in the design of the assessment tasks (Linn et al., 1991)

Linn, Baker, and Dunbar (1991) proposed that content coverage is another necessary criteria for establishing the validity of performance assessments. The scope or comprehensiveness of content coverage was a topic discussed by Frederickson and Collins (1989). These authors discussed the varying opinions about "breadth of coverage" by subject area experts. There exists a conflict between traditional content sampling and performance assessment's attention for process sampling. There was contention that if gaps existed in content coverage, instructors and teacher candidates were likely to not emphasize those parts of the curriculum that were excluded from the assessment (Collins, Hawkins, & Frederickson, 1990).

Meaningfulness was another criteria suggested by Linn, Baker, and Dunbar (1991) as an important criteria for the validity of performance assessments. One of the rationales for more contextualized assessments was that they get students to deal with meaningful problems that provide worthwhile educational experiences. Investigations of teacher candidates' understandings and teacher educators' understandings of performance assessments and their reactions or responses to them would provide more systematic information relevant to this criteria (Linn et al., 1991).

In summary, serious validation efforts in performance assessments, such as portfolios, need to include evidence regarding the intended and unintended consequences of the assessment. Validity also requires evidence of the degree to which performance on specific task transfers or is generalized to other similar tasks and the fairness of the assessments to all of the teacher candidates being assessed. Evidence is also needed regarding the cognitive complexity of the processes teacher candidates employ in solving assessment problems and the meaningfulness of the problems for students and teachers. In addition, a basis for judging both the content quality and the comprehensiveness of the content coverage needs to be provided.

The reliability of performance assessments is equally as important as its validity. An assessment is reliable "to the extent that its scores are free of measurement error, which is detected through repeated independent measurements of the construct that is being assessed" (Gall, Borg, & Gall, 1996, p. 267). Because of the complexity of portfolio assessment tasks, it is not realistic to administer several comparable forms of them to students, as is done by including many items on a traditional standardized test (Gall et al., 1996).

Questions regarding the reliability of performance assessments, especially portfolios, seem to revolve around questions of scoring rubrics, inter-rater reliability of the scoring of the portfolios, and possible bias the raters bring to the scoring task.

Without clear and objective scoring rubrics to guide the evaluation of multiple skills and complex attributes, portfolio assessments tend to have unreliable scoring (Salvia & Ysseldyke, 2004). Moreover, the products that students create and put into portfolios are, by their very nature, difficult to score consistently. Whether individual entries in a portfolio are evaluated separately or aggregated, part of the difficulty lies in subjective scoring. As Dwyer (1993) noted, efforts at educational reform, particularly in the adoption of performance assessment, have celebrated subjectivity. There are "clear indications that reformers' orientation includes increasing tolerance for subjectivity, and a valuing of human judgment—even intuition—over precise decision rules and logical operations" (p. 269). However, clear-cut decision rules and coherent procedures are what bring consistency to scoring of portfolio assessments. The very nature of portfolio assessment makes reliable scoring very difficult. Different instructors can be expected to award different scores to the same entry in the portfolio. Bennett (1993) noted that constructed responses "by their very nature will produce less reliable scores. Lower reliability will make the measurement of new constructs relatively inaccurate, limiting the ability to generalize performance beyond the administered tasks, and the specific raters grading them" (p.9). Although advocates of portfolio assessments have ignored or downplayed these problems, the problems have not gone away and will not go away until scoring procedures, as well as the training of raters are improved (Salvia & Ysseldyke, 2004).

The next issue is inter-rater reliability or inter-scorer agreement. Raters who score a teacher candidate's performance must agree regarding what scores should be assigned to a student's work within the limits of what experts call "measurement error" (Herman, Gearhart, & Baker, 1993). Inter-rater agreement is accepted as the foundation upon which all decisions about portfolio quality are made. Inter-rater reliability is easiest to accomplish when portfolio entries are relatively uniform and

when well-trained and experienced raters are using well developed rubrics or scoring guidelines (Herman & Winters, 1994; Wolf, Dietz, 1998). Naizer (1997) reported on a study done in an integrated math/science methods class. This course used portfolio assessment to evaluate the teacher candidates' evidence of performance on selected teaching problems. The entries of the portfolios were scored independently by two instructors and a group of students who were assigned the role of third rater. Four assignments were rated by each of the three raters, with an inter-rater agreement ranging from 48% to 86% in the overall scoring totals. The first assignment had a range of inter-rater agreement of 58% to 68%. The second assignment had an inter-rater agreement ranging from 72% to 84% and the third assignment had an inter-rater agreement rate ranging from 84% to 92%. The author concluded that it was possible to develop inter-rater agreement to an acceptable level, with training and practice (Naizer, 1997).

Even when given considerable training in methods of appraisal and clear scoring standards are applied, raters may produce unreliable ratings (Gellman, 1992). The scoring of entries such as those in portfolios is very difficult. Raters should be provided with direct and systematic instruction until they are able to score the portfolios consistently (Stiggins, 2001). In addition to helping raters achieve consistency, training has the added benefit of uncovering scoring criteria that are unclear. Moreover, inconsistent scoring following training indicates the scoring criteria should be revised. Training acts as a field test for scoring criteria and procedures (Rakow, 1999; Stiggins, 2001). Training should not end once raters have mastered the scoring system, as indicated by inter-rater agreement. There is a strong tendency for scorers to lose accuracy over time (Salvia & Ysseldkye, 2004). To maintain consistency over time, raters need periodic retraining.

The third issue with reliability in performance assessments, particularly in portfolios, is the concern for bias exhibited by the scorers or raters of portfolio entries. Researchers have shown the vulnerability of non-objective decision making to stereotypes associated with race, ethnicity, social class, and gender (Salvia & Ysseldyke, 2004). Snow (1993) pointed out that bias can be determined objectively and eliminated from objectively scored tests. At this point, the same cannot be said for performance assessment, in this case, portfolios (Salvia & Ysseldyke, 2004).

As discussed by many researchers reporting on their experiences with student teaching exit portfolios, there are many unanswered questions regarding the use of portfolios as a major part of the teacher education assessment system (Bennett, 1993; Dubetz, Turley, & Erickson, 1997; Goodwin, 1997; Lyons, 1998; Salvia & Ysseldyke, 2004). The promise of an alternative assessment that may provide different insight into the professional development of teacher candidates is alluring. Many in the teacher education community are working to make it an acceptable method of assessment in connection to national professional standards, in connecting learning and teaching, and in addressing the validity and reliability concerns of assessing that understanding.

Considerations in Evaluating Teacher Candidate Quality

The pool of teacher candidates exhibits many varied personal traits and characteristics. These traits include, but are not limited to, gender, age, and choice of teaching at the elementary or secondary level. It should be considered that these demographic type factors might influence the candidates' interest, motivation, and ability to satisfactorily complete the portfolio tasks.

Gender

Gender issues need to be considered as a possible factor in influencing the successful completion of the student teacher exit portfolio assessment tasks. Previous research in gender differences was nebulous at best but improved technology has lent credence to the scientific basis for supporting those differences (Moir & Jessel, 1991).

It is now possible to document the changes in brain activity in reaction to stimuli through the use of positron-emission tomography (PET), magnetic resonance imaging (MRI), and functional magnetic resonance (fMRI) (Jensen, 1998; Sousa, 2001; Wolfe, 2001). By using PET, MRI, and fMRI scans, researchers can determine which parts of the brain are involved in specific tasks and which parts are dormant (Carter, 1998). By using this technology, researchers have been able to support or refute previous assumptions about the physical differences and thinking processes in gendered brains.

Confirmed by technology, male and female brains are physically different, which is purported to lead to some performance differences (Moir & Jessel, 1991; Sousa, 2001). The male brain has a higher percentage of gray matter in the left hemisphere while the female brain has the same percentage of gray matter in both the left and right hemispheres (Gur, Turetsky, Matsui, Yan, Bilker, Highett, & Gur, 1999; Sousa, 2001). Females have more connections between the neurons, while males have more neurons in the cerebral cortex (Rabinowicz, Dean, Petetot, & de Courten-Myers, 1999). Language areas are in the left hemisphere in both males and females, although females also have an active language processor in the right hemisphere (Sousa, 2001). These physical traits may lead to performance differences, particularly noticeable in schools or other learning settings. It is reported that females perform better on tests of perceptual speed, verbal fluency, determining the placement of objects, identifying specific attributes of objects, precision manual tasks, and arithmetic calculations

(MacCoby & Jacklyn, 1975; Moir & Jessel, 1991; Sousa, 2001). Reports show that males perform better on tests of spatial tasks, at gross motor skills, at determining abstract concepts of space, relationships, and theory in the area of mathematics, and at eye-hand coordination (Benbow & Stanley, 1983; Moir & Jessel, 1991; Sousa, 2001).

Theories and evidence of what genetics and environment contribute to these gender differences in performance suggest that we should no longer think in terms of nature versus nurture (Sousa, 2001). Genes influence behavior and behavior can influence how genes function as a person grows and develops. A combination of nature and nurture factors causes the brains of males and females to be organized differently from early in their development through their formative years, leading to different preferences and strengths in learning (Moir & Jessel, 1991). Regardless of the source of these preferences, educators are encouraged to avoid using brain research to stereotype genders, to assume one preference or strength is better than another, or that a student cannot accomplish certain tasks because of their gender (Sousa, 2001). Girls and boys are far more alike in their skills, competencies, and educational outcomes than they are different (Campbell & Wahl, 2002). Educators can use the brain research to better understand how it may impact learning and assessment. Teachers must recognize that boys may have some different learning preferences or strengths than girls, but that both genders have similar capabilities and possibilities to succeed in all subject areas (Sousa, 2001). Regardless of the sources of gender differences—whether nature or nurture—schools have a mission to educate all students to levels of competency and to broaden individual opportunities rather than reinforce group stereotypes about student skills and options.

When generic evaluation criteria are applied to all teacher candidates, teacher educators need to ask themselves how the diversity of teacher candidates is accommodated (Villegas, 1997). Is this assessment task fair to both genders

represented in teacher education? Developing a responsible teacher performance assessment system in the current demographic context is a delicate enterprise (Goodwin, 1997; Villegas, 1997). The task demands a clear vision of what teacher candidates need to know and be able to do to teach students successfully (Dubetz, Turley, & Erickson, 1997). At the same time, proactive steps are required to make certain the assessment does not discriminate unfairly against any particular group of teacher candidates, such as one or the other of the two gender groups.

Males are reported to outscore females on standardized tests (Gurian & Henley, 2001). The student who naturally favors deductive and quick abstract reasoning tends to do well on the multiple choice format of most standardized tests. The student who tends to quickly single out information rather than thinking out a larger variety of possibilities also does better on standardized tests. The student who tends toward high risk taking is likely to quickly answer questions under pressure and risk guesses. This student could be male or female but there is a high statistical probability that the more successful test taker is a male (Gurian & Henley, 2001). It is predicted that as standardized tests come to include more essay formats, females will improve their scores, bringing the male-female scores nearly to parity (Gurian & Henley, 2001). A recent research study of a system-wide portfolio assessment concluded that alternative assessments, such as portfolios, had a mixed effect on the issue of gender equity in testing (Supovitz, 1997). The use of alternative assessments tended to diminish the scoring gap between black and white students but magnified the differences between males' and females' scores (Supovitz, 1997).

Traditional and Non-Traditional Ages

Many teacher education programs attract both traditional age students and non-traditional age students pursuing teacher certification. The inclusion and

encouragement of non-traditional age teacher candidates is offered as a desirable focus for improving the number and quality of this country's teaching force by each of the federal education reform initiatives mentioned earlier in this chapter (National Commission on Excellence in Education, 1983; U.S. Department of Education, 1994; No Child Left Behind, 2002). Darling-Hammond and Sclan (1996) report that in 1992 newly certified, fresh out of college, teachers were 28 years old on average, and that newly certified, delayed entrants, teachers were 31 years old on average. In 1991, the newly hired, newly certified teachers (includes both freshly graduated and delayed entry) averaged more than 30 years old. These figures are an indication of the increasing necessity for consideration of the age of the teacher candidates as a possible factor in equity issues regarding the assessment of teacher candidates.

For the purposes of understanding teacher candidates' beliefs about teaching and learning, their motivation for becoming teachers, and for meeting their needs during the teacher education program, age of the candidate must be considered a factor (Bendixon-Noe & Redick, 1995; Brookhart & Freeman, 1992; Post & Killian, 1992). In their research concerning teacher beliefs, Brookhart and Freeman (1992) concluded that the most powerful group differences appeared to be those between traditional and non-traditional age groups of teacher candidates. For purposes of clarification and delineation, a non-traditional age teacher candidate was defined as an adult who "(1) has been away from formal, fulltime education for at least four years OR (2) is a veteran of the armed services OR (3) is at least 24 years old or (4) is married, widowed, divorced, separated, providing primary care for a child supporting a dependent" (Post, 1990, p. 27-28). A traditional teacher candidate was a student between the ages of 17 and 24 who has none of the experiences required to be classified as non-traditional (Post & Killian, 1995).

It has been suggested by the research literature concerning qualifications of teacher candidates that different age groups of candidates may also indicate differences in personal and professional characteristics which may affect the competence of these prospective teachers (Bendixon-Noe & Redick, 1995; Post, 1990; Post & Killian, 1992). Traditional age candidates were likely to have been influenced to become a teacher by their own experiences in school, while non-traditional age candidates were influenced in their decision to become a teacher by their own work experiences and, possibly, interaction with their own children (Post & Killian, 1992).

Non-traditional age teacher candidates were generally career-oriented, serious students who were willing to work hard to master what they perceived to be useful and were likely to demand quality programming in exchange for their tuition (Richter-Antion, 1986). In addition, there were several factors cited that combine to influence the overall high success rate among the non-traditional age students. Usually more mature than the traditional age candidates, non-traditional age students tended to be more responsible, prompt, and regular in class attendance (Glass & Rose, 1987). As learners, non-traditional age teacher candidates were more self-directed and independent students (Knowles, 1984; Rachal, 1983; Shulman, 1987; Tarule, 1988). They were more likely to have higher GPAs and higher educational goals than their traditional age counterparts (Glass & Rose, 1987; Long, 1983). Non-traditional age candidates were more apt to relate classroom experiences and new concepts to their own life experiences and work experiences. This was considered an advantage in their understanding of course material and in their performance in practica and student teaching internships (Post & Killian, 1992). Parenthood was a valuable consideration in enlightened views of school issues such as class size, testing, and parental involvement (Post & Killian, 1992).

Non-traditional age teacher candidates also brought complications to accommodating a variety of students in a teacher education program. Two specific actions were mentioned in descriptions of teacher education programs attempting to support non-traditional age teacher candidates. First, it was considered helpful to supply non-traditional age teacher candidates with long-range plans for a given course such as due dates for projects, clearly described assignments, specific criteria for evaluating projects and assignments (Post & Killian, 1992). The second suggestion for accommodation of non-traditional age teacher candidates is allowing for flexibility in satisfying group projects. Time constraints and issues of other responsibilities affect non-traditional students' ability to participate in out-of-the-class assignments.

With this brief review of research literature outlining the personal and professional trait differences between tradition age teacher candidates and non-traditional age teacher candidates, it is not clear how these differences might affect outcomes on the student teacher exit portfolio assessment. Having discovered no information from the research literature about these assessment outcomes would indicate a need for further investigation of this particular line of inquiry.

Elementary, Secondary, K-12 Certification

A third factor considered was the elementary, secondary, and K-12 certification levels chosen by each teacher candidate. The strongest determiner of which level of certification is selected by the teacher candidate is gender: females overwhelmingly chose the elementary level of certification and males preferred the secondary level of certification (Levin, 1971; Skopin, 1996).

Research concerning the differences between those candidates who chose to become elementary classroom teachers and those candidates who chose to become secondary classroom teachers have discovered that a basic issue involved the

candidates' motivation for becoming teachers at all (Book & Freeman, 1986; Brookhart & Freeman, 1992; Fox, 1961; Skopin, 1996). While both elementary and secondary teacher candidates indicated three basic reasons for becoming teachers, they also indicated differing interests influencing the specific level and area of certification. The three most frequently cited reasons for all teacher candidates to choose teaching careers were: (1) like working with children or youth, (2) like to help others learn and develop, and (3) fulfills a need to be useful and to contribute to society (DeLong, 1987). Elementary teacher candidates were motivated to teach by their interest in helping "students gain a sense of personal achievement and self-esteem" (Book & Freeman, 1986, p. 48). Secondary candidates reported that they chose to become teachers so they can "apply what they learn in their major field and to help students gain knowledge and understanding of subject matter they consider to be important" (Book & Freeman, 1986, p. 48).

Personality traits have long been considered involved in the choice of elementary or secondary certification levels. In a study by Baldwin, Slaton, Head, and Burns (1990), specific traits were generalized to each set of candidates. Secondary teacher candidates tended to be more assertive and more self-sufficient but less emotionally stable and less imaginative than the elementary candidates (Baldwin et al., 1990). Secondary candidates were more conforming, disciplined, and socially aware, suggesting that they were more conscientious, rule-bound, and needing of order (Skopin, 1996).

Another notable difference reported in the literature was the elementary candidates' significant experience with children in learning settings prior to entry into a teacher education program in comparison to the lack of experience by secondary level candidates working with age-appropriate youth (Book & Freeman, 1986). It was reported that elementary candidates had an expectation that both course work and field

experiences would support "learning to teach" while secondary candidates were less likely to believe that their professional sequence of courses and field work would make an important contribution to their professional knowledge and skills (Book & Freeman, 1986).

Another difference impacting elementary and secondary teacher candidates is the wide variety of subject-specific standards that have been developed and implemented in teacher education programs in the last decade (Kendall & Marzano, 1996). Although the Interstate New Teacher Assessment and Support Consortium (INTASC) Standards have been universally embraced for the overall guiding principles of an accredited teacher education program, the subject-specific standards are utilized at the course level (Hartzler-Miller, 1999). Perhaps the variety of standards applied to each subject area of certification could have an impact on the assessment of teacher candidate.

In summary of the research reported on why teacher candidates have chosen either elementary or secondary certification, all teacher candidates seem to have been influenced by their relationships with their own teachers and their own success in school settings (Skopin, 1996). All of the teacher candidates appear to share some basic personality traits including being friendly, nurturing, orderly, enthusiastic, imaginative, and warm-hearted (Skopin, 1996).

At the elementary level, candidates tended to be concerned for the welfare and personal safety of their students; tended to be more nurturing, supportive, and comforting; sought more support and reassurance than secondary level candidates (Skopin, 1996). Secondary candidates were more competitive and goal-directed; aggressive and antagonistic; independent and nonconforming; domineering and controlling (Skopin, 1996). Each group of candidates has a different level of experience with age-appropriate children or youth, with elementary candidates usually

having more experience prior to entering a teacher education program (Book & Freeman, 1986).

Whether or not these differences in personality traits and varying standards for each certification level also contribute to their assessment outcomes is not reflected in available research reports. It would seem that this is a factor to be considered when investigating student teacher exit portfolio assessment outcomes.

This research study sought to provide a perspective on the student teacher exit portfolio as a contributing tool for assessing preservice teacher competency. In this study, the population of student teachers included male and female subjects who are traditionally aged degree candidates and male and female subjects who are non-traditionally aged degree candidates. It also included students who were attempting to earn certification as elementary classroom teachers, as secondary (grades 6-12) classroom teachers, or as classroom teachers of specialty subject areas that spanned K-12 grades.

Summary

The review of research literature has solidly presented the argument that student teacher exit portfolios should be considered as an appropriate tool for the assessment of quality teacher candidates. The teacher education community has embraced the practice prior to meeting the demands of Darling-Hammond, Wise, and Klein (1999), outlined here as a conceptual framework for the establishment of a new assessment system for teacher education programs and teacher candidates. This study was one step toward satisfying the need for establishing the use of student teacher exit portfolios as an appropriate and possibly unique assessment of teacher candidate competency.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

"Public confidence that entrants understand what to do and know how to do it is essential if teaching [profession] is to argue for the right to educate practitioners and to regulate entry in accordance with professional standards."

(Darling-Hammond, Wise, and Klein, 1999, p. 166)

Chapter Three presents the research design and procedures used to conduct this study. Included in this chapter are research questions, research design, a description of the setting, a description of the participants, instrumentation, data collection procedures, and data analysis procedures.

Student teacher exit portfolios have recently gained acceptance as essential assessments through state mandates and accreditation requirements for teacher education program. There is little research evidence that portfolios are a convincing source of assessment information or that it provides unique information for making high-stakes decisions about certification of teacher candidates. The purpose of this study was to explore the appropriateness of student teacher exit portfolios as a unique assessment measure for all teacher candidates, regardless of gender, age, or choice of certification level. In light of this purpose, the researcher designed and conducted a study comparing the results of various pre-determined groups of teacher candidates during three semesters of the use of student teacher exit portfolio assessments in one small teacher education program. This study was undertaken in order to determine whether student teacher exit portfolios add to traditional procedures for assessing teacher candidates.

In this ex-post facto study, the teacher candidates' scores on the student teacher exit portfolio were compared by their already determined groups of gender, age, and

the level of teaching certification being sought (elementary, secondary, K-12). The scores of the student teacher exit portfolios were also compared to other traditional assessment tools, which included overall grade point average, Praxis I test scores, Praxis II test scores, and student teaching internship grade. A survey of teacher candidates was also conducted in order for their voice and opinions to be included in the investigation. Each of these comparisons was conducted to determine what, if anything, portfolio results added to the overall assessment of teacher candidates.

Research Questions

The research questions that guided the study were:

1. What differences, if any, are revealed between male and female performance on the student teacher exit portfolio as determined by INTASC Standards?
 - A. For the overall scores of the student teacher exit portfolio?
 - B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio:
 - INTASC #1 Subject area knowledge and pedagogy
 - INTASC #2 Child development, appropriate learning activities
 - INTASC #3 Adapting for diverse learners
 - INTASC #4 Critical thinking, problem solving, performance skills
 - INTASC #5 Motivation and creating a learning environment
 - INTASC #6 Effective verbal, nonverbal, and media communication skills
 - INTASC #7 Knowledge of students, community, and curriculum goals

INTASC #8 Formal and informal assessment strategies

INTASC #9 Reflective practitioner, to grow professionally

INTASC #10 Fosters relationships with colleagues, parents,
community

2. What differences, if any, are revealed between traditional age degree teacher candidates' and non-traditional age degree teacher candidates' performance on the student teacher exit portfolio as determined by the INTASC Standards?
 - A. For the overall scores of the student teacher exit portfolio?
 - B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio.
3. What differences, if any, are revealed between elementary certification area, secondary certification area, and K-12 certification area teacher candidates' performance on the student teacher exit portfolio as determined by the INTASC Standards?
 - A. For the overall scores of the student teacher exit portfolio?
 - B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio.
4. Is there a correlation between the Student Teacher Exit Portfolio assessment and the three other exiting assessments (Overall GPA, Student Teacher Internship grade, the Praxis I and II test scores) that are traditionally accepted and used in teacher education programs for initial certification?
 - A. Correlation between the assessments by gender (male and female)

- B. Correlation between the assessments by age (traditional age candidates and non-traditional age candidates)
 - C. Correlation between the assessments by certification levels (elementary, secondary, K-12)
5. How do teacher candidates rate the various assessment measures (Overall GPA, Student Teacher Internship grade, the Praxis I and II test scores, and Student Teacher Exit Portfolios) of their knowledge, skills, and dispositions?

Research Design

This study was based on an ex-post facto design model, a type of causal-comparative research, because the data were analyzed after the independent variables (gender, age, certification choice) presumably had exerted their effect on the dependent variable (the student teaching exit portfolio scores) (Gall, Gall, & Borg, 2003). The data were a matter of public record within the teacher education program and are used in the department's recommendation of program completers for state teacher certification. Charles (1998) recommended this ex-post facto approach when the independent variable is not manipulated and when the data is analyzed "after the fact" or when the situation being studied already existed.

For purposes of data analysis, the methodology was mostly quantitative with descriptive statistics, independent t-tests, and correlational statistics used. There was an addition of qualitative information in order to assess the teacher candidates' views of the portfolio assessment process. Quantitative data analysis afforded the researcher an opportunity to describe the relationships between variables and to draw meaningful inferences about these relationships (Krathwohl, 1998). This was intended to either

lend credence or challenge the appropriateness of student teacher exit portfolios in the assessment of teacher candidates.

Setting

This study was conducted at a small liberal arts college in the mid-Atlantic area of the United States, within 50 miles of two major metropolitan centers on the east coast of the United States. The college enrolls approximately 1600 undergraduates and 1100 graduate students, reflecting attendance by students from 23 states and 19 countries (College Catalog, 2002). In the 2002-2003 academic year, the college enrolled 21% minority undergraduate students and approximately 14% of the undergraduate student body were Distinguished Scholars (Middle States Report, 2002). The graduate students were overwhelmingly part-time attendees, mostly enrolled in programs that provided advanced preparation in education. The graduate student enrollment was 7% minority and 77.2% female (Middle States Report, 2002). The college is fully accredited by the Middle States Association of Colleges and Secondary Schools and is listed as one of the selective national Liberal Arts Colleges by the Carnegie Foundation for the Advancement of Teaching (College Catalog, 2002).

The college has a long tradition of liberal arts studies, with an emphasis on exemplary teaching and meaningful interaction between teachers and students. The flexible liberal arts curriculum enables students to acquire a broad base of knowledge in the areas of the humanities, natural sciences and mathematics, and the social sciences and also to pursue learning in depth in one or more of 60 fields of study. The liberal arts program links wide-ranging educational experiences with strong career preparation through an extensive internship program in many varied career choices.

The education program at the college has been revising its curriculum and assessments during the past decade, first to comply with State mandates in the *Redesign of Teacher Education* (SDE, 1995). Later changes were made to comply with expectations of the National Council for Accreditation of Teacher Education (NCATE) accreditation, as now required by the State's legislature (SDE, 1998). One of the changes required by both influential initiatives, the Redesign and NCATE, is that an exit portfolio will be used in determining whether or not the department will recommend each of its teacher candidates for State certification. This study took place in the Education Department and Graduate Studies Department, in both the undergraduate initial certification program and the initial certification program at the graduate level. These are parallel programs, designed with the same goals and standards that guide the instruction and experiences of the teacher candidates.

As indicated in the 2001-2002 Title II Report filed to comply with both state and federal requirements for accreditation in teacher education and the latest data available, the college's teacher candidates posted a total pass rate of 92% on the required standardized teachers' examination. In the Praxis I Test of Basic Skills, potential education students in the college posted a pass rate of 92%. This is the first standardized test required for sophomores/juniors to formally enroll in the undergraduate education program or for entry in the graduate education program. It is therefore assumed that those students who do not pass the Praxis I Test of Basic Skills are no longer part of the education program. In the Praxis II Test of Content Areas, taken by students at the end of their education program, the college posted a pass rate of 100%. In the Praxis II Test of Professional Knowledge, taken by students at the end of their education program, the college posted a pass rate of 100%. Pass rates for individual specialty area tests are not available because fewer than ten students took

tests in any one content field. (See Table 2 for Praxis I and Praxis II results for 2001-2002.)

Table 2

Praxis I and II Results (as reported for Title II Report, 2001-2002)

Which Test	Number of Teacher Candidates taking Test	College Pass Rate	State Pass Rate
Praxis I: Pre-Professional Skills Tests (composite)	58	93%	97%
Praxis II: Professional Knowledge (Pedagogy)	41	100%	94%
Praxis II: Content Areas (Certification Areas such as Elementary, Biology, Music)	48	100%	96%
Summary for this College	61	92%	90%

Participants

This study included the 76 teacher candidates who completed the student teaching internship during the three semesters. The study included 58 females and 18 males. These students were enrolled in both the undergraduate and graduate initial teacher certification programs (54 at the undergraduate level and 22 at the graduate level). These students were enrolled in programs leading to various levels and subject areas of certification. There were 35 elementary teacher candidates, 24 secondary teacher candidates, and 17 K-12 teacher candidates. The undergraduate candidates ranged in age from 22 to 47 years old with an average age of 23.5 years. The graduate

candidates ranged in age from 24 to 45 years old with an average age of 36.4 years.
(See Figure 1 for Teacher Candidate Groups.)

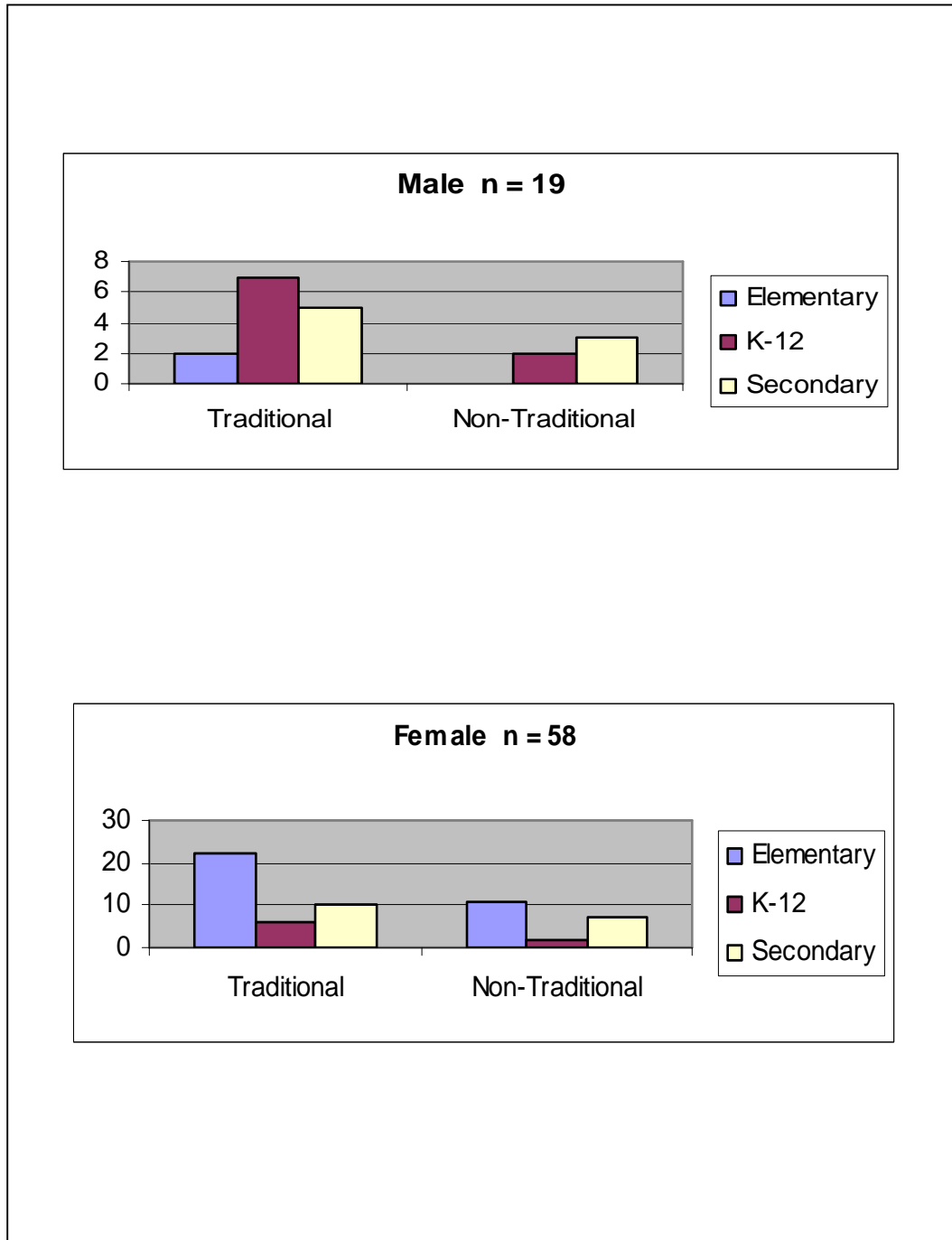


Figure 1. Teacher candidate groups

Data were collected from the student teaching internship application, including the teacher candidates' overall grade point averages and their Praxis I test scores. Data were also collected after their student teaching internship, including the grade for student teaching internship, Praxis II test scores, and the scores from the student teaching exit portfolios. The identity of each candidate was protected by the coding of the raw data. After recording of all data, the code was deleted.

Research Procedures

This study was conducted in a teacher education program at a small liberal arts college. This particular teacher education program was simultaneously undergoing the strenuous self-study required as part of the NCATE accreditation process. This study was an outgrowth of the concerns raised in the initial self-study regarding the student teaching internship and the assessment tools being used in determining certification recommendations.

Permission to Conduct Study

The study was conducted following the guidelines established by "Ethics in Research with Human Participants" (2000) developed by the American Psychological Association. The researcher followed the established protocol for conducting research at the college and the university. An application was made to the Institutional Research Board (IRB) of the college for collecting the necessary data on teacher candidates. Because the data needed were existing within the departmental public records, the IRB granted an exemption for the requirement of informed consent from each subject for use of the individual's data, as is provided in the federal rules of human subjects study (see Appendix E and Appendix F for copies of forms). In addition, an assurance of anonymity for all subjects complied with federal rules for Human Subjects Research. Application was made to the University of Maryland's

Institutional Research Review Board in Fall 2003, establishing the protocol for investigation according to the University of Maryland's interpretation of the federal guidelines (see Appendix G for copies of forms). Approval was received from the University IRB in December 2003 (see Appendix H for copy of approval documents).

Procedures

In Spring 2003, the researcher identified the population for the study and secured permission from the dean of the college to begin work on the study. In Summer 2003, application was made to the Institutional Research Board (IRB) of the college for permission to collect data on the teacher candidates for the three identified semesters. The teacher candidate survey was developed by the researcher and piloted with former teacher candidates during Summer 2003. The teacher candidates were asked to focus on the format of the survey and the clarity of the survey items. Changes were made in response to the comments and suggestions of those queried in the piloting of the survey.

All necessary data were collected during Fall 2003, with permission of the college and university. These data were readily available through the use of student teacher applications, college transcripts, and evaluation forms in the teacher candidate files in the college's Education Department. Table 3 describes the research procedures and the time line of implementation.

Table 3

Research Procedure Time Line

Procedure	Date
Population identified	March 2003
Permission to conduct study	
Dean of Department	March 2003
College IRB	August 2003
University IRB	October 2003
Former Teacher Candidate Survey developed	July 2003
Piloting of survey	September 2003
Reviewed by professors	September 2003
Collection of departmental data (estimate)	November/December 2003
Survey conducted	December 2003
Survey and departmental data analyzed	January 2004

Instrumentation

Several instruments were utilized in this study for the purpose of comparing assessments of teacher candidates. The student teacher exit portfolio was compared to already available and traditionally accepted assessment measures of the Praxis I and the Praxis II, the graded teaching internship or student teaching experience, the overall grade point average. In addition, a survey was used to include the opinions and voices of the teacher candidates who were evaluated using all of the above named assessment procedures during the three semesters of the study.

Student Teacher Exit Portfolios

The student teacher exit portfolio has been in use at this institution since 1996; however, it was not utilized as a formal assessment of teacher candidates until the 2001-2002 academic year. Previous to the 2001-2002 school year, the portfolio was designed as a self-reflection of the student's teaching knowledge and skills and was intended for use as an interview tool for the teacher candidates. It evolved in the

formality of both the product regarding content of the student teaching exit portfolio and of the process regarding evaluation of the student teaching exit portfolio.

The product, the required artifacts and narratives that are the entries in the exit portfolio reflect the use of INTASC standards as the basis for the teacher education curriculum and assessments of the teacher candidates in the teacher education program (See Appendix J for more complete description of artifact and narrative requirements for this department's exit portfolios.) The process for evaluating each student teacher exit portfolio became formalized during the two years of use as a high stakes assessment of teacher candidates. The Student Teacher Exit Portfolio scoring sheet is included in Appendix I. Included in Appendix J are the scoring guidelines for raters, which are also shared with the teacher candidates.

The total score earned on the Student Teacher Exit Portfolio for each teacher candidate was collected from the Education Department records. Seventy-six sets of scores were collected from the pool of 79 teacher candidates. All teacher candidates from the three semesters of student teaching internships at this particular teacher education program were included in the initial stages of this study. One teacher candidate did not complete the semester of internship; two did not complete the testing requirements for certification and these three non-completers were deleted from the study.

Each semester the scoring scheme was changed in response to the previous semester's experience and suggestions from both the set of scorers and the teacher candidates participating. Because of changes in the scoring guidelines and the numbering system used, it was necessary to convert all of the scores to percentages (earned raw score divided by the highest possible raw score) for the purpose of comparing the scores. In semester 1, the highest raw score possible for total portfolio score was 84 points. For example, if a teacher candidate earned a raw score of 82, the

raw score was divided by the possible score of 84 to convert the raw score to 97%. In semester 2, the highest raw score possible as total portfolio score was 92 points. If a teacher candidate earned a raw score of 82, this was divided by the possible score of 92 to convert the raw score to 89%. In semester 3, the highest raw score possible as total portfolio score was 100 points. If a teacher candidate earned a raw score of 82, this was recorded as 82%. The raw scores for total portfolio and their converted percentage scores can be found in Table 4.

Table 4

Range of Total Portfolio Scores by Semester

Semester n=participants	Range of Scores Raw Score Possible	Range of Scores Conversion to Percentage
Semester One n=23	<u>60.5 to 82</u> 84 points possible	72% to 97.6%
Semester Two n=20	<u>63 to 87</u> 92 points possible	68.5% to 94.5%
Semester Three n=33	<u>71 to 97</u> 100 points possible	71% to 97%

The total portfolio score was also broken down to ten individual INTASC Standard scores. The teacher candidates presented a set of artifacts to represent their knowledge, skills, and dispositions concerning each of the INTASC Standards and these ten sets of artifacts were scored using established scoring guidelines. During each semester included in the study, the scoring schematic changed to reflect feedback from the scorers and the teacher candidates.

Each of the ten individual INTASC Standard raw scores was also converted to percentages for comparison. The raw score earned for each individual set of standard artifacts was divided by the possible raw score for that standard in order to convert the raw score to a comparable percentage score. For example, in semester 1, the possible score for each set of the INTASC standard artifacts was 6 points. If a teacher

candidate earned a raw score of 5 on the set of artifacts for INTASC standard 1, the earned raw score was then divided by the possible raw score of 6 points to convert the score to 83%. In semester 2 and 3 of the study, the possible score for each set of the INTASC standard artifacts was 8 points. If a teacher candidate earned a raw score of 5 on the set of artifacts for INTASC standard 1, the raw score was then divided by the possible raw score of 8 points to convert the score to 62.5%. This conversion to percentages was considered a fair method for comparison of different scoring schemes of each semester. The range of scores varies from standard to standard as indicated in Table 5.

Table 5

Range of Scores for Each Standard in Exit Portfolio

Standard	Semester One n=23	Semester Two n=20	Semester Three n=33
1. Content Knowledge	4-6 points 66%-100% mean=5.05/84%	4-8 points 50%-100% mean=6.84/85.5%	4-8 points 50%-100% mean=7.02/87.7%
2. Child Development	4-6 points 66%-100% mean= 5.00/83.3%	4-8 points 50%-100% mean=6.54/80.6%	5-8 points 62.5%-100% mean=7.24/90.5%
3. Diversity	4-6 points 66%-100% mean=5.03/84%	5-8 points 62.5%-100% mean=6.59/82.3%	5-8 points 62.5%-100% mean=6.86/85.7%
4. Instruction	4-6 points 66%-100% mean=4.93/82%	5-8 points 62.5%-100% mean=6.99/87.3%	4-8 points 50%-100% mean=7.17/89.6%
5. Motivation	4-6 points 66%-100% mean=5.03/84%	5-8 points 62.5%-100% mean=7.09/88.7%	5-8 points 62.5%-100% mean=7.22/90%
6. Communication	4-6 points 66%-100% mean=5.15/86%	6-8 points 75%-100% mean=6.95/86.8%	4-8 points 50%-100% mean=7.12/89%

Table 5 (continued)

Range of Scores for Each Standard in Exit Portfolio

Standard	Semester One n=23	Semester Two n=20	Semester Three n=33
7. Planning	4-6 points 66%-100% mean=5.23/87%	4-8 points 50%-100% mean=6.69/83.6%	4-8 points 50%-100% mean=6.98/87.3%
8. Assessment	4-6 points 66%-100% mean=4.93/82%	5-8 points 62.5%-100% mean=6.55/81.8%	4-8 points 50%-100% mean=6.75/84.3%
9. Reflection	4-6 points 66%-100% mean=5.28/88%	5-8 points 62.5%-100% mean=6.80/85%	5-8 points 62.5%-100% mean=7.02/87.7%
10. Relationships	4-6 points 66%-100% mean=5.25/87.5%	5-8 points 62.5%-100% mean=6.86/85%	4-8 points 50%-100% mean=6.79/84.9%

Praxis I and Praxis II

To raise teacher education program admission standards, many colleges of education accredited by the National Council for the Accreditation of Teacher Education (NCATE) began to require the use of standardized tests to assess basic knowledge of teacher candidate applicants (Dybdahl, Shaw, & Edwards, 1997; Poggio, Glassnapp, Green, & Tollefson, 1997). Each state established cut scores or passing scores for those candidates desiring to become certified to teach in that state (Dybdahl, Shaw, & Edwards, 1997; Poggio, Glassnapp, Green, & Tollefson, 1997).

This particular State required a specified passing score on the Educational Testing Services' Praxis I or the Pre-Professional Skills Tests, which included individual tests in writing, reading and mathematics. These tests were developed in order to establish acceptable levels of proficiency for beginning teachers in the areas of reading, writing, and mathematics (Mikitovics & Crehan, 2002). The reading and mathematics tests were multiple choice tests, while the writing test involved written

responses to provided prompts in order to assess writing skills. This State established passing scores that were the second highest required in the nation. The Reading test passing score was established as 177 of a possible 200; the Writing test passing score was 173 of a possible 200; and the Mathematics test passing score was 177 of a possible 200. The State established these passing scores after piloting the tests for two years, determining the mean scores for each set of tests, and surveying the surrounding states' established passing scores.

The variety of state-to-state established passing scores was an important fact to understand in its consequences. As an example, Mitchell and Barth (1999) reported that Minnesota established 169 as their passing score on the Praxis I subtest of mathematics. Virginia established 178 as the passing score on the same test. This means that Minnesota test takers must mark approximately 45% of their answers correctly while test takers in Virginia must answer about 68% of their answers correctly. Mitchell and Barth (1999) also argued that while only 10% of the Minnesota test takers would not pass their Pre-Professional Skills Tests, about 40% of Virginian test takers would fail, based solely on the passing score differences.

The reporting of passing percentages for all teacher candidates required by Title II (U.S. Department of Education, 1999) established passing Praxis I test scores as one of several requirements for entry into college teacher education programs. As a high-stakes test, ETS established validity and reliability on all three Praxis I sub-tests (reading, writing, and mathematics). It reported "Standard Error of Measure" or SEM as establishing reliability for those tests with right or wrong answers. ETS reports "Standard Error of Scoring" or SES to establish reliability for those tests that require professional judgements in determining scores, such as the writing test. For the Pre-Professional Skills Tests, ETS reports a SEM of 2.5 for the Reading subtest, a SEM of 2.5 and SES of .3 for the Writing subtest, and a SEM of 2.8 for the Mathematics

subtest (ETS, 2003). (See ETS, www.ets.org/praxis for a report from ETS concerning Standards of Error of Measurement and Standards of Error of Scoring for both Praxis I and Praxis II.)

Praxis II tests are required for each of the certification areas. For example, those candidates attempting to earn certification in biology are required to take and pass a biology content test and a biology pedagogy test. Those teacher candidates becoming certified in elementary are required to take specific tests in that area. Teacher candidates earning certification in music are required to take a music content test and pedagogy test. These passing score percentages are also required to be reported by both federal mandate and State requirements so have been incorporated into the exiting requirements of teacher certification programs. (See ETS, www.ets.org/praxis for a report from ETS concerning all required passing scores for both Praxis I and Praxis II on a state-by state basis.)

The scores for Praxis I and Praxis II must be converted so they can be compared. Praxis I tests and Praxis II tests are offered in both a paper/pencil format and a computerized format, with different total scores possible in each format. The raw scores were converted to percentages (earned raw score divided by total possible raw score). For example, the paper/pencil version of the test allows for a total possible score of 190 points. A teacher candidate earning a raw score of 177 on the reading test (the required score for this state's certification requirement) would then have the score divided by the possible raw score of 190 to convert it to 93%. On the computerized version of the reading test, the total possible score is 335 points. A teacher candidate earning a raw score of 325 (the required score for this state's certification requirement) would then have the score divided by the possible raw score of 335 to convert it to 97%. This was the procedure used to convert each Praxis I and

Praxis II test score to percentages in order to compare the scores for each demographic group. The range of scores varied for each set of tests.

The teacher candidates earned Praxis I test scores that only vary from 91% to 99%, which could be expected as passing scores are required to enter the teacher education program. Those college students posting lesser, non-passing scores were not admitted to the teacher education program and, thus, were not included in this data report.

Praxis II scores presented a little more range since they included different tests for different subject areas. The Praxis II tests were required for certification and were sometimes interpreted as an indication of success after completing the teacher education program. There were seven teacher candidates who had not completed the Praxis II tests at the time of this study. Of the sixty-nine Praxis II test takers, 11 of them scored under 80% on their tests. Approximately 25% or 20 test takers scored between 80% and 84% on their tests; another 20 test takers or 25% of the teacher candidates taking the test scored between 84% and 86%. The remaining 18 teacher candidate test takers scored between 86% and 95% on their Praxis II tests. The Praxis II tests included tests on specific subject knowledge and subject pedagogy.

Overall Grade Point Average

One assessment used extensively as an entry and exit criterion in teacher education programs and as a condition for state teacher certification requirement was the overall grade point average earned by each teacher candidate during the college career (Graham & Garton, 2001). Research findings have been mixed as to the predictive potential of grade point average. Some researchers (Daniel, 1993; Pigge & Marso, 1989; Riggs & Riggs, 1992) found GPA to be a good predictor of student teaching performance and classroom teaching performance. Other researchers

(McCutcheon, Schmidt, & Bolden, 1991; Olstad et al., 1987) found that GPA had little predictive capability toward student teaching performance. The lack of consistent findings in regard to teacher candidate overall grade point average leaves questions as to its use as a selection factor in teacher education programs (Graham & Garton, 2001; Mikitovics & Crehan, 2002).

In this particular teacher education program, each teacher candidate was required to maintain at least a 2.5 (on a 4.0 scale) grade point average throughout their studies in the teacher education program. This GPA was a requirement to enter the undergraduate teacher education program as a second semester sophomore or first semester junior. It was also a requirement for entry into the graduate level initial certification teacher education program. Later, in both the undergraduate and graduate teacher education programs, the 2.5 GPA is required for acceptance as a student teacher intern.

The overall grade point average continues to be one of the more traditionally accepted assessments of teacher candidates. Grades are reported as letter grades, which are then computed as a numerical equivalent. Table 6 presents the computation used in this teacher education program and institution of higher education.

Table 6

Grade Computation

Letter	Numerical Computation
A+	4.0
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7

The range of overall grade point average for all 76 of the teacher candidates was 2.58 to 4.0. Only nine of the teacher candidates presented overall grade point averages less than 3.0 or a B average. Twenty-four of the teacher candidates presented an overall grade point average of 3.7 or higher. (See Figure 2 for Overall Grade Point Distribution)

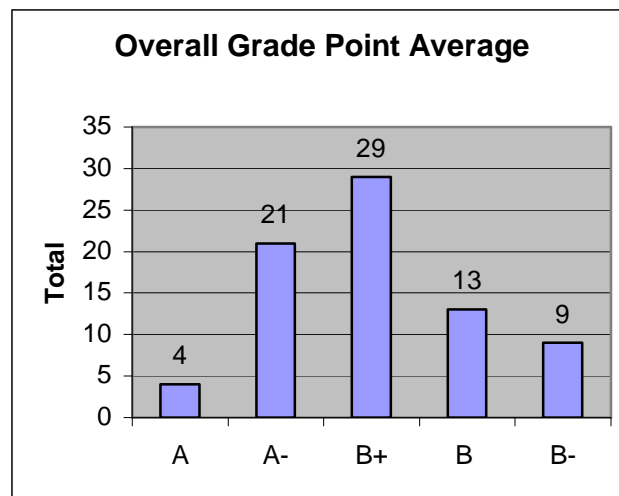


Figure 2. Overall grade point average

Since this criteria was established as a determinant of entry and exit of this particular teacher education program, it was used as an assessment measure in this study.

Student Teaching Grades

Grades for student teaching internships were usually regarded as a flat measurement since most of the teacher candidates completing their student teaching internship earn A's as their final grade. This has been somewhat explained as the gatekeeping assessments, such as overall grade point average, sort out those candidates not considered to be academically qualified to be successful in completing the teacher education program. However, variations in the grading increments become

important determinants of differences in quality. There is generally a variation of A+, A, A-, B+, and B grades earned for the experience in the final evaluation of the internship. Trained student teacher supervisors determine the grades for each teacher candidate in the student teaching internship. These supervisors may be faculty members of the teacher education department or former classroom teachers or school administrators who are considered to be master teachers or experts in the field of effective classroom teaching behaviors.

The reliability of student teacher grades in predicting successful and effective teaching as a practicing classroom teacher has had a mixed review by researchers. While some researchers have determined a relationship between the education grade point average, which is dominated by the student teaching grade, and later success as a classroom teacher, other researchers have not (Graham & Garton, 2001; Guyton & Farohki, 1987; Heller & Clay, 1993; Mikitovics & Crehan, 2002; Olstad et al., 1987; Pigge & Marso, 1989).

In this particular teacher education program, supervisors are frequently brought together for updated training on the standards of performance, internship requirements, and appropriate use of assessment instruments. These training sessions usually included the use of taped teaching episodes that are then evaluated and discussed among the supervising group in order to establish more acceptable inter-rater reliability. Each new supervisor has been assigned a mentoring veteran supervisor, for assistance with the role of supervision and the expectations of student teaching intern performance.

Each teacher candidate earned a grade for their internship experience. This grade reflected the work toward eight credits, whether undergraduate or graduate credits. At either academic level, the same grading system was applied as was discussed with the overall grade point average. These 76 teacher candidates earned

grades in the Student Teaching Internship ranging from an A to a D, or 4.0 to 1.5 on the numerical scale. Fifty-three of the teacher candidates earned an A or 4.0 for their Student Teaching Internship experience, which is understandable in a culminating experience of a professional program. This assumed that all or most of the borderline candidates have chosen to withdraw from the program or have been counseled not to continue in the program (see Figure 3 for the distribution of grades for Student Teaching Internship).

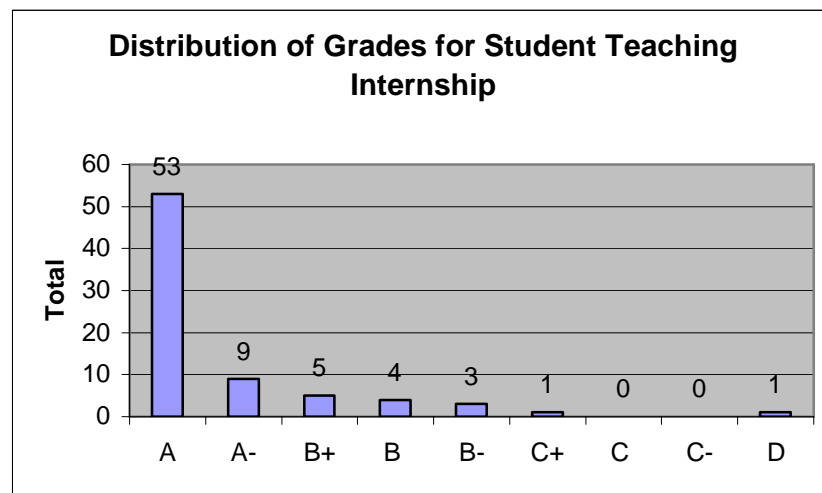


Figure 3. Distribution of student teaching internship grade

Since a passing student teacher internship grade has traditionally been a required measure for purposes of exiting the teacher education program and earning certification from a state agency, this was used as an assessment of teacher candidate quality in this study.

Survey of Former Teacher Candidates

This researcher developed a brief survey to collect the opinion of teacher candidates about each of the five assessment tools used in this teacher education program. The survey was designed to be a simple request for feedback on the

perceived effectiveness of each assessment tool in capturing information regarding the candidates' knowledge, skills, and dispositions about teaching.

When deciding what to ask the teacher candidates regarding the assessment tools used during their semester in the student teaching internship, the researcher decided the essential elements of the survey must reflect: (1) the demographic elements already selected as independent variables for the study (age, gender, certification levels), (2) language that reflected the NCATE requirements for program accreditation and the language of the INTASC standards used to guide the curriculum and experiences of the teacher education program, and (3) brief and non-threatening instrument that could be easily and quickly completed.

Validity and reliability for this instrument were determined by sharing the survey with five former teacher candidates who were not participants in this study. They completed the survey form, as a pilot study, prior to the collection of data for the main study. The completion of the survey form as a pilot study was intended to test the data collection procedure, scoring techniques, readability of the directions on the top of the instrument, and clarity of the language of the instrument. This survey was also reviewed by a professional statistician and several professors involved in the teacher education program. Changes were made to the survey as suggested by participants in the piloting of the instrument (see Appendix K for copy of the Survey of Former Teacher Candidates).

The Teacher Candidate Survey was used to elicit the teacher candidates' view and opinion of the five assessments in use in their teacher education program. The survey was sent out by mail to each of the teacher candidates participating in the three designated student teaching internship semesters. The survey asked four questions about the assessments in place during their time in the teacher education program. There were 42 responses collected from the 76 surveys sent out (a 55.26% return rate).

Two of the responses were not useable because one chose not to participate and the other was serving in Iraq (the candidate's mother returned the blank survey with explanation). Of the 42 responses, 35 (83.3% of the responses) were from female teacher candidates and 7 (16.6% of the responses) were from male teacher candidates. Twenty-seven (64.3% of the responses) traditional age teacher candidates responded to the survey and 15 (35.7% of the responses) non-traditional age teacher candidates responded. In the category of certification levels, 21 elementary teacher candidates (50% of the responses), 12 secondary teacher candidates (28.6% of the responses), and 9 K-12 teacher candidates (21.4% of the responses) responded to the survey request. The response rate from each of the demographic categories does not represent the same distribution of total teacher candidates. For example, the 35 female respondents represent 60.3 % of the total number of 58 female teacher candidates but the 7 male respondents represent only 38.9% of their total number of 18 teacher candidates. Since the total number of male teacher candidates is only 18 of the 76 or 23.6% of the population of teacher candidates, the male respondent rate of 16.6% of the total respondents (7 of the total 42 responses) actually under-represents the male perspective on these five teacher candidate assessments. The opposite is true when looking at the number of responses from non-traditional teacher candidates. These non-traditional teacher candidates are 24 of the 76 total teacher candidates or 31.6% of the total. The 15 non-traditional teacher candidate survey respondents represent 35.7% of the total 42 respondents and so non-traditional teacher candidates are over-represented in the survey results (see Appendix L for chart of the distribution of survey respondents).

Data Analysis Procedures

The data analysis procedures are explained in this section of Chapter Three. See Table 7, p.109, for details of the relationship between the research questions, the instruments used, and the statistical analysis applied. This section of the chapter restates each research question and then describes the procedure for calculating a result.

1. What differences, if any, are revealed between male and female teacher candidates' performances on the student teacher exit portfolio as determined by INTASC Standards?

- A. For the overall scores of the student teacher exit portfolio?

Although the scoring strategy for the student teacher exit portfolio was adjusted each of the three semesters of the study, it was possible to convert each score to a percentage of success, much as occurs for grading of other assignments and assessments. Thus a scoring protocol that was based upon a 6-point scale and an 8-point scale were converted to be compared to a 10-point scale. The mean score for all female teacher candidates was calculated, the mean score for all male teacher candidates was calculated, and differences in mean scores were assessed for magnitude by using a series of independent t-tests.

- B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio.

The same process of converting the ten scores for each INTASC standard for each teacher candidate was used. The mean scores of all female teacher candidates on each of the ten individual INTASC standard were calculated. The mean scores of all male teacher candidates on each of the ten individual INTASC standard were calculated. Differences in mean scores were assessed for magnitude by using a series of independent t-tests. This was done for all ten of the INTASC standard scores.

2. What differences, if any, are revealed between traditionally aged teacher candidates' and non-traditionally aged teacher candidates' performances on the student teacher exit portfolio as determined by the INTASC Standards?

- A. For the overall scores of the student teacher exit portfolio?

Although the scoring strategy for the student teacher exit portfolio was changed each of the three semesters of the study, it was feasible to convert each score to a percentage of success, much as occurs for grading of other assignments and assessments. This conversion of scores was determined and the mean score for all traditionally aged teacher candidates was calculated, the mean score for all non-traditionally aged teacher candidates was calculated, and differences in mean scores were assessed for magnitude by using a series of independent t-tests.

- B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio.

The same process of converting the ten scores for each INTASC standard for each teacher candidate was used. The mean scores of all traditional age teacher candidates on each of the ten individual INTASC standard were calculated. The mean scores of all non-traditional age teacher candidates on each of the ten individual INTASC standard were calculated. Differences in mean scores were assessed for magnitude by using a series of independent t-tests. This was done for all ten of the INTASC standard scores.

3. What differences, if any, are revealed between elementary certification area, secondary certification area, and K-12 certification area teacher candidates' performances on the student teacher exit portfolio as determined by the INTASC Standards?

- A. For the overall scores of the student teacher exit portfolio?

Although the scoring strategy for the student teacher exit portfolio was changed each of the three semesters of the study, each raw score was converted to a percentage of success, much as occurs for grading of other assignments and assessments. The mean scores of all elementary certification teacher candidates on the overall portfolio score were calculated. The mean scores of all secondary certification teacher candidates on the overall portfolio score were calculated. The mean scores of all K-12 certification teacher candidates on the overall portfolio score were calculated. Differences in mean scores were assessed for magnitude through an analysis of variance procedure.

- B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio.

The same process of converting the ten scores for each INTASC standard for each teacher candidate was used. The mean scores of all elementary certification teacher candidates on each of the ten individual INTASC standard were calculated. The mean scores of all secondary certification teacher candidates on each of the ten individual INTASC standard were calculated. The mean scores of all K-12 certification teacher candidates on each of the ten individual INTASC standard were calculated. Differences in mean scores were assessed for magnitude through an analysis of variance procedure. This was done for all ten of the INTASC standard scores.

- 4. Is there a correlation between the Student Teacher Exit Portfolio assessment and the three other exiting assessments (Overall GPA, Student Teacher Internship grade, the Praxis I and II test scores) that are traditionally accepted and used in teacher education programs for initial certification?

- A. Correlation between the assessments by gender (male and female)
- B. Correlation between the assessments by age (traditionally aged candidates and non-traditionally aged candidates)
- C. Correlation between the assessments by certification levels (elementary, secondary, K-12)

Correlational statistics were used to investigate the relationship of portfolio scores with combinations of each of the four more traditionally accepted assessment tools, including overall grade point average, Praxis I test scores, Praxis II test scores, and the student teaching internship grade. The Praxis I test scores are reported differently for paper/pencil testing format versus the computer based format so it was necessary to find a common scoring that would allow for comparisons. The Praxis I scores were entered according to their percentages of the raw score as compared to the highest possible score in order to reflect the comparable strength of each score.. Praxis II test scores vary in possibility by the subject areas. Therefore, the Praxis II test scores were entered as percentages of the raw score as compared to the highest possible score in order to distinguish the strengths of each score. Likewise, the student teaching internship grade was converted to reflect a four point grade scale. For example, an A grade is converted to a 4.0, an A- is converted to a 3.7. These are the numbers used in calculations. These correlational statistics are then aggregated by the teacher candidate groups of gender, age, and certification levels.

- 5. How do teacher candidates rate the various assessment measures (Overall GPA, Student Teacher Internship grade, the Praxis I and II test scores, and Student Teacher Exit Portfolios) of their knowledge, skills, and dispositions?

The Teacher Candidate survey responses were used to answer the fifth research question. Responses were analyzed using descriptive statistics and the additional comments provided by teacher candidates from the three semesters of the study. The comments were coded by topics and by respondent's groups (male/female, traditional/non-traditional, and certification level)

Table 7

Research Questions, Instrumentation, and Data Analysis

Research Questions	Instrumentation	Data Analysis
1. What differences, if any, are revealed between male and female performance on the student teacher exit portfolio as determined by INTASC Standards?	Student Teacher Exit Portfolio	Mean scores for female Mean scores for male Independent t-tests
2. What differences, if any, are revealed between traditionally aged teacher candidates and non-traditionally aged teacher candidates performance on the student teacher exit portfolio as determined by the INTASC Standards?	Student Teacher Exit Portfolios	Mean scores for traditional age Mean score for non-traditionally aged Independent t-tests
2. What differences, if any, are revealed between elementary certification area, secondary certification area, and K-12 certification area teacher candidates' performance on the student teacher exit portfolio as determined by INTASC Standards?	Student Teacher Exit Portfolios	Mean scores for elementary certification area Mean score for secondary certification area Mean score for K-12 certification area Analysis of Variance

Table 7 (continued)

Research Questions, Instrumentation, and Data Analysis

4. Is there a correlation between the Student Teacher Exit Portfolio assessment and the four other exiting assessments (overall GPA, Student Teacher Internship grade, Praxis I test, Praxis II tests) that are traditionally accepted and used in teacher education programs for initial certification?	Student Teacher Exit Portfolio Overall Grade Point Average Student Teaching Internship grade Praxis I tests Praxis II tests	Correlational statistics Pearson-product moment coefficients
5. How do teacher candidates rate the various assessment measurements (Overall GPA, Student Teaching Internship grade, Praxis I, Praxis II, Student Teacher Exit Portfolio) of their knowledge, skills, and dispositions?	Former Teacher Candidate Survey	Descriptive statistics Qualitative description

Summary

Chapter Three presented the methods used in this quantitative study of one college's use of student teacher exit portfolios as an assessment of teacher candidates and their knowledge, skills, and dispositions as quality teacher candidates ready for professional certification. A review of the methodology and procedures that were followed in order to conduct this study were included in this chapter. The research questions that guided the study were presented. The setting and participants of the study were described. The instruments, data collection procedures, and data analysis procedures were explained. A reminder of the limitations and delimitations of the study are also included. The findings of this study are provided in Chapter Four.

CHAPTER IV

ANALYSIS AND RESULTS

Each state agency must develop a plan to ensure that all teachers are "highly qualified" no later than the end of the 2005-06 school year... States must ensure that teacher quality activities are aligned with state standards and based on a review of scientifically based research... (No Child Left Behind, 2002, p.57-58)

The purpose of this study was to explore the appropriateness of student teacher exit portfolios as a unique assessment measure for all teacher candidates, regardless of gender, age, or the level of expected certification. State mandates and federal exhortations for teacher educators to guarantee the competence of teacher candidates requires that assessment measures be compelling in order to convince the general public and policy makers of the "high quality" of teacher candidates coming into the nation's classrooms to teach our children. This study makes a first step toward establishing that appropriateness for student teacher exit portfolios.

Statement of Problem

This study contributes a new perspective to the assessment of teacher candidates by comparing the newly devised portfolio assessment with the traditional assessment tools of overall grade point average, student teaching/internship grade, Praxis I test scores, and Praxis II test scores. Scrutiny of these tools is considered necessary in order to present sound assessment measurements guaranteeing highly qualified teacher candidates as they leave teacher education programs for their own classrooms. This study presented the beginning phase of this scrutiny. The following research questions were developed in order to examine the differences in teacher candidate performance on the exit portfolio and relationships between the student

teacher exit portfolio and the more traditional assessments of teacher candidate quality.

The research questions that guided the study were:

1. What differences, if any, are revealed between male and female performance on the student teacher exit portfolio as determined by INTASC Standards?
 - A. For the overall scores of the student teacher exit portfolio?
 - B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio:
 - INTASC #1 Subject area knowledge and pedagogy
 - INTASC #2 Child development, appropriate learning activities
 - INTASC #3 Adapting for diverse learners
 - INTASC #4 Critical thinking, problem solving, performance skills
 - INTASC #5 Motivation and creating a learning environment
 - INTASC #6 Effective verbal, nonverbal, and media communication skills
 - INTASC #7 Knowledge of students, community, and curriculum goals
 - INTASC #8 Formal and informal assessment strategies
 - INTASC #9 Reflective practitioner, to grow professionally
 - INTASC #10 Fosters relationships with colleagues, parents, community
2. What differences, if any, are revealed between traditional age degree teacher candidates' and non-traditional age degree teacher candidates'

- performance on the student teacher exit portfolio as determined by the INTASC Standards?
- A. For the overall scores of the student teacher exit portfolio?
 - B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio.
3. What differences, if any, are revealed between elementary certification area, secondary certification area, and K-12 certification area teacher candidates' performance on the student teacher exit portfolio as determined by the INTASC Standards?
- A. For the overall scores of the student teacher exit portfolio?
 - B. For the individual scores of each of the ten INTASC Standards of the student teacher exit portfolio.
4. Is there a correlation between the Student Teacher Exit Portfolio assessment and the three other exiting assessments (Overall GPA, Student Teacher Internship grade, the Praxis I and II test scores) that are traditionally accepted and used in teacher education programs for initial certification?
- A. Correlation between the assessments by gender (male and female)
 - B. Correlation between the assessments by age (traditional age candidates and non-traditional age candidates)
 - C. Correlation between the assessments by certification levels (elementary, secondary, K-12)
5. How do teacher candidates rate the various assessment measures (Overall GPA, Student Teacher Internship grade, the Praxis I and II test

scores, and Student Teacher Exit Portfolios) of their knowledge, skills, and dispositions?

Review of Research Procedures

This ex-post facto study, a type of causal-comparative research, was based on the comparisons of various groups of teacher candidates on the assessment results on the student teacher exit portfolios (Fraenkel & Wallen, 2000). These teacher candidates (n=76) completed the student teaching internship during three academic semesters in one teacher education program.

Chapter Four outlines the results of data collected from several measurements: (a) overall grade point average of the teacher candidate's college career, (b) student teaching/internship grade, (c) Praxis I test scores (includes reading writing, and mathematics), (d) Praxis II test scores (includes content knowledge and pedagogy for the declared certification level and subject), and (e) student teacher exit portfolio scores (organized according to INTASC Standards). A brief survey was also sent to all teacher candidate participants in order to solicit their view of each of the five assessment tools used to evaluate their teaching knowledge, skills, and dispositions. The survey is included in Appendix K. A detailed description of each assessment tool and their application or implementation in this particular teacher education program is included in Chapter Three.

The data collected from each assessment in the form of raw scores were converted to percentage scores, as described in Chapter Three. After statistical manipulations, the results were analyzed. The level of significance (p) at which the null hypothesis was to be rejected was set at the .05 confidence level, suggested by Gall, Gall, and Borg (2003) as usual practice in educational research. A note about the use of parametric statistics in this study: parametric statistics assume data of integral

quality; the percentages used here as the data for these assessments are not of integral quality. Under the circumstances of this study, it seemed reasonable to use percentages for comparison of these assessments. Statisticians have conducted research to determine what happens when the assumptions underlying the t-test and other parametric statistics are ignored. They have found that these tests provide accurate estimates of statistical significance even under conditions that breach the assumptions (Gall, Gall, & Borg, 2003).

This measurement data has been analyzed according to the three demographic categories of teacher candidates in the teacher education program: (a) their gender (male or female), (b) their age (traditional age or non-traditional age), and (c) their declared level of certification (elementary, secondary, or K-12).

Teacher Candidates

All teacher candidates (n=79) from three successive semesters of student teaching/internships at this particular teacher education program were included in the initial stages of this study. One teacher candidate did not complete the semester of internship; two did not complete the testing requirements for certification and these three candidates were deleted from the study. The study participants (n=76) included 35 elementary teacher candidates, 24 secondary teacher candidates, and 17 K-12 teacher candidates. The participants included 18 males and 58 females. There were 52 teacher candidates categorized as traditional age and 24 teacher candidates who were categorized as non-traditional age. A thorough description of the teacher candidates is provided in Chapter Three.

Institutional records provided both demographic data and academic data about each teacher candidate. This material is available for institutional reporting to both state and federal agencies. The higher education institution where this teacher

education program resides granted permission for the use of institutional records and data contained in the record. Teacher candidates signed informed consent for the use of survey data.

Findings

A discussion of the quantitative analysis performed on the assessment data is presented following a restatement of each research question and statistical hypothesis.

Research Question 1A

What differences, if any, are revealed between male and female performance on the total score of the student teacher exit portfolio as determined by INTASC Standards?

Statistical Hypothesis. There are no statistically significant differences between the mean scores of female and male teacher candidates on their performances on the student teacher exit portfolio as determined by INTASC Standards, according to the total performance score.

Analysis and Findings. Because of varying scoring schemes used in the three semesters of the study, a numerical method for comparison of scores was necessary. All raw scores were converted to percentages by dividing the raw score earned by the highest possible raw score allowable.

These total scores were then descriptively analyzed, based on the mean and standard deviation for the total scores earned by male and female teacher candidates. Table 8 presents the data summary for total score differences between male and female teacher candidates. Also presented in Table 8 is the result of the independent t-test that tested the strength of the variance of means between male and female total scores on the Student Teacher Exit Portfolios.

Table 8

Differences of Female/Male Performance on Total Score on Exit Portfolio

Gender	N	Mean Score	Standard Deviation	t-value	<i>p</i>
Male	18	.840	.086		
Female	58	.860	.082		
Equal Variances Assumed				-.878	.383
Equal Variances Not Assumed				-.858	.399

P < .05 for statistical significance

The data presented in Table 8 indicate that the statistical hypothesis should be accepted. There is no statistically significant difference in the variance of means of male and female total scores on the Student Teacher Exit Portfolio. As can be seen by both means of total portfolio scores, there was little variance in the mean scores earned by the male and female teacher candidates.

Research Question 1B

What differences, if any, are revealed between male and female performance on the student teacher exit portfolio as determined by the score on each of the ten INTASC Standards?

Statistical Hypothesis. There are no statistically significant differences between the mean scores of female and male teacher candidates on their performances on the student teacher exit portfolio as determined by INTASC Standards, according to the performance scores for each of the ten standards.

Analysis and Findings. Each individual performance score was converted to percentages for comparison. In each of the semesters included in the data for the study, the scoring systems were changed as a result of the feedback from both scorers and teacher candidate participants. The conversion to percentages made comparison

of portfolio scores possible. Mean scores, by gender, for each of the ten INTASC standard scores, were calculated. The mean scores were then compared for strength of variance using a series of independent t-tests.

The results of a series of independent t-tests for the comparison of variances in means of each INTASC standard scoring of the Student Teacher Exit Portfolio for male and female teacher candidates are presented in Table 9.

Table 9

Differences of Female/Male Performance on Each of 10 INTASC Standards on Exit Portfolio

Gender	N	Mean Score	Standard Deviation	t-value	<i>p</i>
1. Subject area knowledge and pedagogy					
Male	18	.844	.107		
Female	58	.864	.139		
Equal Variances Assumed				-.558	.579
Equal Variances Not Assumed				-.640	.526
2. Child development and appropriate activities					
Male	18	.835	.091		
Female	58	.863	.126		
Equal Variances Assumed				-.855	.395
Equal Variances Not Assumed				-.855	.395

Table 9 (continued)

Differences of Female/Male Performance on Each of 10 INTASC Standards on ExitPortfolio

Gender	N	Mean Score	Standard Deviation	t-value	<i>p</i>
3. Adapting for diverse learners					
Male	18	.833	.132		
Female	58	.847	.125		
Equal Variances Assumed				-.415	.677
Equal Variances Not Assumed				-.405	.688
4. Critical thinking, problem solving, performance skills					
Male	18	.860	.111		
Female	58	.880	.127		
Equal Variances Assumed				-.609	.544
Equal Variances Not Assumed				-.656	.516
5. Motivation and creating a learning environment					
Male	18	.813	.113		
Female	58	.895	.123		
Equal Variances Assumed				-2.506	.014*
Equal Variances Not Assumed				-2.630	.013*
6. Effective verbal, nonverbal, and media communication skills					
Male	18	.851	.109		
Female	58	.875	.117		
Equal Variances Assumed				-.758	.451
Equal Variances Not Assumed				-.791	.435

Table 9 (continued)

Differences of Female/Male Performance on Each of 10 INTASC Standards on Exit Portfolio

Gender	N	Mean Score	Standard Deviation	t-value	<i>p</i>
7. Knowledge of students, community, and curriculum goals					
Male	18	.835	.166		
Female	58	.859	.138		
Equal Variances Assumed				-.600	.550
Equal Variances Not Assumed				-.544	.592
8. Formal and informal assessment strategies					
Male	18	.821	.104		
Female	58	.837	.126		
Equal Variances Assumed				-.489	.626
Equal Variances Not Assumed				-.541	.592
9. Reflective practitioner, to grow professionally					
Male	18	.881	.133		
Female	58	.872	.134		
Equal Variances Assumed				.250	.804
Equal Variances Not Assumed				.251	.804
10. Fosters relationships with colleagues, parents, community					
Male	18	.875	.139		
Female	58	.861	.142		
Equal Variances Assumed				.370	.712
Equal Variances Not Assumed				.374	.711

P<.05 for statistical significance

The data presented in Table 9 indicate the statistical hypothesis should be accepted in nine of the ten cases. In the case of the fifth INTASC standard, the statistical hypothesis should be rejected. The difference in the mean scores for Standard 5, Motivation and Learning Environment, indicates a statistically significantly stronger mean score for the female teacher candidates at the $p < .05$ level. All other comparisons of mean scores for each of the ten INTASC standards by gender indicate no statistically significant differences in the variance of the mean scores of each INTASC standard by gender.

Research Question 2A

What differences, if any, are revealed between traditional age degree teacher candidates' and non-traditional age degree teacher candidates' performance on the total score of the student teacher exit portfolio, as determined by the INTASC Standards?

Statistical Hypothesis. There are no statistically significant differences between the mean scores of traditional age and non-traditional age teacher candidates on their performances on the student teacher exit portfolio as determined by INTASC Standards, according to the total performance score.

Analysis and Findings. Each semester, the scoring scheme was changed in response to the previous semester's experience and suggestions from both the set of scorers and the teacher candidates participating. Because of changes in the scoring guidelines and the numbering system used, it was necessary to convert all of the scores to percentages (earned raw score divided by the highest possible raw score) for the purpose of comparing the scores.

These total scores were then descriptively analyzed, based on the mean and standard deviation for the total scores earned by traditional age and non-traditional age teacher candidates. Traditional age candidates are those usually found in teacher

education programs, ranging in age from 18 to 24 years, and non-traditional including those candidates who had other life experiences previous to entering the teacher education programs, thus raising their age to include 25 years and older (Post & Killian, 1992).

Table 10 presents the data summary for total score differences between traditional and non-traditional age teacher candidates. Also presented in Table 10 is the result of the independent t-test that compared strength of the variance of means between traditional and non-traditional total scores on the Student Teacher Exit Portfolios.

Table 10

Differences of Traditional/Non-Traditional Age Performance on Total Score on Exit Portfolio

Age Group	N	Mean Score	Standard Deviation	t-value	<i>p</i>
Traditional	52	.867	.077		
Non-Traditional	24	.829	.091		
Equal Variances Assumed				1.905	.061
Equal Variances Not Assumed				1.793	.081

P<.05 for statistical significance

The data presented in Table 10 indicate that the statistical hypotheses should be accepted. There is no statistically significant difference in the variance between the mean scores of traditional and non-traditional teacher candidates of the total score earned on the Student Teacher Exit Portfolio.

Research Question 2B

What differences, if any, are revealed between traditionally aged degree teacher candidates' and non-traditionally aged degree teacher candidates' performance on the student teacher exit portfolio as determined by each of the ten INTASC Standards?

Statistical Hypothesis. There are no statistically significant differences between the mean scores of traditional age and non-traditional age teacher candidates on their performances on the student teacher exit portfolio as determined by INTASC Standards, according to the performance score on each of the ten standards.

Analysis and Findings. Each of the ten individual performance scores was converted to percentages for comparison. The conversion to percentages made comparison of portfolio scores possible. Mean scores, by age, for each of the ten INTASC standard scores, were calculated. The mean scores were then compared using a series of independent t-tests.

The results of a series of independent t-tests for the comparison of variances of means in each INTASC standard scoring of the Student Teaching Exit Portfolio for traditional and non-traditional age teacher candidates are presented in Table 11.

Table 11

Differences of Traditional/Non-Traditional Age Performance on Each of 10 INTASCStandards on Exit Portfolio

Age Group	N	Mean Score	Standard Deviation	t-value	<i>p</i>
1. Subject area knowledge and pedagogy					
Traditional	52	.867	.128		
Non-Traditional	24	.844	.140		
Equal Variances Assumed				.692	.491
Equal Variances Not Assumed				.669	.507
2. Child development and appropriate activities					
Traditional	52	.861	.122		
Non-Traditional	24	.847	.120		
Equal Variances Assumed				.464	.641
Equal Variances Not Assumed				.468	.642
3. Adapting for diverse learners					
Traditional	52	.863	.125		
Non-Traditional	24	.802	.119		
Equal Variances Assumed				2.023	.047*
Equal Variances Not Assumed				2.057	.045*
4. Critical thinking, problem solving, and performance skills					
Traditional	52	.885	.113		
Non-Traditional	24	.855	.143		
Equal Variances Assumed				.980	.330
Equal Variances Not Assumed				.897	.376

Table 11 (continued)

Differences of Traditional/Non-Traditional Age Performance on Each of 10 INTASCStandards on Exit Portfolio

Age Group	N	Mean Score	Standard Deviation	t-value	<i>p</i>
5. Motivation and creating a learning environment					
Traditional	52	.886	.123		
Non-Traditional	24	.852	.128		
Equal Variances Assumed				1.112	.270
Equal Variances Not Assumed				1.097	.279
6. Effective verbal, non-verbal, and media communication skills					
Traditional	52	.874	.117		
Non-Traditional	24	.860	.113		
Equal Variances Assumed				.487	.628
Equal Variances Not Assumed				.494	.623
7. Knowledge of students, community, and curriculum goals					
Traditional	52	.865	.142		
Non-Traditional	24	.827	.148		
Equal Variances Assumed				1.079	.284
Equal Variances Not Assumed				1.061	.295
8. Formal and informal assessment strategies					
Traditional	52	.833	.118		
Non-Traditional	24	.835	.128		
Equal Variances Assumed				-.060	.953
Equal Variances Not Assumed				-.058	.954

Table 11 (continued)

Differences of Traditional/Non-Traditional Age Performance on Each of 10 INTASCStandards on Exit Portfolio

Age Group	N	Mean Score	Standard Deviation	t-value	<i>p</i>
9. Reflective practitioner, to grow professionally					
Traditional	52	.899	.125		
Non-Traditional	24	.819	.135		
Equal Variances Assumed				2.525	.014*
Equal Variances Not Assumed				2.451	.019*
10. Fosters relationships with colleagues, parents, community					
Traditional	52	.884	.121		
Non-Traditional	24	.821	.171		
Equal Variances Assumed				1.838	.070
Equal Variances Not Assumed				1.620	.114

P < .05 for statistical significance

The data presented in Table 11 indicate the statistical hypothesis should be accepted in eight of the ten cases. The statistical hypothesis should be rejected for standard 3 and standard 9. The results of the independent t-test indicate that for Standard 3 (Adapting for Diverse Learners), there was a statistically significantly stronger mean score for the traditional age teacher candidates at the $p < .05$ level. The results of the independent t-test also indicate that for Standard 9 (Reflective Practitioner/to Grow Professionally), there was a statistically significantly stronger mean scores of traditional age teacher candidates at the $p < .05$ level.

Research Question 3A

What differences, if any, are revealed between elementary certification area, secondary certification area, and K-12 certification area teacher candidates' performance on the total scores on the student teacher exit portfolio, as determined by the INTASC Standards?

Statistical Hypothesis. There are no statistically significant differences between the mean scores of elementary certification area, the secondary certification area, and the K-12 certification area teacher candidates on their performances on the student teacher exit portfolio as determined by INTASC Standards, according to the total performance score.

Analysis and Findings. Although the scoring strategy for the student teacher exit portfolio was changed each of the three semesters of the study, each raw score was converted to a percentage of success, as described earlier. The mean scores of all elementary certification teacher candidates on the overall portfolio score were calculated. The mean scores of all secondary certification teacher candidates on the overall portfolio score were calculated. The mean scores of all K-12 certification teacher candidates on the overall portfolio score were calculated.

The differences in total mean scores were assessed for magnitude through an analysis of variance or ANOVA procedure. The summary of results of the comparison of total mean scores by ANOVA for the three identified certification levels is presented in Table 12.

Table 12

Summary of ANOVA Results for Certification Areas/Levels of Teacher Candidates on Total Score of Exit Portfolio

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.040	2	.020	3.057	.053
Within Groups	.478	73	.007		
Total	.518	75			

$P < .05$ for statistical significance

The ANOVA results indicate that there is no statistically significant difference in the comparison of mean scores earned by each of the three certification levels of teacher candidates as total scores on the Student Teacher Exit Portfolio. The statistical hypothesis is accepted. Total score for the exit portfolio for each of the three certification areas is shown in Table 13. The calculation of mean score for the total score on the student teacher exit portfolio indicate the K-12 teacher candidates earned a higher, though not statistically significantly different, total mean score than the elementary or secondary teacher candidates.

Table 13

Mean Scores of Certification Levels on Total Score of Exit Portfolios

Certification	N	Mean Scores	Standard Deviation
Elementary	35	.844	.085
Secondary	24	.841	.084
K-12	17	.898	.065

Research Question 3B

What differences, if any, are revealed between elementary, secondary, and K-12 certification area teacher candidates' performance on the student teacher exit portfolio as determined by each of the ten INTASC Standards?

Statistical Hypothesis. There are no statistically significant differences between the mean scores of the elementary certification area, the secondary certification area, and the K-12 certification area teacher candidates on their performances on the student teacher exit portfolio as determined by scores on each of the ten INTASC Standards.

Analysis and Findings. The same process of converting the raw scores for each of the ten INTASC standards to percentages for each teacher candidate was used as described above. The mean scores of all elementary teacher candidates on each of the ten individual INTASC standards were calculated. The mean scores of all secondary teacher candidates on each of the ten individual INTASC standards were calculated. The mean scores of all K-12 teacher candidates on each of the ten individual INTASC standards were calculated. Differences in mean scores were assessed for magnitude through an analysis of variance, or ANOVA, procedure. This was done for all ten of the INTASC standard scores. The results of the ANOVA procedure are reported in Table 14.

Table 14

Summary of ANOVA Results for Certification Areas/Levels of Teacher Candidates on
Each of 10 INTASC Standards on Exit Portfolio

	Sum of Squares	df	Mean Square	F	Sig.
1. Subject area knowledge and pedagogy					
Between Groups	.082	2	.041	2.444	.094
Within Groups	1.218	73	.017		
Total	1.300	75			
2. Child development and appropriate activities					
Between Groups	.035	2	.018	1.217	.302
Within Groups	1.053	73	.014		
Total	1.088	75			
3. Adapting for diverse learners					
Between Groups	.032	2	.016	1.030	.362
Within Groups	1.152	73	.016		
Total	1.184	75			
4. Critical thinking, problem solving, performance skills					
Between Groups	.034	2	.017	1.123	.331
Within Groups	1.101	73	.015		
Total	1.135	75			
5. Motivation and creating a learning environment					
Between Groups	.100	2	.050	3.386	.039*
Within Groups	1.075	73	.015		
Total	1.135	75			

Table 14 (continued)

Summary of ANOVA Results for Certification Areas/Levels of Teacher Candidates on
Each of 10 INTASC Standards on Exit Portfolio

	Sum of Squares	df	Mean Square	F	Sig.
6. Effective verbal, nonverbal, and media communication skills					
Between Groups	.033	2	.017	1.257	.291
Within Groups	.960	73	.013		
Total	.993	75			
7. Knowledge of students, community, and curriculum goals					
Between Groups	.085	2	.043	2.124	.127
Within Groups	1.469	73	.020		
Total	1.555	75			
8. Formal and informal assessment strategies					
Between Groups	.066	2	.033	2.338	.104
Within Groups	1.024	73	.014		
Total	1.090	75			
9. Reflective practitioner, to grow professionally					
Between Groups	.055	2	.028	1.590	.211
Within Groups	1.266	73	.017		
Total	1.321	75			
10. Fosters relationships with colleagues, parents, community					
Between Groups	.064	2	.032	1.650	.199
Within Groups	1.420	73	.019		
Total	1.484	75			

p < .05 for statistical significance*

The data presented in Table 14 indicate the statistical hypothesis should be accepted for nine of the ten cases. The statistical hypothesis should be rejected in the case of the fifth INTASC standard. The difference in the mean scores for Standard 5, Motivation and Learning Environment, indicates a statistically significantly stronger mean score for one of the three certification level groups of teacher candidates at the $p < .05$ level. All other comparisons of mean scores for each INTASC standards by certification level indicate no statistically significant differences in the variance of the mean scores. When a statistically significant difference in mean scores is indicated after using the ANOVA procedure, a post hoc manipulation is done in order to discover which group's mean score differs significantly from another (Krathwohl, 1998). The Scheffé method for making post hoc comparisons was used. The results of the Scheffé method are presented in Table 15.

Table 15

Scheffé Results for Certification Areas/Levels of Teacher Candidates, INTASC

Standard Five Score`

Certification (I)	Certification (J)	Mean Difference (I-J)	Standard Error	Sig.
Elementary	Secondary	.061	.032	.173
	K-12	-.035	.036	.629
Secondary	Elementary	-.061	.032	.173
	K-12	-.096	.038	.051
K-12	Elementary	.035	.036	.629
	Secondary	.096	.039	.051

$p < .05$ for statistical significance

As indicated in Table 16, the Scheffé method reveals no statistically significant differences between the three certification level groups. However, the strongest difference was indicated in the comparison of mean scores between the secondary and K-12 certification groups. As can be seen in Table 16, the mean scores for each of the

three certification groups of teacher candidates on Standard Five, Motivation and Learning Environment, are relatively flat, with the mean score for K-12 teacher candidates being the highest.

Table 16

Means of Certification Levels on Standard Five of Exit Portfolio

Certification	N	Mean Scores	Standard Deviation
Elementary	35	.887	.127
Secondary	24	.826	.129
K-12	17	.922	.095
Total	76	.875	.125

Research Question 4A

Is there a correlation between the Student Teacher Exit Portfolio assessment and the four other assessments (Overall Grade Point Average, Student Teacher Internship grade, the Praxis I test scores, and the Praxis II test scores) as sorted by gender?

Statistical Hypothesis. There are no statistically significant correlations between the assessment results of male and female teacher candidates on their performances on the student teacher exit portfolio and their performance results on overall grade point average, student teaching internship grade, Praxis I test scores and Praxis II test scores.

Analysis and Findings. The raw scores on each assessment needed to be manipulated so they could be compared, as explained earlier in this chapter. The raw number of the total score of the Student Teacher Exit Portfolio was converted to percentages so that they could be compared. Likewise, the raw score for each of the ten individual INTASC standard scores on the Student Teacher Exit Portfolio was also

converted to percentages by dividing the earned raw score by the highest possible raw score.

The scores for Praxis I and Praxis II were converted so they could be compared. Since these tests are given in two versions, paper/pencil and computer, with two scoring schemes, it was necessary to convert scores for comparison. The Praxis II tests are different for specific subject areas and needed a numerical method for comparison. The raw scores were converted to percentages (earned raw score divided by total possible raw score).

Overall grade point average was computed as a portion of a 4.0 grade scale. The overall GPA range was from 4.0 (A) down to 0.0 (F). The grade for Student Teaching Internship was also calculated on a 4.0 scale. As an example, an A- earned by a teacher candidate in the internship would be calculated as a 3.7 on the 4.0 grade scale. (See Chapter Three, p. 99 for a complete scale in Table 6.)

Bivariate correlational statistical procedures were used to determine the possibility of a correlational relationship between Student Teacher Exit Portfolio and the other four named assessment tools. The relationship of the portfolio results to each of the other four assessment tools was analyzed using the Pearson product-moment correlation coefficient, for the purpose of examining the relationship between the performance results of male and the female teacher candidates. The results of the gender and assessments correlational procedures are reported in Table 17.

Gall, Gall and Borg (2003) described correlation coefficients from .20 to .35 as indicating a slight relationship between variables and correlation coefficients from .35 to .65 as showing a modest or moderate relationship between variables. These authors (Gall, Gall, & Borg, 2003) also categorized correlation coefficients from .65 to .85 as showing a moderately strong relationship between variables and a greater than .85

correlational coefficient indicating a predictive relationship between variables. These categories were used to describe the correlation coefficients of this study.

Table 17

Correlation of Portfolio Assessment and GPA, Student Teaching Internship Grade, Praxis I and Praxis II by Gender

Assessment (correlated to Portfolio)	Pearson Coefficient	<i>p</i>
Female GPA	.133	.321
Female ST Internship Grade	.348	.007**
Female Praxis I test	-.056	.676
Female Praxis II test	.101	.449
Male GPA	.148	.558
Male ST Internship Grade	.422	.081
Male Praxis I test	.080	.752
Male Praxis II test	-.343	.164

p<.05*, p<.01** for statistical significance

The data presented in Table 17 indicate the statistical hypothesis should be accepted except in the case of female performance on the Student Teaching Internship Grade and the Student Teaching Exit Portfolio. However, this is a weak or slight positive correlation, explaining about 12% of the variance in performance. No other relationships between assessment tools are indicated in this statistical measurement, sorted by gender of teacher candidates.

Research Question 4B

Is there a correlation between the Student Teacher Exit Portfolio assessment and the four other assessments (Overall Grade Point Average, Student Teacher Internship grade, the Praxis I test scores, and the Praxis II test scores) sorting by age?

Statistical Hypothesis. There are no statistically significant correlations between the assessment results of traditional age and non-traditional age teacher candidates on their performances on the student teacher exit portfolio and their performance results on overall grade point average, student teaching internship grade, Praxis I test scores and Praxis II test scores.

Analysis and Findings. The assessments' scores were converted for comparison purposes as explained in Research Question 4A. Bivariate correlational statistical procedures were used to determine the possibility of a correlational relationship between Student Teacher Exit Portfolio and the other four named assessment tools, sorted by age of the teacher candidates. The relationship of the portfolio results to each of the other four assessment tools were analyzed using the Pearson product-moment correlation coefficient, examining the relationship between the performance results of traditional age and non-traditional age teacher candidates. The results of the age and assessments correlational procedures are shown in Table 18.

Table 18

Correlation of Portfolio Assessment and GPA, Student Teaching Internship Grade, Praxis I and Praxis II by Age Groups

Assessment (correlated to Portfolio)	Pearson Coefficient	<i>p</i>
Traditional GPA	.301	.030*
Traditional ST Internship Grade	.424	.002**
Traditional Praxis I tests	-.004	.977
Traditional Praxis II tests	-.130	.360
Non-Traditional GPA	.208	.330
Non-Traditional ST Internship Grade	.284	.178
Non-Traditional Praxis I tests	.269	.204
Non-Traditional Praxis II tests	.161	.452

p<.05*, p<.01** for statistical significance

The data presented in Table 18 indicate the statistical hypothesis should be accepted except in two relationships between assessments for traditional age teacher candidates. There was a slight, positive relationship between the traditional age teacher candidates' portfolio results and their overall grade point average, explaining approximately 10% of the variance in performance. The moderate, positive relationship between traditional age teacher candidates' performance on Student Teacher Internship grade and the portfolio results indicated approximately 16% of the variance in performance. Neither finding was of sufficient strength to be of predictive value. No other statistically significant relationships were revealed through the correlational statistics for either traditional age or non-traditional age teacher candidates.

Research Question 4C

Is there a correlation between the Student Teacher Exit Portfolio assessment and the four other assessments (Overall Grade Point Average, Student Teacher Internship grade, the Praxis I test scores, and the Praxis II test scores) sorted by certification levels?

Statistical Hypothesis. There are no statistically significant correlations between the assessment results of elementary, secondary, and K-12 certification levels of teacher candidates on their performances on the student teacher exit portfolio and their performance results on overall grade point average, student teaching internship grade, Praxis I test scores and Praxis II test scores.

Analysis and Findings. As before, bivariate correlational statistical procedures were used to determine the possibility of a correlational relationship between Student Teacher Exit Portfolio and the other four named assessment tools sorted by certification levels. The relationship of the portfolio results to each of the other four

assessment tools was analyzed using the Pearson product-moment correlation coefficient, examining the relationship between the performance results of elementary, secondary, and K-12 certification declared levels of teacher candidates. The results of the certification levels and assessments correlational procedures are reported in Table 19.

Table 19

Correlation of Portfolio Assessment and GPA, Student Teaching Internship Grade, Praxis I and Praxis II by Certification Levels

Assessment (correlated to Portfolio)	Pearson Coefficient	<i>p</i>
Elementary GPA	.058	.742
Elementary ST Internship Grade	.276	.108
Elementary Praxis I tests	-.233	.177
Elementary Praxis II tests	.042	.812
Secondary GPA	.489*	.015*
Secondary ST Internship Grade	.514*	.010*
Secondary Praxis I tests	.617**	.001**
Secondary Praxis II tests	.065	.763
K-12 GPA	.304	.236
K-12 ST Internship Grade	.551*	.022*
K-12 Praxis I tests	-.028	.914
K-12 Praxis II tests	-.070	.790

$p < .05^*$, $p < .01^{**}$ for statistical significance

The data presented in Table 18 indicate that the statistical hypothesis should be accepted for the elementary teacher candidate assessments. There was no statistically significant correlation between elementary teacher candidates' portfolio scores and the other four assessments.

The statistical hypothesis should be rejected in three of the four correlations involving secondary teacher candidates' assessments. For secondary teacher

candidates, a statistically significant relationship was indicated for their portfolio results and their performance on overall grade point average. The moderate, positive relationship ($r=.489$) accounts for approximately 24% of variance in performance on overall grade point average for secondary teacher candidates. Secondary teacher candidates' performance on portfolios was also moderate, positively correlated ($r=.518$) with their performance on student teaching internship grade, meaning approximately 27% of variance was explained. The third statistically significant and moderately strong, positive correlation in secondary teacher candidates' assessments was the relationship between portfolio scores and the Praxis I test score total ($r=.617$), as indicated at the $p<.01$ level, a more stringent level than the established $p<.05$ level for this study. This correlation may explain about 38% of the variance in scores. There is no statistically significant relationship between portfolios and Praxis II test scores for secondary teacher candidates.

For K-12 teacher candidates' assessments, the statistical hypothesis should be accepted for all correlations with the exception of the relationship between portfolios and student teaching internship grade. As indicated in Table 19, there is a statistically significant relationship between these two assessments for K-12 teacher candidates at the $p<.05$ level. The correlation is a modest or moderate one, $r=.551$, explaining approximately 30% of the variance in scores. There is no statistically significant relationship between K-12 teacher candidates' portfolios and the other three assessment tools of overall GPA, Praxis I, and Praxis II.

Research Question 5

How do teacher candidates rate the various assessment measures (overall grade point average, student teaching internship grade, Praxis I, Praxis II, and Student Teacher Exit Portfolios) of their knowledge, skills, and dispositions?

The Teacher Candidate Survey (see Appendix K) was used to elicit teacher candidates' views and opinions about the five assessment tools used in their teacher education program. The survey was sent out by mail for a first mailing in December of 2003, followed by a second mailing in January 2004. There were 42 responses from the 76 teacher candidates, a return rate of 55.26%. For more information about the respondents, refer to Appendix L.

The results for survey question one are reported in Table 20, for survey question two are reported in Table 21, and for survey question three are reported in Table 22.

Table 20

Survey Question One: The standards Include Areas of Knowledge, Skills, and Dispositions. Which Area Was BEST Assessed by Each Tool?

n=42				
Tool	Knowledge	Skills	Dispositions	N/S
Overall GPA (n response)	35	4	1	2
(% of response)	83.3%	9.5%	2.3%	4.8%
ST Internship Grade	0	33	7	2
		78.6%	16.6%	4.8%
Praxis I tests	38	1	0	3
	90.5%	2.3%		7.1%
Praxis II tests	31	9	0	2
	73.8%	21.4%		4.8%
ST Exit Portfolio	3	18	19	2
	7.1%	42.8%	45.2%	4.8%

Analysis and Findings. The results of Survey Question One would indicate there is some disagreement among the teacher candidates as to which areas of teaching knowledge, skills, and dispositions were best assessed by each of the five assessment tools. In particular, the teacher candidates did not agree about which area was best assessed in the Student Teacher Exit Portfolio. While 45.2% of the teacher candidates reported that the portfolio assessed their teaching dispositions, another 42.8% believed

they were being assessed on skills. Approximately 7% of the candidates believed the portfolio assessed their knowledge, which was defined as subject-specific knowledge and knowledge about teaching that subject. A comment by several teacher candidates was that "the portfolio really assessed all three areas." So the teacher candidates' response may reflect a difficulty in assigning only one area as being "best" assessed by the portfolio.

Table 21

Survey Question Two: Which of the Five Major Assessment Measures Utilized in Our Education Program Allowed You to BEST Demonstrate Your Strengths as a Quality Classroom Teacher Candidate?

n=42

Assessment Tool	Least 1	2	3	4	Best 5	N/S
Overall GPA (n response)	4	10	15	9	2	2
(% of response)	9.5%	23.8%	35.7%	21.4%	4.8%	4.8%
ST Internship Grade	1	0	2	5	32	2
	2.3%		4.8%	11.9%	76.2%	4.8%
Praxis I tests	29	7	4	0	0	2
	69%	16.6%	9.5%			4.8%
Praxis II tests	1	21	16	2	0	2
	2.3%	50%	38.1%	4.8%		4.8%
ST Exit Portfolio	2	2	6	23	7	2
	4.8%	4.8%	14.3%	54.7%	16.6%	4.8%

Analysis and Findings. Teacher candidates clearly think the Student Teaching Internship is the best assessment tool for demonstrating their overall strengths as a quality teacher with 76.2% of the respondents marking it as the best. Another 11.9 % marked it as the next best assessment tool for demonstrating their qualities as a classroom teacher. This is a total of almost 89% of the responding teacher candidates indicating that Student Teaching Internship is either the best or next best assessment

tool for demonstrating teaching qualities. The next strongest assessment tool for demonstrating quality teaching, in the opinion of the teacher candidates, is the Student Teaching Exit Portfolio with 16.6% of the respondents marking it as the best and another 54.7% marking it as second best. A total of 71.3% of the teacher candidates responding marked the portfolio as either best or next best assessment for them to demonstrate their qualities as a teacher.

Table 22

Survey Question Three: Which of the Five Assessment Tools Utilized in Our Education Program Seemed Best Aligned with the Program Standards?

n=42

Assessment Tool	Least 1	2	3	4	Best 5	N/S
Overall GPA (n response) (% of response)	5 11.9%	5 11.9%	20 47.6%	7 16.6%	2 4.8%	3 7.1%
ST Internship Grade	1 2.3%	1 2.3%	4 9.5%	15 35.7%	18 42.9%	3 7.1%
Praxis I tests	27 64.3%	10 23.8%	1 2.3%	0	1 2.3%	3 7.1%
Praxis II tests	3 7.1%	22 52.4%	10 23.8%	3 7.1%	1 2.3%	3 7.1%
ST Exit Portfolio	2 4.8%	1 2.3%	4 9.5%	12 28.6%	20 47.6%	3 7.1%

Analysis and Findings. The teacher candidates appear to be quite sure that both the Student Teaching Internship and the Student Teacher Exit Portfolio are more closely aligned with program standards than the other three assessments. A majority of the teacher candidates (78.6%) ranked the internship as either the best aligned or next to best aligned. Almost as many of the teacher candidates (76.2%) assigned the highest ranking or next highest ranking to the portfolio assessment. They were equally assertive in ranking the Praxis I tests as the least standard-aligned assessment,

with 64.3% of the teacher candidates ranking it "least" and 23.8% of the teacher candidates ranking it as next least of the assessment tools matching the program standards. This indicates a total of 88.1% of the teacher candidates who consider the Praxis I tests as least aligned with program standards.

Comments accompanying the survey were not particularly complimentary about the portfolio assessment. While giving it high ranking as being aligned to the program standards, eleven of the teacher candidates commented about how much more they learned from the Student Teaching Internship than the process of compiling the exit portfolio. A common observation was that "much was learned from the process of making a portfolio but much more could be learned from a good student teaching experience." As one teacher candidate commented, "While the portfolio was helpful to have to share my skills as an educator, there was too much emphasis placed on it. The preparation of the portfolio took a significant amount of time; time that could have been used to prepare lessons and activities." The use of time—a tension between the portfolio and student teaching internship—was a common theme for the commentary regarding the "assessment system" used to evaluate their progress in this teacher education program. More than 25% of the teacher candidates responding to the survey made mention of the time required for making the exit portfolio.

Chapter Five discusses these results, conclusions drawn from these findings, and recommendations for further research.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

"A professional portfolio can be a convincing, effective vehicle for demonstrating to others in a meaningful way the knowledge and skills the teacher candidate has gained in something as complex as teaching" (Campbell, Cignetti, Melenzyer, Nettles, & Wyman, 2001).

The purpose of this study was to explore the appropriateness of student teacher exit portfolios as an assessment measure for all teacher candidates, regardless of gender, age, or certification levels. This study also investigated whether or not the student teacher exit portfolio contributed unique information about teacher candidates, not offered by the other four more traditional assessments in place at this particular teacher education program. Student teacher exit portfolios have become a mandated assessment by accrediting bodies and state departments of education with little research evidence of its worth in the assessing of teacher candidates. It seemed timely to attempt to establish whether or not this newly devised assessment is a convincing tool for determining which teacher candidates exhibited the knowledge, skills and dispositions required for quality teaching.

This final chapter briefly restated the research problem and its underlying conceptual framework. The methodology of the study was also reviewed. The major sections of Chapter Five presented an abbreviated version of each research question and summarized the findings for each research question. The chapter continued with the conclusions of the study and recommendations for further study or for future action by teacher educators.

Restatement of Research Problem

One impediment to determining if a teacher candidate is fully qualified and competent for independent classroom practice is the historical inadequacy of available assessment tools. As the recently devised portfolio process has developed and matured during the past fifteen years, teacher educators have established the protocols for what information is included in the portfolio. However, there is little research literature establishing the evaluation protocol of portfolio assessments or its role in an assessment system for a teacher education program. There is little scientific evidence that exit portfolios serve as an appropriate and suitable measurement of a teacher candidate's knowledge, skills, and dispositions. Does a student teacher exit portfolio simply duplicate evidence already available through other assessment measures or is it worthy of being added to the teacher education community's repertoire of assessments of quality teacher candidates?

This study was influenced by the specific recommendations of Darling-Hammond, Wise, and Klein (1999) for the development of assessment objectives for teacher candidate assessment systems, including the exit portfolio. The research and literature reviewed for this study in Chapter Two provided a chain of reasoning linking the conceptual framework with the stated goals of national and state reform efforts directed especially toward teacher education reforms.

Review of Methodology

This study was designed to begin the task of establishing the appropriateness of the use of Student Teacher Exit Portfolios as one of several assessment tools for teacher education programs to determine the qualification of individual candidates to become certified classroom teachers. The study was also intended to determine whether the portfolio offered different or unique information about the competency of teacher candidates not captured by the other four usual assessments in the teacher

education program. Although the research methodology was fully discussed in Chapter Three of this text, this section of Chapter Five gives a brief overview.

This ex-post facto study, a type of causal-comparative research, was based on the comparisons of various groups of teacher candidates on the assessment results on the student teacher exit portfolios. These teacher candidates (n=76) completed the student teaching internship during three academic semesters in one teacher education program.

The first three research questions were directed at the appropriateness of the exit portfolio as an assessment for all teacher candidates, regardless of their demographic categories. The teacher candidates' results on the total score and on each of the ten standard scores of the exit portfolio were compared according to their already determined demographic groups of gender, age, and the level of teaching certification being sought (elementary, secondary, K-12). The means of the performance results of each gender group and each age group were calculated and the differences in mean scores of portfolio were assessed for magnitude by using a series of independent t-tests. Analysis of variance was performed to ascertain the differences in mean scores on the exit portfolio performances of the three identified certification levels (elementary, secondary, K-12) of the teacher candidates.

Research question four was directed at the notion of whether or not the exit portfolio offers unique information about the competency of the teacher candidates not captured by the four more traditional assessments. Correlational statistics were used to investigate the relationship of portfolio scores with each of the four more traditionally accepted assessment tools, including Overall Grade Point Average, Praxis I test scores, Praxis II tests scores, and the Student Teaching Internship grade. These findings were aggregated by the teacher candidate groups of gender, age, and certification level.

Research question five was directed at the considerations of the teacher candidates themselves about the purposes and appropriateness of each of the five assessment tools in the study, including the exit portfolio. A paper/pencil survey was sent to all 76 teacher candidates who were participants of this study. The purpose of the survey was to include the thoughts and ideas of teacher candidates about the five identified measures of their teaching knowledge, skills, and dispositions in regard to appropriateness of the assessment and whether or not the exit portfolio contributes unique information about the teacher candidate.

Summary of Findings

The major findings of this study are summarized in this section of Chapter Five. Included in this summary of findings is the information derived from the statistical manipulations used to determine outcomes for each of the four major research questions regarding the demographic groupings of teacher candidates by gender, age, and certification levels. The findings generated by the survey of teacher candidates in order to answer the fifth research question will also be discussed.

Research Questions One, Two, and Three

What differences, if any, are revealed between female/male, traditional age/non-traditional age, and the three certification levels for the teacher candidates' performances on the student teacher exit portfolio, as shown for total score and each of the ten standard scores.

Findings for gender. The study participants included 58 female teacher candidates and 18 male teacher candidates. An independent t-test determined there was no statistically significant difference between the mean scores of male and female teacher candidates in the total score of the student teacher exit portfolios. An independent t-test determined there was a statistically significantly different result

between the mean scores for male and female teacher candidates on Standard Five, Motivation and Creating a Learning Environment, with females posting a higher mean score.

Findings for age. The study participants included 52 traditional age and 24 non-traditional age teacher candidates. An independent t-test determined there were no statistically significant differences in the mean scores of traditional age teacher candidates and non-traditional age teacher candidates in the total score of the Student Teacher Exit Portfolios. An independent t-test determined there were statistically significantly different results between the mean scores of traditional age and non-traditional age teacher candidates on Standard Three (Adapting for Diverse Learners) and Standard Nine (Reflective Practitioners), with traditional age teacher candidates posting the higher mean score on each of these standards.

Findings for certification levels. The study participants included 35 elementary certification level teacher candidates, 24 secondary certification level teacher candidates, and 17 K-12 certification level teacher candidates. An analysis of variance procedure (ANOVA) determined there was no statistically significant difference between the mean scores of elementary, secondary, and K-12 certification level teacher candidates in the total score of the Student Teacher Exit Portfolios. An ANOVA procedure determined there was a statistically significant difference in the mean scores for the three certification levels of teacher candidates on Standard Five, Motivation and Creating Learning Environment. The Scheffé test, a post hoc test for significance between groups, revealed no statistically significant difference in mean scores on Standard Five was indicated between the three certification groups.

Research Question Four

Is there a correlation between the student teacher exit portfolio assessment and the four other existing assessments which are traditionally accepted and used in teacher education programs for initial certification, as sorted by gender, by age (traditional age candidates and non-traditional age candidates), or by certification levels (elementary, secondary, K-12)?

Findings for gender. Bivariate correlational statistical procedures were used to determine the possibility of a correlational relationship between Student Teacher Exit Portfolio and the other four named assessment tools (Praxis I, Praxis II, Overall Grade Point Average, and Student Teaching Internship Grade). The relationship of the portfolio outcomes to each of the outcomes of the other four assessment tools was analyzed using the Pearson product-moment correlation coefficient, examining the relationship between performance results of male and female teacher candidates.

In the case of female teacher candidate performance on the Student Teacher Exit Portfolio and the Student Teaching Internship Grade, there was a slight positive correlation. Correlational procedures revealed no significant relationships between portfolios and the other four assessment tools for the male teacher candidates.

Findings for age. There appeared to be a slight positive relationship between the traditional age teacher candidates' portfolio performance results and their Overall Grade Point Average. There was modest, or moderate, positive relationship between traditional age teacher candidates' performance on Student Teaching Internship Grade and the portfolio results. Correlational procedures revealed no significant relationships between portfolios and the other four assessment tools for the non-traditional age teacher candidates.

Findings for certification levels. The relationships of the portfolio outcomes to each of the other four assessment tools were analyzed using the Pearson product-

moment correlation coefficient. This procedure was used to examine the relationship between performance results of elementary certification level teacher candidates, secondary certification level teacher candidates, and K-12 certification level teacher candidates.

No statistically significant correlation was revealed between portfolio performance results and the other four assessments for elementary teacher candidates.

For secondary teacher candidates, a moderately positive, statistically significant relationship was indicated for their portfolio results and their performance on overall grade point average. Secondary teacher candidates' performance on portfolios was a statistically significant and moderately positive correlation with their performance on student teaching internship grade. The third statistically significant and modestly positive correlation in secondary teacher candidates' assessments was the relationship between portfolio scores and the Praxis I test score total.

For K-12 teacher candidates' assessments, there is a moderately positive, statistically significant relationship between two of the assessments, portfolios and student teaching internship grade.

Research Question Five

How do teacher candidates rate the various assessment measures (Overall GPA, Student Teacher Internship Grade, the Praxis I and II test scores, and Student Teacher Exit Portfolios) of their knowledge, skills, and dispositions?

Findings for question five. A majority of the teacher candidates specified the Student Teaching Internship as the best assessment tool for assessing their overall strengths as a quality teacher candidate. They also indicated that the Student Teacher Exit Portfolio was their next choice for best demonstrating their overall strengths as a quality teacher candidate.

The majority of the teacher candidates responding to the survey also indicated that, in their judgment, the Praxis I and Praxis II tests were not considered genuine or applicable indicators of what they know or what they can do in regard to teaching.

The majority of the teacher candidates responding to the survey specified the Student Teaching Internship Grade and Student Teacher Exit Portfolio were best aligned to the program standards. They indicated little alignment between the program standards and Praxis I tests with a majority of the teacher candidate respondents ranking Praxis I as fourth and fifth in the list of five assessments for alignment with standards.

Conclusions

The conclusions, drawn from the findings of this study, were framed around the two main thrusts of the study. First was the question of whether the portfolio is an appropriate assessment measure for all teacher candidates, regardless of gender, age, or the certification level they have chosen to pursue. The second thrust of the study asked whether or not the exit portfolio offers a unique contribution to the assessment system in this teacher education program.

Appropriate for All Teacher Candidates?

The question arose about whether or not the exit portfolio is an appropriate assessment for all teacher candidates. Are there advantages or disadvantages to any particular group of teacher candidates for this assessment? The first three research questions, supported by the fifth research question, addressed these concerns and issues.

Total Score of Student Teacher Exit Portfolio. The data analysis of this study indicated there were no differences in female and male teacher candidates, traditional age and non-traditional age teacher candidates, or between the three certification

levels of elementary, secondary, and K-12 teacher candidates on the total score of the Student Teacher Exit Portfolios. Therefore, the data indicated that gender, age, and choice of certification level of the teacher candidates did not influence the results of the total score on the student teacher exit portfolio in this study. This view was supported by the teacher candidate comments on the returned surveys. A cross-section of teacher candidate respondents, representative of the three demographic categories, indicated that the portfolio and student teaching internship offered them the best opportunity to provide evidence of their knowledge, skills, and dispositions.

It was concluded, based upon the comparison of total scores on portfolios and the results of the candidate survey, that the exit portfolio is an appropriate assessment for all teacher candidates, regardless of gender, age, or choice of certification level.

Ten Standard Scores on Student Teacher Exit Portfolio. The findings on each score of the ten individual standards framing the exit portfolio reveal that in 30 possible cases (ten standards for each of three sets of variables), only three instances of differences in the mean scores were statistically significant (see Table 23). Gender indicated a difference on Standard Five and age groups revealed a difference on Standard Three and Standard Nine. These few findings did not lend credence to the idea that gender, age, or choice of certification level influenced the outcomes since it could be expected to find some differences in the subparts of the whole assessment. These findings of differences between several of the subparts may be a subject for further research.

It was concluded that the exit portfolio, based upon the comparison of each of the ten standard scores on the exit portfolio and results of the candidate survey, as mentioned above, is an appropriate assessment for all teacher candidates.

Table 23

Findings of Significant Differences on Each of 10 Standard Scores on Portfolio, by Gender, Age Group, and Certification Level

	1	2	3	4	5	6	7	8	9	10
Gender (female, male)					*					
Age Group (traditional age, non- traditional age)			*						*	
Certification Level (Elementary, Secondary, K-12)										

* indicates a statistically significant difference in mean scores between sub-groups

Unique Contribution to Assessment of Teacher Candidates?

There has been a question whether or not the student teacher exit portfolio is a unique assessment of teacher knowledge, skills, and dispositions that have been identified as necessary for teach competency. That is, does the portfolio offer information that is additional to information contributed by student teacher internship grade, overall grade point average, or either the Praxis I test scores or the Praxis II test scores? The fourth research question, supported by the fifth research question, addressed these concerns and issues.

Correlation of Student Teacher Exit Portfolio to Other Assessments. The data analysis of the 28 possible relationships calculated indicated no predictive relationships, no moderately strong relationships, two moderate relationships, and two slight relationships between the exit portfolio and the overall grade point average,

Praxis I, and Praxis II assessments (see Table 24). None of the three moderate correlations between the exit portfolio and student teaching internship grade were of predictive quality (see Table 24). It was concluded that the exit portfolio does offer evaluative information as a modest contribution, but not necessarily a unique one, to the assessment of teacher candidates. This aspect of the study warrants further investigation.

The teacher candidate respondents to the survey indicated they valued the opportunity to provide different evidence, other than their observed performance in the classroom during internships, of their competency in teaching knowledge, skills, and dispositions.

Although the teacher candidates cited a tension between the time necessarily devoted to developing a quality exit portfolio simultaneously with commitment to a productive internship, the majority of the teacher candidate respondents indicated the portfolio was a valuable assessment for themselves, the teacher education department, and future employers. This notion of tension in the use of available time during the student teaching internship semester may be suitable for further investigation.

Table 24

Findings of Relationships Between Portfolio and Other Assessmentsby Gender, Age Groups, and Certification Levels

Portfolio Outcomes to:

	Overall Grade Point Average	Praxis I Tests	Praxis II Tests	Student Teaching Internship
Female Teacher Candidates				Slight correlation
Male Teacher Candidates				
Traditional Age Teacher Candidates	Slight correlation			Moderate correlation
Non- Traditional Age Teacher Candidates				
Elementary Certification Teacher Candidates				
Secondary Certification Teacher Candidates	Moderate correlation	Slight correlation		Moderate correlation
K-12 Certification Teacher Candidates				Moderate correlation

Recommendations and Implications

The current interest in the training of "highly qualified" teachers has put new emphasis on the assessment of teacher candidates about to enter the classrooms of this country. The student teacher exit portfolio is one of the measurements used to evaluate or assess the competency of these teacher candidates, yet little research

literature evaluating the practice is available to endorse the use of portfolios as a high stakes assessment tool. This study was a first step toward investigating whether or not the student teacher exit portfolio was an appropriate assessment measure, regardless of gender, age, or choice of certification level. This study also investigated whether or not the student teacher exit portfolio contributed unique information about teacher candidates' competency in teaching knowledge, skills, and dispositions. In so doing, this study presents recommendations and implications for teacher education policy and practices.

Recommendation for Replication of This Study

The results of this study indicated that gender, age and choice of certification levels of these teacher candidates did not influence the outcomes on the student teacher exit portfolio. The limited number of teacher candidates available for the study could certainly be considered to have contributed to the findings and to limit the generalizability of the findings. It is suggested that continuing the collection of data and data analysis will be of use in informing this teacher education program about its practices in regard to the assessment of teacher candidates.

For an example of or justification for the continuation of the study at this site, we can look to one of the study results. The differences in scores on four of the 30 possible comparisons (three demographic groups on ten standards) on the individual INTASC standards used to organize the exit portfolio raise some questions not answered by this study. Of particular interest to the researcher is what appears to be conflicting information about Standard Five. This standard indicated a difference between male and female teacher candidates, with females posting a higher mean score. This standard also indicated a difference between certification levels, with K-12 teacher candidates posting a higher mean score. Females are the majority of the

pool of teacher candidates (58 of 76) and they are also the majority of elementary teacher candidates (34 of 35), the majority of secondary teacher candidates (16 of 24), and the minority of K-12 teacher candidates (8 of 17). Why were the K-12 mean scores different and higher than the elementary and secondary mean scores? With an increased number of teacher candidates in the study pool, this particular result may be more fully explained. This difference between groups is of interest because it may be an indicator of program implementation differences between elementary, secondary, and K-12 programs or it may simply be a function of the limited number of teacher candidates in the study. This is a conjecture at the moment, as the data of the study does not indicate support for either notion. Further investigation is warranted in order to answer program implementation questions that are raised by these particular results.

It would be desirable to increase the scope of the study to include teacher candidates from other teacher education programs in order to increase the number and diversity of the pool of teacher candidates. As previously noted, the pool of teacher candidates for this study was restricted to one institution, with no diversity of racial and ethnic backgrounds, and with a limited exposure to school settings other than white, middle class, and typically rural, student populations. The few numbers of male teacher candidates undoubtedly skewed the results. Therefore, to better understand the influence of demographic variables on the results of the student teacher exit portfolio outcomes, it is recommended the pool of teacher candidates be increased for a replication study.

Recommendation for Stabilized Scoring Protocols

It is recommended that the scoring scheme be decided and kept in place for more than one semester at a time. Many questions about the scoring protocols for evaluating the exit portfolio were raised during the process of doing this study.

Through anecdotal information gleaned from comments on the survey of teacher candidates, the use of different scoring schemes each semester has created difficulties for the portfolio implementation in the teacher education program in the study. The teacher candidate respondents complained of "changing expectations" that were related to scoring changes. The respondents also complained that scoring changes affected the coaching and mentoring by their supervisors—supervisors did not always seem sure of what the new expectations included at the beginning of the portfolio effort each semester. As a high-stakes assessment, theoretically affecting recommendation for certification, it would seem imperative that decisions be made using consistent scoring procedures.

Another difficulty with changing scoring schemes is the impression that it has impacted the reliability of the portfolio scores across semesters. Although inter-rater reliability statistics have been calculated each semester, they do not provide a true depiction of the inter-rater reliability across semesters because of the changes in the scoring schemes. The changes in expectations reflected in the changes in scoring procedures have required continuing staff development for the scorers each semester in order to train the scorers in recognizing an exemplary artifact or entry in the portfolio or an unsatisfactory entry.

The teacher candidates raised questions about the scoring procedure and process in their comments on the survey. Several teacher candidates implored the department to "stop changing the rubric and expectations" so they would be assured that what they prepared for one semester's entries would not be radically changed for another semester. This process was frustrating to them as they tried to develop a portfolio that would accumulate over many semesters of evidence rather than having to be developed exclusively during their internship semester.

Scoring procedures and processes need to become stabilized for these three reasons: inter-rater reliability on scoring portfolios, creating consistent expectations for portfolio entries, and for more prudent coaching by supervisors,

Recommendation for Consideration of Teacher Candidates' Concerns

The teacher candidates who have experienced being evaluated by the exit portfolio have given two specific pieces of thoughtful feedback about the use of exit portfolios as an assessment tool in this teacher education program. As explained previously, the changing expectations and changing scoring procedures are disconcerting to the candidates. They would prefer that a decision be made about the scoring and expectations and then kept during their experience in the teacher education program.

This request for a stabilized or standardized scoring scheme throughout their time in the program would help address another of their stated concerns about the exit portfolio assessment. Many of the survey respondents expressed concern about the tension created by conflicting demands about how to spend their available time. They commented about spending time developing a quality exit portfolio or spending time on developing and implementing a quality student teaching internship during the same semester. Several of the respondents commented about consciously making a decision about where to expend available time and energy because they felt they could not do both well simultaneously. The department needs to consider how this tension in the use of time affects the outcomes for both assessments, the exit portfolio and the student teaching internship. Teacher candidates linked the internship experience with the compilation of portfolio artifacts in their comments about "best" assessment tools. Perhaps this indicates a route for connecting use of the candidates' time and energy with each of the assessment tools. The department needs to investigate a way to

relieve the tension for the teacher candidates' most productive use of time during the internship semester. In the same effort, the department could take advantage of two very powerful assessment tools, making sure that the internship and portfolio are each allowed a unique role in the assessment of teacher candidates' knowledge, skills, and dispositions.

The researcher's professional experience and discussions with teacher educators from other programs would provide credibility to the impression that this pressure in deciding about the best and most productive use of available time is not an experience limited to teacher candidates involved in the program of the study. The common complaint indicates a need for attention from other teacher education programs that require completion of the internship and portfolio during the same period of time.

Following up on these three recommendations will make further contribution to the successful implementation of student teacher exit portfolios in the assessment systems of teacher education programs.

Appendix A

Recommendation from The Holmes Group

1. To make the education of teachers intellectually more solid. Teachers must have a greater command of academic subjects, and of the skills to teach them. They also need to become more thoughtful students of teaching and its improvement.
2. To recognize differences in teachers' knowledge, skill, and commitment, in their education, certification, and work. If teachers are to become more effective professionals, we must distinguish between novices, competent members of the profession, and higher-level professional leaders.
3. To create standards of entry to the profession – examinations and educational requirements — that are professionally relevant and intellectually defensible. America cannot afford any more teachers who fail a twelfth grade competency test. Neither can we afford to let people into teaching just because they have passed such simple and often simple-minded exams.
4. To connect our own institutions to schools. If university faculties are to become more expert educators of teachers, they must make better use of expert teachers in the education of other teachers, and in research on teaching. In addition, schools must become places where both teachers and university faculty can systematically inquire into practice and improve it.
5. To make schools better places for teachers to work and learn. This will require less bureaucracy, more professional autonomy, and more leadership for teachers. But schools where teachers can learn from each other, and from other professionals, will be schools where good teachers will want to work. They also will be schools in which students will learn more.

(The Holmes Group, 1986, p.4)

Appendix B

Recommendations from the

Carnegie Forum for Education and the Economy

1. Create a National Board for Professional Teaching Standards, organized with a regional and state membership structure, to establish high standards for what teachers need to know and be able to do, and to certify teachers who meet that standard.
2. Restructure schools to provide a professional environment for teaching, freeing them to decide how best to meet state and local goals for children while holding them accountable for student progress.
3. Restructure the teaching force and introduce a new category of Lead Teachers with the proven ability to provide active leadership in the redesign of the schools and in helping their colleagues to uphold high standards of learning and teaching.
4. Require a bachelor's degree in the arts and sciences as a prerequisite for the professional study of teaching.
5. Develop a new professional curriculum in graduate schools of education leading to a Master in Teaching degree, based on systematic knowledge of teaching and including internships and residencies in the schools.
6. Mobilize the nation's resources to prepare minority youngsters for teaching careers.
7. Relate incentives for teachers to school-wide student performance, and provide schools with the technology, services, and staff essential to teacher productivity.
8. Make teachers' salaries and career opportunities competitive with those in other professions.

(Carnegie Forum, 1986, p. 3)

Appendix C

Goodlad's Postulates for Improvement of Teacher Education

1. Programs for the education of the nation's educators must be viewed by institutions offering them as a major responsibility to society and be adequately supported and promoted and vigorously advanced by the institution's top leadership.
2. Programs for the education of educators must enjoy parity with other campus programs as a legitimate college commitment and field of study and service, worthy of rewards for faculty geared to the nature of the field.
3. Programs for the education of educators must be autonomous and secure in their borders, with clear organizational identity, constancy of budget and personnel, and decision-making authority similar to that enjoyed by the major professional schools.
4. There must exist a clearly identifiable group of academic and clinical faculty members for whom teacher education is the top priority; the group must be responsible and accountable for selecting students and monitoring their progress, planning and maintaining the full scope and sequence of the curriculum, continuously evaluating and improving programs, and facilitating the entry of graduates into teaching careers.
5. The responsible group of academic and clinical faculty members described above must have a comprehensive understanding of the aims of education and the role of schools in our society and be fully committed to selecting and preparing teachers to assume the full range of educational responsibilities required.
6. The responsible group of academic and clinical faculty members must seek out and select for a predetermined number of student places in the program those candidates who reveal an initial commitment to the moral, ethical, and enculturating responsibilities to be assumed.
7. Programs for the education of educators, whether elementary or secondary, must carry the responsibility to ensure that all candidates progressing

through them possess or acquire the literacy and critical thinking abilities associated with the concept of an educated person.

8. Programs for the education of educators must provide extensive opportunities for future teachers to move beyond being students of organized knowledge to become teachers who inquire into both knowledge and its teaching.
9. Programs for the education of educators must be characterized by a socialization process through which candidates transcend their self-oriented student preoccupations to become more other-oriented in identifying with a culture of teaching.
10. Programs for the education of educators must be characterized in all respects by the conditions for learning that future teachers are to establish in their own schools and classrooms.
11. Programs for the education of educators must be conducted in such a way that future teachers inquire into the nature of teaching and schooling and assume that they will do so as a natural aspect of their careers.
12. Programs for the education of educators must involve future teachers in the issues and dilemmas that emerge out of the never-ending tension between the rights and interests of individual parents and special-interest groups, on one hand, and the role of schools in transcending parochialism, on the other.
13. Programs for the education of the educators must be infused with understanding of and commitment to the moral obligation of teachers to ensure equitable access to and engagement in the best possible K-12 education for all children and youths.
14. Programs for the education of educators must involve future teachers not only in understanding schools as they are but in alternatives, the assumptions underlying alternatives, the assumptions underlying alternatives, and how to effect needed changes in school organization, pupil grouping, curriculum , and more.

15. Programs for the education of educators must assure for each candidate the availability of a wide array of laboratory settings for observation, hands-on experiences, and exemplary schools for internships and residencies; they must admit no more students to their programs than can be assured these quality experiences.
16. Programs for the education of educators must engage future teachers in the problems and dilemmas arising out of the inevitable conflicts and incongruities between what works or is accepted in practice and the research and theory supporting other options.
17. Programs for the education of educators must establish linkages with graduates for purposes of both evaluating and revising these programs and easing the critical early years of transition into teaching.
18. Programs for the education of educators, in order to be vital and renewing, must be free from curricular specifications by licensing agencies and restrained only by enlightened, professionally driven requirements for accreditation.
19. Programs for the education of educators must be protected from the vagaries of supply and demand by state policies that allow neither backdoor "emergency" programs nor temporary teaching licenses.

(Goodlad, 1990, p.54-63)

Appendix D

INTASC Principles

(Interstate New Teachers Assessment and Support Consortium)

Principle 1:

Making content meaningful

The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make these aspects of subject matter meaningful for students.

Principle 2:

Child development and learning theory

The teacher understands how children learn and develop and can provide learning opportunities that support their intellectual, social, and personal development.

Principle 3:

Learning styles/diversity

The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.

Principle 4:

Instructional strategies/problem solving

The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

Principle 5:

Motivation and behavior

The teacher uses an understanding individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagements in learning, and self-motivation.

Principle 6:

Communication/knowledge

The teacher uses knowledge of effective verbal, nonverbal and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.

Principle 7:

Planning for instruction

The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.

Principle 8:

Assessment

The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of the learner.

Principle 9:

Professional growth/reflection

The teacher is a reflective practitioner who continually evaluates the effects of his or her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.

Principle 10:

Interpersonal relationships

The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well being.

Appendix E

Leslie J. Simpson
4027 Bonnie Brae Court
Fredericksburg, Virginia 22407

August 25, 2003

Dr. Alex Ober
Committee Chair
Institutional Review Board, Human Subjects in Research
XXXXXXX College
2 College Hill
XXXXXXX, Maryland 21xxx

Dr. Ober,

I am sending you this packet of information in anticipation of approval for continuing my research project involving the XXXXXX College teacher candidates, both graduate and undergraduate, who have been involved in the student teaching internship in the teacher education program during the past three semesters. This research project is the topic of my dissertation for completion of a doctoral degree at the University of Maryland, College Park. I am in need of XXXXXX College's approval prior to receiving approval from the University.

Please find enclosed a completed (green) Protocol Cover Sheet, a completed (pink) Exempt Status Checklist, and a one page abstract of my proposed research project. Also enclosed is a letter of support from Dean Pool and a letter of support from Dr. Lockard approving the collection of specific data concerning both graduate and undergraduate teacher education students. I have enclosed a copy of the drafted survey to be sent to all 77 teacher candidates from Spring 2002, Fall 2002, and Spring 2003 semesters.

I have consulted with Dr. Richard Carpenter about the possibility of exempt status. It is my understanding that the collection of existing data with the identity of the subjects fully protected falls in the category of exemption from gathering informed consent from the students who were registered for Student Teaching Internship during the semesters of Spring 2002, Fall 2002, and Spring 2003. The survey to be sent to these students will be returned without identification other than the categories of age, gender, and certification areas. I am hoping to defend my dissertation proposal in Fall 2003, with collection of data to follow.

I thank you for your attention to this request for permission to continue with this research project within the Education Department. I would ask you to note that I am on a leave of absence from the College at this time so communication with me is through the off-campus address and phone number listed below.

Sincerely,

Leslie J. Simpson

4027 Bonnie Brae Court

Fredericksburg, Virginia 22407

877-633-0393

lsimpson@XXXXXX.edu

Appendix F

HUMAN SUBJECT RESEARCH

PROTOCOL ID# _____ (IRB USE ONLY)

PROJECT TITLE: Student Teacher Exit Portfolios:
A Legitimate Measure?

PROJECT DATE: Begin ____/____/____ End ____/____/____
(Allow 3 weeks for IRB review. Project dates should include ONLY the period of time involving human subjects and begin date shall be at least 3 weeks after receipt of protocol by the IRB.)

FUNDING SOURCES: personal funds
PRINCIPAL INVESTIGATOR (PI): Leslie J Simpson DEPARTMENT: Education/Grade

CO-PRINCIPAL INVESTIGATOR: _____ DEPARTMENT: _____

PI RANK (circle one): Undergraduate Masters Doctoral Faculty Other Administrator/Staff

PI ADDRESS INFORMATION: (Please include street, city, state & zip)

Campus _____ Telephone _____

Home 4027 Bonnie Brae Ct., Fredericksburg, VA Telephone 877-633-0393
22401

If PI is a student _____
Faculty Supervisor (please print) Department

Faculty Supervisor Signature _____ Date _____

Review Procedures Requested:

Exempt Review Leslie J Simpson 8-25-03
PI Signature Date

Expedited Review
(check one) _____
Co-PI Signature Date

IRB USE ONLY -- BELOW THIS LINE _____

Received:

Final Review:

Action:

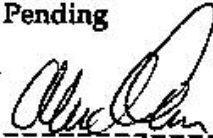
☒ Approved - Exempt
☐ Approved - Expedited
☐ Other: _____

Initial Review:

Initial Action:

☐ Approved Pending
☐ Deferred

DISCUSSION - specifications




IRB Chair

9/4/03

Date

IRB Secretary

Date



IRB Member

9/3/03

Date

9/3/03

FILL OUT THIS FORM ONLY IF YOU ARE REQUESTING EXEMPT STATUS

IRB EXEMPT STATUS CHECKLIST

Principal Investigator: Leshia J. Simpson

If you believe your proposed research is in ONE or MORE of the six categories of research which are exempt from the Code of Federal Regulations for the protection of human subjects, indicate the most appropriate category (s) that apply to the proposed project.

EXEMPT CATEGORIES

- 1. Research conducted in educational settings, involving normal education practices, such as:
 - a) Research on regular and special education instruction strategies, (or)
 - b) Research on the effectiveness of, or the comparison among, instructional techniques curricular, or management methods.....
- 2. Research using standardized educational tests (cognitive, diagnostic, aptitude, achievement) and the information gathered will be recorded in such a way that subjects CANNOT be identified either directly or indirectly ..
- X- *3. Research involving survey or interview procedures, EXCEPT where ALL of the following conditions exist.....
 - a) Responses are recorded in such a manner that the subjects can be identified directly or indirectly, and
 - b) The responses, if they become known outside the research, could reasonably place the subject at risk of criminal or civil liability, or be damaging to the subject's standing or employability, and
 - c) If the research deals with sensitive aspects of the subject's own behavior, such as illegal conduct, drug or alcohol use, or sexual behavior

*Category 3 does not apply to research where children are subjects.

- **4. Research involving the observation (including observation by participants) of public behavior, EXCEPT where ALL of the conditions listed above in #3 (i.e., 3a, b, c) also exist.....
- X-- 5. Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, and these sources are publicly available; or if the information is recorded, it is recorded by the investigator in such a manner that subjects CANNOT be identified directly or indirectly.....
- 6. Research involving a category specifically added to this list by the Department of Health and Human Services and published in the Federal Register.....

In signing this exemption form, the principal investigator agrees that the category(s) checked above do strictly apply to the proposed research.

----- Leslie Simpson ----- 8-15-2003
P.I. signature Date

Appendix G

UNIVERSITY OF MARYLAND, COLLEGE PARK HUMAN SUBJECTS REVIEW COMMITTEE

Departmental Application for Review of Research Using Human Subjects

Please check one: ☒ Initial Application ☐ Renewal Application

Name of Principal Investigator Dr. James Dudley Tel. No. 410-535-3845
Name of Co-Investigator _____ Tel. No. _____
Administering Department of Project EDCI
E-Mail Address of P.I. _____ E-Mail Address of Co-P.I. _____
Campus Address of P.I. 6185 Hallowing Point Rd., Prince Frederick, MD ZIP 20678
Name of Student Investigator Leslie J. Simpson Tel. No. 540-785-1693
Student Identification No. & E-Mail Address 220-54-6830 lsimpson@medanet.edu

Name of Student's Advisor Dr. James Dudley (emeritus)
Signature of Student's Advisor James Dudley

Project Duration (mo/yr - mo/yr) SP03 - SP04

Project Title Student Teacher Exit Portfolios: Is It An Equitable Measure and A Unique Contribution Toward the Assessment of Highly Qualified Teacher Candidates?

Funding Agency & ORAA Proposal ID No. (if any) n/a

CONFLICT OF INTEREST: Investigators ☐ do ☒ do not have a real or potential COI. See question #7 on page 2.
MEMBERS OF HEALTH CENTER: Investigators ☐ are ☒ are not members of Health Center. See question #8 on page 2.

Please attach a copy of your responses to question I - VII of the instructions (on page 2 of this document), including all related documents, such as questionnaires, interview questions, surveys, etc.

Please check the appropriate box below to indicate whether you are requesting an exemption from further human subjects review and list the number of any exemption categories (described on page 4 of this document) which you believe applies to your project ☒ Exempt (list all possible category numbers) 4 and 2 ☐ Non-Exempt

If exempt, please briefly describe the reason(s) for exemption. Your notation is simply a suggestion to the HSRC.
Data to be collected already exists as part of academic record in the Education Department of the College. Brief survey will be coded in such a way as to protect identification of participants.

Date 10-29-03 Principal Investigator (University of Maryland, College Park employee) James Dudley

Date 10-29-2003 Co-Principal Investigator _____
Date _____ Student Investigator Leslie Simpson

Date _____ Human Subjects Review Committee Chairperson
(PLEASE NOTE: When HSRC Chairperson is also a project investigator or the Student investigator's advisor, this line should be signed by another member of the HSRC.)

* PLEASE ATTACH THIS COVER PAGE TO EACH SET OF COPIES *

* SEND (3) COPIES WITH ONE CONTAINING ORIGINAL SIGNATURES *

You may send e-mail to irb@deans.umd.edu to inquire about the IRB status of applications.

APPLICATION FOR INITIAL REVIEW OF RESEARCH USING HUMAN SUBJECTS

Leslie J. Simpson (220-54-6830)
4027 Bonnie Brae Court
Fredericksburg, Virginia 22407
540-785-1693
lsimpson@XXXXXX.edu

Title of Dissertation: Student Teacher Exit Portfolios: Is It an Equitable Measure and Unique Contribution Toward the Assessment of Highly Qualified Teacher Candidates?

I. Abstract: The concept of teacher portfolios is at the forefront of teacher education assessment issues, as it has been during the past decade of teacher education reform. The teacher education community has moved beyond the initial concerns about defining a teacher portfolio, identifying appropriate contents of a teacher portfolio, and determining the place of portfolios in a program's assessment system. Now the teacher education community is concerned about whether the student teacher exit portfolio is an equitable measurement and contributes specific and possibly unique information to the assessment of the competency of teacher candidates.

This study investigates the possible influence of the demographic factors of age, gender, and certification level with the assessment outcomes on student teacher exit portfolios. It also compares the outcomes of traditionally accepted assessments (such as student teaching grade, Praxis I and II tests, overall grade point average) with the outcomes of the portfolio assessment. It is hoped this will be a beginning step in either verifying or challenging the legitimacy of student teacher exit portfolios as a contributing assessment tool in teacher education programs.

This is an ex-post facto study, based upon existing data about each teacher candidate (n=77), with no treatment afforded each subject as part of the study.

II. Subject Selection:

a. This study includes the 77 teacher candidates who were enrolled in the student teaching internship at a small liberal arts college during three successive semesters. The study includes 58 females and 19 males. These students were enrolled in both the undergraduate and graduate initial teacher certification programs (55 at the undergraduate level and 22 at the graduate level). These students were enrolled in programs leading to various levels and subject areas of certification. There were 35 elementary teacher candidates, 25 secondary teacher candidates, and 17 K-12 teacher candidates.

b. Teacher candidates are not selected but include the entire available pool of teacher candidates from three semesters of internship. No criteria of race, age, sex, ethnic origin, religion, or socioeconomic status are applied to selection of the population.

c. The teacher candidates included in this study are all of the students enrolled in student teaching internship during three successive semesters at the College.

III. Procedures: In Spring 2003, the researcher identified the population for the study and secured permission from the Dean of the College to begin work on the study. In the summer of 2003, application was made to the Institutional Research Board (IRB) of the College for permission to collect data on the teacher candidates for the three identified semesters.

Data will be collected from the student teaching internship applications, including the teacher candidates' overall grade point averages and their Praxis I test scores. Data will also be collected after their student teaching internship, including the grade for student teaching internship, Praxis II test scores, and the scores from the student teaching exit portfolios.

The teacher candidate survey was developed during the summer of 2003 and piloted with former teacher candidates in the summer of 2003. Changes were made in response to the comments and suggestions of those queried in the piloting of the survey. The survey, soliciting information concerning the teacher candidates' perception and evaluation of each assessment measure, will be sent to each teacher candidate with participation being voluntary and confidential.

All necessary data will be collected during the fall of 2003, with permission of the College and University. This data is readily available through the use of student teacher applications, college transcripts, and evaluation forms in the teacher candidate files in the College's Education Department.

IV. Risks and Benefits: There is little expected risk to teacher candidate participants. Each of the teacher candidates has left the College and their academic records are complete. There is no expected possibility of professional repercussions for any of the former teacher candidates. No identifying information will be released through the reporting of data analysis in this study. Individual privacy for all teacher candidates is protected, survey participation is voluntary and there is no penalty for non-participation.

The expected benefit may only affect the College involved in the study. This benefit will be directed at the system of assessment for teacher candidates in this particular teacher education program.

V. Confidentiality: The available data will be recorded by identification code, with the code erased after all data is collected. Surveys will be sent out using the identification code for participation and follow-up purposes only. After recording receipt of response, the identification code will be eliminated.

Individuals will not be identifiable in the statistical analysis. Results will be reported by whole groups and subset groups, not individuals nor by semester groups.

The student researcher will be the only person with access to all of the raw data. This information will be stored on her home computer and on a printed paper copy during the study. This data will be stored on disk at her home after completion of the study and then removed from the hard drive of the computer. There are no other users of this computer. Paper copies of the database will be destroyed after use by shredder. The many facets of data will continue to exist at the College as permanent evidence of teacher candidates' academic record in the certification program.

Each teacher candidate is assured of confidentiality in the survey cover letter and on the survey instrument.

VI. Information and Consent Forms: Teacher candidates will be given the information that data and surveys are being collected by the researcher in her role as a doctoral candidate at the University of Maryland. The survey packet includes a statement of informed consent. (copy attached) Return of a completed survey form shall be interpreted as consent for inclusion in the study, as affected by survey information.

VII. Conflict of Interest: Although the student researcher is an employee of the College where this study is being conducted, she is not now involved in the initial certification program. She currently has no contact with either undergraduate or graduate students who become teacher candidates. The University of Maryland researcher and dissertation advisor has no involvement with this cadre of teacher candidates.

VIII. HIPAA Compliance: Health concerns and health information are not at issue in this study.

Appendix H



UNIVERSITY OF MARYLAND

INSTITUTIONAL REVIEW BOARD
Reference: IRB HSR Identification Number 03-0485

2100 Lee Building
College Park, Maryland 20742-5121
301.405.4212 TEL 301.314.1475 FAX

December 18, 2003

MEMORANDUM

Notice of Results of Final Review by IRB on HSR Application

TO: Dr. James Dudley
Ms. Leslie J. Simpson
Department of Curriculum and Instruction

FROM: Dr. Phylis Moser-Veillon, Co-Chairperson
Dr. Marc Rogers, Co-Chairperson
Institutional Review Board

PROJECT ENTITLED:

"Student Teacher Exit Portfolios: Is It An Equitable Measure and A Unique Contribution Toward Assessment of Highly Qualified Teacher Candidates?"

The Institutional Review Board (IRB) concurs with the departmental Human Subjects Review Committee's (HSRC's) preliminary review of the application concerning the above referenced project. The IRB has approved the application and the research involving human subjects described therein. We ask that any future communications with our office regarding this research reference the IRB HSR identification number indicated above.

We also ask that you not make any changes to the approved protocol without first notifying and obtaining the approval of the IRB. Also, please report any deviations from the approved protocol to the Chairperson of your departmental HSRC. If you have any questions or concerns, please do not hesitate to contact either of us at irb@deans.umd.edu. Thank you.

ADDITIONAL INFORMATION REGARDING IRB/HSRC APPROVALS

EXPIRATION OF IRB APPROVAL—Approval of non-exempt projects expires one year after the official date of IRB approval; approval of exempt projects expires three years after that date. If you expect to be collecting or analyzing data after the expiration of IRB approval, please contact the HSRC Chairperson in your department about submitting a renewal application. **(PLEASE NOTE: If you are not collecting data from human subjects and any on-going data analysis does not increase the risk to subjects, a renewal application would not be necessary.)**

STUDENT RESEARCHERS—Unless otherwise requested, the IRB will send copies of approval paperwork to the supervising faculty researcher (or advisor) of a project. We ask that such persons pass on that paperwork or a copy to any student researchers working on that project. That paperwork may be needed by students in order to apply for graduation. **PLEASE BE ADVISED THAT THE IRB MAY NOT BE ABLE TO PROVIDE COPIES OF THAT PAPERWORK, particularly if several years have passed since the date of the original approval.**

Enclosures (where appropriate), will include stamped copy of informed consent forms included in application and any copies of the application not needed by the IRB; copies of this memorandum and any consent forms to be sent to the Chairperson of the Human Subjects Review Committee

INFORMED CONSENT FORM

November 2003

TO: Former Teacher Candidates, [REDACTED] College
FROM: Leslie Simpson, Education Department of [REDACTED] College

As part of my doctoral dissertation for the University of Maryland and in support of the current application for national accreditation by [REDACTED] College's Education Department, I am requesting that you participate in a study regarding the five assessment tools used in evaluating teacher candidates in our teacher education/certification programs. I am inviting three semesters of teacher candidates to participate.

I am asking that you do two tasks. First, I am asking that you give written permission for your inclusion as a teacher candidate completing the enclosed survey by signing and returning the statement at the bottom of this page. All of the data for the study, with the exception of the survey, is currently available through official institutional records. Second, I am asking that you complete the enclosed survey form. The survey is intended to give you voice, as an experienced teacher candidate, in the evaluation of the assessment process used by the College's initial teacher certification programs. I am particularly interested in your thoughts about how effective each of these assessment tools was in showcasing and demonstrating your knowledge, skills, and dispositions as related to teaching.

Your identity will be protected throughout the study, for all data. Although there is a number code in the upper right hand corner of the enclosed survey form, this is only for follow-up purposes and will not be used to identify responses in any way. The code will be erased upon receipt. Your responses will be kept confidential. As researcher, I will be the only person privy to the raw data information. Your participation is entirely voluntary and confidential. Individuals will not be identifiable in the statistical analysis. Results will be reported by whole groups and subset groups (gender, traditional age/non-traditional age, and by certification levels of elementary, secondary, or K-12), not by individuals, semester, nor by majors. The study is directed at the effectiveness of the assessment tools, not toward those who were assessed.

There is little expected risk to former teacher candidate participants. Since each of you has completed the initial teacher certification program, your academic record is complete. There is no expected possibility of professional repercussions for any participant. No identifying information will be released through the reporting of data analysis in this study. Individual privacy for all teacher candidate participants is protected for all data. The expected benefit may only affect the College. The benefit will be directed at the system of assessment for teacher candidates and will primarily be used to inform the teacher education community of this institution about the effectiveness of each assessment tool.

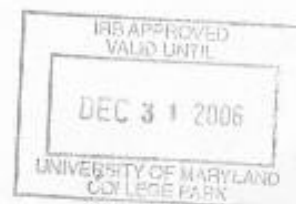
If you have questions about this study, please contact me at [lsimpson@\[REDACTED\].edu](mailto:lsimpson@[REDACTED].edu) or 877-633-0393. Please return this Informed Consent Form with the completed survey form in the enclosed posted envelope by December 1st.

I am over 18 years of age and (circle one) agree ~~do not agree~~ to participate in the above described research by Leslie Simpson for the Department of Curriculum and Instruction, College of Education, University of Maryland and for the Education Department of [REDACTED] College.

Name _____

Signature of Participant _____

Date _____



Appendix I

XXXXX College Exit Portfolio Review Summary Sheet

Candidate: _____

Date: _____

Portfolio Element		Artifact 1	Artifact 2	Total
INTASC	1. The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful to students			
	2. The teacher understands how children learn and develop and can provide learning opportunities that support their intellectual, social, and personal development			
	3. The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners			
	4. The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills			
	5. The teachers uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning and self-motivation.			
	6. The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom			
	7. The teacher plans instruction based on knowledge of subject matter, students, the community, and curriculum goals.			
	8. The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner			
	9. The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.			
	10. The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being			
Oral Presentation				
Portfolio Appearance				

Total Points

Rating: _____ Above Standard _____ At Standard _____ Below Standard

Top copy = Education Office 2nd copy = Student Teacher 3rd copy = College Supervisor

dec 7/03

Appendix J

- Two separate sheets must be provided to candidates in the Student Teaching Handbook, distributed at the beginning of the student teaching semester. Instruction and formative assessment on the portfolio requirements and the 1974BC standards were provided during the summer field experience for student teaching semester.
- The review, evaluation, and review requirements are scored prior to the end of the semester. The scoring axis will rate applicants for the 10 1974BC standards, provide comments to the candidate, and the oral presentation of the portfolio, and must be provided for the oral presentation to produce an overall evaluation score.

UNIT PORTFOLIO SPECIFICATIONS: Fall 2011

Point Value	Element	Source of Instruction	Focus Question(s)	Type	Artifact 1	Artifact 2	Type
1	Resume	Student Teaching Seminar	What is your background and experience relevant to you to teach?	Resume			
6	Philosophy	Teaching and Learning in a Diverse Society or First-Year Seminar	What do you believe about teaching and learning for all students? How would you describe the community in which you teach? (school, neighborhood, classroom factors, characteristics of students, students' varied experiences in learning, and student skills and prior learning)	Philosophy Statement (2 page maximum)			
4	Context			Narrative For Placement 1			Narrative For Placement 2
8	IN TASC et al. The teacher understands the central concepts, tools of inquiry, and situations of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful to students	Required courses for major Methods course	How well do you know the content of your major field of study? The content you will be expected to teach	<ul style="list-style-type: none"> Select one from the following: <ul style="list-style-type: none"> Transcript (to demonstrate breadth or depth) Summary of experience (demonstrate depth or ability to integrate content) Class project (to demonstrate depth) 	How well can you teach your content?	<ul style="list-style-type: none"> Select one from the following: <ul style="list-style-type: none"> Lesson plan Observation form from college supervisor or supervisor in Teacher Work Sample (include student results and identified next steps) 	

Student Portfolio Review/Exit Specifications
(2011)

Point Value	Element	Source of Instruction	Artifact 1	Artifact 2
8	<p>INTASC #2 The teacher understands how children learn and develop and can provide learning opportunities that support their intellectual, social, and personal development.</p>	<p>Teaching and Learning in a Diverse Society or Freshman Seminar Methods</p>	<p>What do you know about how children learn and develop?</p> <p>Select one from the following:</p> <ul style="list-style-type: none"> Case study Assignment from Planning & Evaluating Instruction, Practicum, Reading Processes and Acquisitions, etc. 	<p>What learning opportunities have you provided that support students' intellectual, social, and personal development?</p> <p>Select one from the following:</p> <ul style="list-style-type: none"> Lesson plan Case study Teacher work sample, including student results and project next steps
8	<p>INTASC #3 The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.</p>	<p>Methods</p>	<p>What do you know about how students differ in their approaches to learning?</p> <p>Select one from the following:</p> <ul style="list-style-type: none"> Lesson plan Reflection on student learning from practicum Article critique 	<p>What instructional opportunities have you created that provided adaptations for diverse learners?</p> <p>Select one from the following:</p> <ul style="list-style-type: none"> Samples of student work Lesson plan Unit plan Teacher work sample, including student results and project next steps
8	<p>INTASC #4 The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills</p>	<p>Methods Planning and Evaluation Reading Processes and Acquisition</p>	<p>Have you used a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills?</p> <p>Select one from the following:</p> <ul style="list-style-type: none"> Instructional Techniques Log (Reading courses) Examples of performance-based activities Lesson plans demonstrating different instructional strategies Reflection on videotaped lesson 	<p>Have you used a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills?</p> <p>Select one from the following:</p> <ul style="list-style-type: none"> Instructional Techniques Log (Reading courses) Examples of performance-based activities Lesson plans demonstrating different instructional strategies Reflection on videotaped lesson

Portfolio/Fall2003/Exit Specifications
03/20/04

Point Value	Element	Source of Instruction	Artifact 1	Artifact 2
8	INTASC #5 The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning and self-motivation	Methods Resulting Processes and Acquisition Reading in the Content Area Planning and Evaluation	How do you set up the conditions for learning in your classroom using your understanding of individual and group motivation?	Select one from the following: <ul style="list-style-type: none"> Classroom rules and consequences Seating charts with reflection on effectiveness Student or class behavior contracts Examples of positive reinforcement List of classroom routines and procedures
			How do you encourage positive social interaction, active engagement in learning and self-motivation in your classroom?	Select one from the following: <ul style="list-style-type: none"> Activities that promote a positive classroom environment Lesson plan or unit plan indicating student choice in assignments/assessments Student work samples demonstrating active involvement or inquiry Group project with instructional and student work Captioned photos or lessons demonstrating students working together productively Student-developed goals and student-monitored progress toward those goals

Portfolios/Fall/2003/IX:IX Specifications
03/20/04

Point Value	Element	Source of Instruction	Artifact 1	Artifact 2
8	INTASC #6 The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.	Methods	How do you use effective verbal, nonverbal, and/or media communication techniques in your classroom?	How do you use technology in your classroom?
			Select one from the following: <ul style="list-style-type: none"> • Photos of bulletin boards, centers, etc. • Intern-created handouts, transparencies, etc. • College Supervisor Observations that evidences communication techniques • Lesson plans with guiding questions or emphasis on active inquiry • Student work using the media center resources 	Select one from the following: <ul style="list-style-type: none"> • Lesson plans using electronic devices such as computer, graphing calculator, etc. • PowerPoint presentation slides or handout • Student projects using the Internet • Electronic applications for grading, taking attendance, etc.

Portfolios Fall 2003 Exit Specifications
03/20/04

Point Value	Element	Source of Instruction	Artifact 1	Artifact 2
8	INTASC #7 The teacher plans instruction based on knowledge of subject matter, students, the community, and curriculum goals.	Courses in major field of study Methods Child and Adolescent Psychology	How does the content of your instruction connect to the curriculum required by the school/district? Select one from the following: • Lesson plan with school/county objectives identified • Long-term unit or semester plans with school/county objectives identified • Reflection on planning related to curriculum requirements	How does your instruction relate to your knowledge of students and the community in which you are teaching? Select one from the following: • Lesson plan using local resources or local geography • Description of after-school activities which may include parental involvement • Lesson plan with adaptations for specific students in classroom • Reflection on day's schedule and adaptations needed for students assigned to each class • Reflection on the site description in the portfolio and indicate how you have adapted instruction to meet the needs of these specific students and their community

Portfolios: Fall 2003-11: xii Specifications
03-2014

Point Value	Element	Source of Instruction	Artifact 1	Artifact 2
8	<p>INTASC #8 The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.</p>	<p>Planning and Evaluation Assessment in Reading (Elementary) Methods</p>	<p>What do you know about formal and informal assessment strategies?</p> <p>Select one from the following:</p> <ul style="list-style-type: none"> Assignment from McDaniel Article critique Lesson plan Tests with constructed responses, brief constructed responses or selected responses 	<p>What assessment strategies can you use to evaluate and ensure the continuous intellectual, social, and physical development of the learner?</p> <p>Select one from the following (include scoring tools):</p> <ul style="list-style-type: none"> Running records Tests with constructed responses, brief constructed responses or selected responses Quizzes Anecdotal records or observations

Point Value	Element	Source of Instruction	Artifact 1	Artifact 2
8	<p>INTASC #9</p> <p>The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.</p>	<p>Reading Processes and Acquisition</p> <p>Teaching and Learning in a Diverse Society</p> <p>Freshman Seminar</p> <p>Planning and Evaluation</p> <p>Methods</p> <p>Reading in the Content Areas</p>	<p>How do you reflect on your teaching?</p> <p>Select one from the following:</p> <ul style="list-style-type: none"> Reflection on a lesson plan submitted in earlier coursework Reflection on lesson plan used in student teaching Comparison of original lesson plan with revised lesson plan Lesson plan and self-assessment of lesson success 	<p>How do you actively seek opportunities to grow?</p> <p>Select one from the following:</p> <ul style="list-style-type: none"> List of staff development opportunities attended Reflection on professional reading Reflective journal entries Captured photos of staff development activities in which you have participated Description or explanation of classroom use of ideas gained at in-service activities or conferences Memberships in professional associations Log of participation in school improvement team activities

Portfolios/Fall 2003 Exit Specifications
03/20/04

Point Value	Element	Source of Instruction	Artifact 1	Artifact 2
8	INTASC #10 The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.	Methods Child and Adolescent Psychology Contemporary Psychology	How have you worked with school colleagues or agencies in the larger community to support student learning and well-being?	Select one from the following: <ul style="list-style-type: none"> • Captioned photos of interaction with school colleagues • Photos of field trips to support student learning • Reflective journals on interactions with school colleagues, including learning interactions with specialists • Notes taken at team meetings
10	Oral Presentation		How would you describe the context of your student teaching experience(s)? What area do you consider your greatest strength? What artifact(s) demonstrate that strength? What area are you targeting for future growth? What artifact represents that area? Closing Comments	Select one from the following: <ul style="list-style-type: none"> • Intern-created materials (letters, newsletters, articles, letter of introduction, etc.) sent home to parents • Notes for preparation for parent conferences • Captioned photos of interaction with parents or agencies in the larger community • Annotated log of parent contacts
10	Appearance of the Portfolio			

Portfolio/Fall12/001/ExitSpecifications
03/20/04

Appendix K

December 2003

TO: Former Teacher Candidates of XXXXXX College
Spring 2002, Fall 2002, Spring 2003

FROM: Leslie Simpson, Education Department of XXXXXX College

As part of my doctoral dissertation for the University of Maryland and in support of the application for national accreditation by XXXXXX College's Education Department, I am requesting that you complete the enclosed brief survey form. This survey is intended to give you voice, as an experienced teacher candidate, in the evaluation of the assessment process used by the College's initial teacher certification programs. We are interested in knowing what you thought of the five major measures used during your teacher education program: overall Grade Point Average, Student Teaching/Internship grade(s), Praxis I, Praxis II, and the Student Teacher Exit Portfolio. We are particularly interested in your thoughts about how effective each of these assessment tools was in showcasing your knowledge, skills, and dispositions as related to teaching.

There is a code in the upper right hand corner that lets me know who returns the survey form. This is only for follow-up purposes (to know who will get a second mailing!) and will not be used to identify responses in any way. The code will be erased upon receipt. The code will not be part of the record when the responses are analyzed. Your responses will be kept confidential. Your participation in returning this survey is voluntary and confidential. By returning the completed survey form, you will be agreeing to participate in this study.

This should only take a few minutes of your time --- simply follow the directions in each of the sections, return the paper to the enclosed envelope and put it in the mail by December 1st.

Thank you for your participation! This will give food for thought in making adjustments to the Education Department's assessment plan. It will also provide valuable information about the teacher candidates' thoughts and ideas regarding the use of each of these assessment measures within the Education Program.

PLEASE RETURN BY JANUARY 4, 2004 IN THE ENCLOSED ENVELOPE

FORMER TEACHER CANDIDATE SURVEY

December 2003

TO: Former Teacher Candidates of XXXXXX College,
Spring 2002, Fall 2002, Spring 2003

FROM: Leslie Simpson, Education Department of XXXXXX College

As part of my doctoral dissertation for the University of Maryland and in support of the application for national accreditation by XXXXXX College's Education Department, I am requesting that you complete this brief survey form. This survey is intended to give you voice, as experienced teacher candidates, in the evaluation of the assessment process used by XXXXXX College's initial teacher certification programs. We are interested in knowing what you thought of the five major measures used during your teacher education program: overall Grade Point Average, Student Teaching/Internship grade(s), Praxis I, Praxis II, and the Student Teacher Exit Portfolio. This should only take a few minutes of your time --- simply follow the directions in each of the sections, return the paper to the enclosed envelope and put it in the mail by January 4th.

Thank you for your participation! This will give food for thought in making adjustments to the Education Department's assessment plan. It will also provide valuable insight into the assessment process from the teacher candidate prospective.

PROFESSIONAL INFORMATION:

1. In the teacher education program, I was:
 - a. An undergraduate student A graduate student (circle one)
 - b. Traditional age for beginning teacher (18-24)
Non-Traditional age for beginning teacher (25-85) (circle one)
 - c. Working toward certification in: Elementary K-12 Secondary
(circle one)
2. Are you currently employed as a teacher? Yes No (circle one)
3. I am : a female a male (circle one)

QUESTIONS about ASSESSMENTS:

No Child Left Behind legislation calls for “highly qualified teachers” in every American public school classroom by the end of 2004-2005 school year. To assure the Maryland State Department of Education that our graduates have satisfied the standards for “highly qualified” classroom teachers and have earned eligibility for teacher certification, our program utilizes several assessment measures. Please answer the following questions concerning these five major assessment tools.

1. The standards include areas of knowledge, skills, and dispositions. Circle the area you believe was **best** assessed by each tool. Please limit your response to one category for each assessment measure.

Knowledge = refers to knowing the content necessary to teach about a subject or topic and knowing the general concepts about effective teaching of that subject area

Skills = the ability to use content, professional, and pedagogical knowledge effectively and readily in diverse teaching settings that ensures all students are learning

Dispositions = the values, commitments, and professional ethics that influence teacher behaviors toward students, families, colleagues, and communities and that affect student learning, motivation, and development as well as the teacher’s own professional development

- A. Overall Grade Point Average (GPA)

Knowledge Skills Dispositions

- B. Student teacher internship grade/evaluations

Knowledge Skills Dispositions

- C. PRAXIS I (Pre-Professional Skills)

Knowledge Skills Dispositions

- D. PRAXIS II (Content-Based)

Knowledge Skills Dispositions

- E. Student teacher exit portfolio

Knowledge Skills Dispositions

Comments:

2. Which of the five major assessment measures utilized in our education program allowed you to BEST demonstrate your strengths as a quality classroom teacher? (Circle the ranking you assign to each tool)

A. Overall Grade Point Average (GPA)

Least #1 #2 #3 #4 Best #5

B. Student teacher/internship grade/evaluation

Least #1 #2 #3 #4 Best #5

C. PRAXIS I

Least #1 #2 #3 #4 Best #5

D. PRAXIS II

Least #1 #2 #3 #4 Best #5

E. Student teacher exit portfolio

Least #1 #2 #3 #4 Best #5

Comments:

3. Which of the five major assessment tools utilized in our education program seemed best aligned with the program standards? (Circle the ranking you assign to each tool)

A. Overall Grade Point Average (GPA)

Least #1 #2 #3 #4 Best #5

B. Student teacher/internship grade/evaluation

Least #1 #2 #3 #4 Best #5

C. PRAXIS I

Least #1 #2 #3 #4 Best #5

D. PRAXIS II

Least #1 #2 #3 #4 Best #5

E. Student teacher exit portfolio

Least #1 #2 #3 #4 Best #5

Comments:

4. Any suggestions or overall comments regarding the use of these five assessment tools in the XXXXXX College initial teacher certification programs:

There is a code in the upper right corner of the first page which lets me know who returns the survey form. This is only for follow-up purposes (to know who gets a second mailing!) and will not be used to identify responses in any way. The code will be erased upon receipt. The code will not be part of the record when the responses are analyzed. Your responses will be kept confidential. Your participation in returning this survey is voluntary and confidential.

PLEASE RETURN BY January 4, 2004

Leslie Simpson
XXXXXX College
Education Department
2 College Hill
XXXXXX, XX

Appendix L

Distribution of Survey Respondents

Category of Teacher Candidate	category n of total n	respond n of Total n	respond n of total	respond n of category n
Female	58 of 76 76.3%	35 of 76 46%	35 of 42 83%	35 of 58 60%
Male	18 of 76 23.6%	7 of 76 9%	7 of 42 16.6%	7 of 18 38.9%
Traditional	52 of 76 68.4%	27 of 76 35.5%	27 of 42 64.3%	27 of 52 52%
Non-Traditional	24 of 76 31.6%	15 of 76 19.7%	15 of 42 35.7%	15 of 24 62.5%
Elementary	35 of 76 46%	21 of 76 27.6%	21 of 42 50%	21 of 35 60%
Secondary	24 of 76 31.6%	12 of 76 15.8%	12 of 42 28.6%	12 of 24 50%
K-12	17 of 76 22.4%	9 of 76 11.8%	9 of 42 21.4%	9 of 17 52.9%

References

- Abdal-Haqq, I. (1998). Constructivism in teacher education: Considerations for those who would link practice to theory. *ERIC Digest*, 97(8).
- Airasian, P. (2001). Performance assessment. In P. Airasian (Ed.), *Classroom assessment: Concepts and applications* (pp. 228-259). Boston: McGraw Hill.
- American Association of Colleges of Teacher Education (2003). *Annual Conference*, New Orleans.
- American Association of University Women (1992). *How schools shortchange girls*. New York: Marlowe & Company.
- American Association of University Women (1999). *Gender gaps*. New York: Marlowe and Company.
- Anderson, R. S., & DeMuelle, L. (1998). Portfolio use in twenty-four teacher education programs. *Teacher Education Quarterly*, 21(1), 25-31.
- Arter, J., & Spandel, V. (1992). Using portfolios of student work in instruction and assessment. *Instructional Topics in Educational Measurement*, 11, 36-44.
- Association of Teacher Educators (2003). *Annual Conference*, Jacksonville, Florida.
- Athanases, S. (1994). Teachers' reports of the effects of preparing portfolios of literacy instruction. *The Elementary School Journal*, 94, 421-439.
- Au, K. (1992, April). *Development and implementation of a whole literacy-based curriculum framework and portfolio assessment system*. Paper presented at the American Educational Research Association, San Francisco, CA.
- Baldwin, B., Slaton, E., Head, M., & Burns, J. (1990). *Personality factors of elementary and secondary preservice teachers*. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, New Orleans, LA.
- Bartell, C., Kaye, C., & Morin, J. (1998). Portfolio conversation: A mentored journey. *Teacher Education Quarterly*, 129-139.
- Barton, J., & Collins, A. (1993). Portfolios in teacher education. *Journal of Teacher Education*, 44(3), 200-211.
- Beder, H. W., & Darkenwald, G. G. (1982). Differences between teaching adults and pre-adults: Some propositions and findings. *Adult Education*, 32, 142-155.

- Benbow, C., & Stanley, J. (1983). Sex differences in mathematical reasoning ability: More facts. *Science*, 222, 1029-1031.
- Bendixen-Noe, M. K., & Redick, S. S. (1995). Teacher development theory: A comparison between traditional-aged and non-traditional-aged beginning secondary teachers. *Action in Teacher Education*, XVII(1), 52-59.
- Bennett, R. (1993). On the meanings of constructed responses. In R. Bennett & W. Ward (Eds.), *Constructive versus choice in cognitive measurement: Issues in constructed response, performance testing, and portfolio assessment*. Hillsdale, NJ: Erlbaum.
- Bird, T. (1990). The schoolteacher's portfolio: An essay on possibilities. In J. Millman & L. Darling-Hammond (Eds.), *The new handbook of teacher evaluation: Assessing elementary and secondary school teachers* (2nd ed., pp. 241-256). Newbury Park, CA: Sage.
- Black, A., & Ammon, P. (1992). A developmental-constructivist approach to teacher education. *Journal of Teacher Education*, 43(5), 323-335.
- Black, L., Daiker, D., Sommers, J., & Stygall, G. (1994). *New directions in portfolio assessment*. Portsmouth, NH: Boynton/Cook.
- Book, C., & Freeman, D. (1986). Differences in entry characteristics of elementary and secondary teacher candidates. *Journal of Teacher Education*, 37(2), 47-51.
- Borg, W., & Gall, M. (1989). *Educational research: An introduction* (5th ed.). White Plains, NY: Longman.
- Bransford, J., Brown, A., & Cocking, R. (1998). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academy Press.
- Brookhart, S., & Freeman, D. (1992). Characteristics of entering teacher candidates. *Review of Educational Research*, 62(1), 37-60.
- Bruner, J. (1996). *The culture of education*. Cambridge, NM: Harvard University Press.
- Bruning, J. S., Schraw, G. J., & Ronning, R. R. (1995). *Cognitive psychology and instruction* (2nd ed.). Upper Saddle River, NJ: Merrill.
- Burk, D. I., & Dunn, M. (1996). Learning about learning: An interactive model. *Action in Teacher Education*, 18(2), 11-18.

- Camp, R. (1993). The place of portfolios in our changing views of writing assessment. In R. Bennett & W. Ward (Eds.), *Construction versus choice in cognitive measurement: Issues in constructed response, performance testing, and portfolio assessment* (pp. 183-212). Hillsdale, NJ: Erlbaum.
- Campbell, D., Cignetti, P., Melenyzer, B., Nettles, D., & Wyman, R. (2001). *How to develop a professional portfolio* (2nd ed.). Boston: Allyn & Bacon.
- Campbell, P., & Wahl, E. (2002). What's sex got to do with it? Simplistic questions. In E. Rassen (Ed.), *Gender in Education: The Jossey-Bass reader* (pp. 722-733). San Francisco, CA: Jossey-Bass.
- Cannella, G., & Reiff, J. (1994). Individual constructivist teacher education: Teachers as empowered learners. *Teacher Education Quarterly*, 21(3), 27-38.
- Carbo, M., Dunn, R., & Dunn, K. (1986). *Teaching students to read through their individual learning styles*. Englewood Cliffs, NJ: Prentice-Hall.
- Carnegie Forum on Education and the Economy (1986). *A nation prepared: Teachers for the 21st century*. New York: Carnegie Forum on Education and the Economy.
- Carter, R. (1998). *Mapping the mind*. Los Angeles, CA: University of California Press.
- Charles, C. (1997). *Introduction to educational research* (3rd ed.). White Plains, NY: Longman.
- Chittenden, E., & Courtney, R. (1989). Assessment of young children's reading: Documentation as an alternative to testing. In D. Strickland & L. Morrow (Eds.), *Emerging literacy: Young children learn to read and write*. Newark, DE: International Reading Association.
- Chittenden, E. (1991). Authentic assessment, evaluation, and documentation of student performance. In V. Perrone (Ed.), *Expanding student assessment* (pp. 22-31). Alexandria, VA: Association for Supervision and Curriculum Development.
- Christensen, D. (1996). The professional knowledge-research base for teacher education. In J. Sikula, T. Buttery & E. Guyton (Eds.), *Handbook of research on teacher education* (2nd ed., pp. 38-52). New York: Simon Schuster Macmillan.
- Cizek, G. J. (1991). Innovation or ennervation. *Phi Delta Kappan*, 72(9), 695-699.

- College (2002). *Undergraduate catalog*: author.
- College (2002). *Middle states report*: author.
- Collins, A., Hawkins, J., & Fredericksen, J. (1990, April). *Technology based performance assessments*. Paper presented at the Annual Meeting of the American Educational Research Association, Boston, MA.
- Constantino, P., & DeLorenzo, M. (2002). *Developing a professional teaching portfolio*. Boston: Allyn & Bacon.
- Cronbach, L., Gleser, G., Nandra, H., & Rajaratnam, N. (1972). *The dependability of behavioral measurements*. New York: Wiley.
- Cronbach, L. (1988). Five perspectives on validity argument. In H. Wainer & H. Braun (Eds.), *Test validity* (pp. 3-17). Hillsdale, NJ: Erlbaum.
- Cruickshank, D. (1991). *Reflective thinking*. Bloomington, IN: Phi Delta Kappan.
- Cushman, K. (1999). Educators making portfolios: First results from the National School Reform Faculty. *Phi Delta Kappan*, 80(10), 744-750.
- Dangel, J., & Guyton, E. (2003, February). *Constructivist theory and teacher education: Innovations that show promise for teacher education*. Paper presented at the Association of Teacher Educators, Jacksonville FL.
- Daniel, L. G. (1993). *Predicting teaching performance: A multivariate investigation*. Paper presented at the Annual Meeting of the Southwest Educational Research Association, Austin, Texas.
- Danielson, C. (1996). *Enhancing professional practice: A framework for teaching*. Alexandria, Virginia: Association for Supervision and Curriculum Development.
- Darling-Hammond, L., & Sclan, E. M. (1996). Who teaches and why: Dilemmas of building a profession for twenty-first century schools. In J. Sikula, T. Buttery, & E. Guyton (Eds.), *Handbook of research on teacher education* (2nd ed., pp. 1190). New York: Simon & Schuster MacMillan.
- Darling-Hammond, L. (1997). *The right to learn*. San Francisco: Jossey-Bass.
- Darling-Hammond, L., Wise, A., & Klein, S. (1999). *A license to teach: Raising standards for teaching*. San Francisco: Jossey-Bass.

- Darling-Hammond, L., & Youngs, P. (2002). Defining "highly qualified teachers": What does "scientifically-based research" actually tell us? *Educational Researcher*, 31(9), 13-25.
- DeJong, L., & Groomes, F. (1996). A constructivist teacher education program that incorporates community service to prepare students to work with children living in poverty. *Action in Teacher Education*, 18(2), 86-95.
- DeLong, T. (1987). Teachers and their careers: Why do they choose teaching? *Journal of Career Development*, 14, 118-125.
- Diez, M. (1990). A thrust from within: Reconceptualizing teacher education at Alverno College. *Peabody Journal of Education*, 65(2), 5-18.
- Diez, M., & Hass, J. (1997). No more piecemeal reform: Using performance-based approaches to rethink teacher education. *Action in Teacher Education*, XIX(2), 17-26.
- Dill, D. (1990). *What teachers need to know: The knowledge, skills, and values essential to good teaching*. San Francisco: Jossey-Bass.
- Dobry, A., Murphy, P., & Schmidt, D. (1985). Predicting teacher competence. *Action in Teacher Education*, 7(1-2), 69-74.
- Donmoyer, R. (1996). The concept of a knowledge base. In F. Murray (Ed.), *The teacher educator's handbook: Building a knowledge base for the preparation of teachers* (pp. 92-119). San Francisco: Jossey-Bass.
- Donovan, M. S., Bransford, J. D., & Pellegrino, J. W. (1999). *How people learn: Bridging research and practice*. Washington, DC: National Academy Press.
- Dubetz, N., Turley, S., & Erickson, M. (1997). Dilemmas of assessment and evaluation in preservice teacher education. In A. L. Goodwin (Ed.), *Assessment for equity and inclusion: Embracing all our children* (pp. 197-210). New York: Routledge.
- Dunbar, S., Koretz, D., & Hoover, H. (1991). Quality control in the development and use of performance assessments. *Applied Measurement in Education*, 4, 289-303.
- Dwyer, C. (1993). Innovation and reform: Examples from teacher assessment. In R. Bennett & W. Ward (Eds.), *Constructive versus choice in cognitive measurement: Issues in constructed response, performance testing, and portfolio assessment*. Hillsdale, NJ: Erlbaum.

- Dybdah, C. S., Shaw, D. G., & Edwards, D. (1997). Teacher testing: Reason and rhetoric. *Journal of Research and Development in Education*, 30(4), 248-254.
- Educational Testing Services (ETS) (2003). Understanding your Praxis scores. Retrieved October 17, 2003, from <ftp://Hftp.ets.org/pub/tandl/09706PRAXIS.pdf>
- Edwards, T. G. (1996). Implications of a model for conceptualizing changes in mathematics teachers' instructional practices. *Action in Teacher Education*, 18(2), 19-30.
- Elliott, E. (1996). What performance-based standards mean for teacher preparation. *Educational Leadership*, 53(6), 57-58.
- Farr, R., & Tone, B. (1994). *Portfolio performance assessment: Helping students evaluate their progress as readers and writers*. Fort Worth, TX: Harcourt Brace College Publishers.
- Fischetti, J., Dittmer, A., & Kyle, D. W. (1996). Shifting paradigms: Emerging issues for educational policy and practice. *Teacher Educator*, 31(3), 189-201.
- Fosnot, C. T. (1996). Constructivism: A psychological theory of learning. In C. T. Fosnot (Ed.), *Constructivism: Theory, perspectives, and practice* (pp. 833). New York: Teachers College Press.
- Fox, R. B. (1961). Factors influencing the career choice of prospective teachers. *Journal of Teacher Education*, 12, 427-432.
- Fraenkel, J., & Wallen, N. (2000). *How to design and evaluate research in education* (4th ed.). Boston: McGraw Hill.
- Frederickson, & Collins, A. (1989). A systems approach to educational testing. *Educational Researcher*, 18, 27-32.
- Fuller, F. F. (1969). Concerns of teachers: A developmental conceptualization. *American Education Researcher*, 6, 207-226.
- Fuller, F. F. (1974). *Achieving affective competencies through the teacher concerns self-confrontations model of personalized teacher education*. Paper presented at the American Educational Research Association, Chicago.
- Gage, N., & Berliner, D. (1992). *Educational psychology* (5th ed.). Boston: Houghton Mifflin.

- Gall, M., Borg, W., & Gall, J. (1996). *Educational research* (6th ed.). White Plains, NY: Longman.
- Gall, M., Gall, J., & Borg, W. (2003). *Educational research: An introduction* (6th ed.). New York: Longman.
- Gafluzzo, G., & Pankratz, R. (1990). Five attributes of a teacher education program knowledge base. *Journal of Teacher Education*, 41(4), 7-14.
- Gardner, H. (1993). *Multiple intelligences*. New York: Basic Books.
- Gardner, H., & Boix-Mansilla. (1994). Teaching for understanding: Within and across the disciplines. *Educational Leadership*, 51(5), 14-18.
- Gelfer, J., & Perkins, P. (1998). Portfolios: Focus on young children. *Teaching Exceptional Children*, 31(2), 44-47.
- Gellman, E. (1992). The use of portfolios in assessing teacher competence: Measurement issues. *Action in Teacher Education*, 14(4), 39-44.
- Gitomer, D. H. (1993). Performance assessment and educational measurement. In R. Bennett & W. Ward (Eds.), *Construction versus choice in cognitive measurement: Issues in constructed response, performance testing, and portfolio assessment* (pp. 241-263). Hillsdale NJ: Erlbaum.
- Given, B. (2002). *Teaching to the brain's natural learning systems*. Alexandria, VA: Association of Supervision and Curriculum Development.
- Glass, J., & Rose, A. (1987). Re-entry women: A growing and unique college population. *NASPA Journal*, 25(2), 110-119.
- Glatthorn, A. (1996). *The teacher's portfolio*. Rockport, MA: Pro>Active Publications.
- Good, T., & Brophy, J. (1994). *Looking in classrooms* (6th ed.). New York: HarperCollins.
- Goodlad, J. (1990). *Teachers for our nation's schools*. San Francisco: Jossey-Bass.
- Goodlad, J. (1994). *Educational renewal: Better teachers, better schools*. San Francisco: Jossey-Bass.
- Goodwin, L. (1997). *Assessment for equity and inclusion: Embracing all our children*. New York: Routledge.

- Grace, C., & Shores, E. (1992). *The portfolio and its use: Developmentally appropriate assessment of young children*. Little Rock AR: Southern Association of Children Under Six.
- Graham, J., & Garton, B. (2001, December). *The use of teacher certification measures in predicting secondary agriculture instructors' teaching performance*. Paper presented at the 28th Annual National Agricultural Education Research Conference.
- Grant, G., & Huebner, T. (1998). The portfolio question: A powerful synthesis of the personal and professional. *Teacher Education Quarterly*, 25(1), 33-43.
- Grant, G., & Huebner, T. (1998). The portfolio question: The power of self-directed inquiry. In N. Lyons (Ed.), *With portfolio in hand.- Validating the new teacher professionalism* (pp. 156-171). New York: Teachers College Press.
- Gredler, M. (2001). *Learning and instruction* (4th ed.). Upper Saddle River, NJ: Merrill.
- Greene, M. (1996). A constructivist perspective on teaching and learning in the arts. In C. T. Fosnot (Ed.), *Constructivism: Theory, perspectives, and practice* (pp. 120-141). New York: Teachers College Press.
- Greeno, J. (1989). A perspective on thinking. *American Psychologist*, 44, 134-141.
- Grossman, P., Wilson, G., & Shulman, L. (1989). Teachers of substance: Subject matter knowledge for teaching. In M. C. Reynolds (Ed.), *Knowledge base for the beginning teacher* (pp. 23-26). New York: Pergamon.
- Grover, B. W. (1991). The teacher assessment dilemma: What is versus what ought to be! *Journal of Personnel Evaluation in Education*, 5(2), 103-119.
- Guillaume, A. M., & Yopp, H. K. (1995). Professional portfolios for student teachers. *Teacher Education Quarterly*, 22(1), 93-101.
- Gur, R., Turetsky, B., Matsui, M., Yan, M., Bilker, W., Huggett, P., et al. (1999). Sex differences in brain gray and white matter in healthy young adults: Correlations, with cognitive performance. *The Journal of Neuroscience*, 19, 4065-4072.
- Gurian, M., & Henley, P. (2001). *Boys and girls learn differently: A guide for teachers and parents*. San Francisco CA: Jossey-Bass.

- Guyton, E., & Farokhi, E. (1987). Relationships among academic performance, basic skills, subject matter knowledge, and teaching skills of teacher education graduates. *Journal of Teacher Education* 38(5), 37-42.
- Haertel, E. (1990). Performance tests, simulations, and other methods. In J. Milman & L. Darling-Hammond (Eds.), *The new handbook of teacher evaluation: Assessing elementary and secondary school teachers* (pp. 278-294). Newbury Park: Sage Publications.
- Haertel, H. (1991). New forms of teacher assessment. *Review of Research in Education*, 17, 3-27.
- Haney, W., Madaus, Cr., & Kreitzer, A. (1987). Charms talismanic: Testing teachers for the improvement of American education. *Review of Research in Education* 14, 169-238.
- Haney, W. (1990). Preservice evaluation of teachers. In J. Milman & L. Darling-Hammond (Eds.), *The new handbook of teacher evaluation: Assessing elementary and secondary school teachers* (pp. 46-61). Newbury Park, CA: Sage.
- Hartzler-Miller, C. D. (1999). Learning to teach teachers in a standards-based program: When experience isn't enough. *Action in Teacher Education*, XXI(3), 88-101.
- Hass, J. M., Diez, M. E., Kraft, G. O., & Stoffels, J. A. (1995). *Student assessment as learning at Alverno College: In class and external assessment in teacher education*. Paper presented at the Conference on Restructuring Teacher Education for the Twenty-First Century.
- Hausfather, S. J. (1996). Vygotsky and schooling: Creating a social context for learning. *Action in Teacher Education*, XVIII(2), 1-10.
- Hebert, E. A. (1998). Lessons learned about student portfolios. *Phi Delta Kappan*, 79(8), 583-585.
- Heller, H. W., & Clay, R. J. (1993). Predictors of teaching effectiveness: The efficacy of various standards to predict the success of graduates from a teacher education program. *ERS Spectrum*, 11(1), 7-11.
- Herman, J. L., Gearhart, M., & Baker, E. L. (1993). Assessing writing portfolios: Issues in the validity and meaning of scores. *Educational Assessment*, 1(3), 201-224.

- Herman, J. L., & Winters, L. (1994). Portfolio research: A slim collection. *Educational Leadership*, 52(2), 48-55.
- Hicken, S. (1992). The pre-professional skills test: How it affects teacher aspirants and predicts performance in teacher preparation programs. *The Urban Review*, 24(4), 253-261.
- Hiebert, E., Valencia, S., & Afflerbach, P. (1994). Definitions and perspectives. In S. Valencia, E. Hiebert & P. Afflerbach (Eds.), *Authentic reading assessment: Practices and possibilities* (pp. 6-21). Newark, DE: International Reading Association.
- Holmes Group (1986). *Tomorrow's teachers*. East Lansing MI: author.
- Holmes Group (1995). *Tomorrow's schools of education*. East Lansing, NH: author.
- Interstate New Teacher Assessment and Support Consortium (INTASC) (1991). *Model standards for beginning teacher licensing and development: A resource for state dialogue*. Washington DC: Council of Chief State School Officers.
- Interstate New Teacher Assessment and Support Consortium (INTASC) (1992). *Model standards for beginning teacher licensing and development: A resource for state dialogue*. Washington, DC: The Council of Chief State School Officers.
- Jennings, C., & Di, X. (1996). Collaborative learning and thinking: The Vygotsky approach. In L. Dixon-Krauss (Ed.), *Vygotsky in the classroom: Mediated literacy instruction and assessment* (pp. 77-91). White Plains, NY: Longman.
- Jensen, E. (1998). *Teaching with the brain in mind*. Alexandria, Virginia: Association for Supervision and Curriculum Development.
- Johnson, J. (1999). Professional teaching portfolio: A catalyst for rethinking teacher education. *Action in Teacher Education*, 21(1), 37-49.
- Julyan, C., & Duckworth, E. (1996). A constructivist perspective on teaching and learning science. In C. T. Fosnot (Ed.), *Constructivism: Theory, perspectives, and practice* (pp. 55-72). New York: Teachers College Press.
- Katz, C., & Johnson-Kuby, S. (1996). Like portfolios for assessment. *Journal of Adolescent and Adult Literacy*, 39(6), 508-511.
- Kaufman, D. (1996). Constructivist-based experiential learning in teacher education. *Action in Teacher Education* 18(2), 40-49.

- Kearns, J., Kleinert, H., Clayton, J., Burdge, M., & Williams, R. (1998). Principal supports for inclusive assessment: A Kentucky story. *Teaching Exceptional Children*, 31(2), 16-23.
- Kendall, J. S., & Marzano, R. J. (1996). *Content knowledge: A compendium of standards and benchmarks for K-12 education*. Aurora, Colorado: MidContinent Regional Educational Laboratory.
- Kilbane, C., & Milman, N. (2003). *The digital teaching portfolio handbook*. Boston: Allyn & Bacon, Pearson Education.
- Kimball, W., & Hanley, S. (1998). Anatomy of a portfolio assessment system: Using multiple sources of evidence for credentialing and professional development. In N. Lyons (Ed.), *With portfolio in hand: Validating the new teacher professionalism* (pp. 189-201). New York: Teachers College Press.
- Klein, S., & Stretcher, B. (1991). Developing a prototype licensing examination for secondary school teachers. *Journal of Personnel Evaluation in Education*, 5, 169-190.
- Knowles, M. (1984). *The adult learner: A neglected species* (3rd ed.). Houston, TX: Gulf.
- Koretz, D., Stecher, B., & Deibert, E. (1993). *The reliability of scores from the 1992 Vermont Portfolio Assessment Program* (Tech Rep No. 355). Los Angeles, CA: University of California, CREST.
- Koretz, D., Stecher, B., Klein, S., McCaffrey, D., & Deibert, E. (1993). *Can portfolios assess student performance and influence instruction? The 1991-92 Vermont experience* (CSE Technical Report No. 371). Los Angeles, CA: UCLA.
- Kowalski, T., & Weaver, R. (1988). Characteristics of outstanding teachers: An academic and social involvement profile. *Action in Teacher Education*, X(2), 93-99.
- Krathwohl, D. (1998). *Methods of educational and social science research: An integrated approach* (2nd ed.). New York: Longman.
- Kroll, L. R., & Black, A. (1993). Developmental theory and teaching methods: A pilot study of a teacher education program. *The Elementary School Journal*, 93(4), 417-441.
- Kroll, L. R., & LaBoskey, V. K. (1996). Practicing what we preach: Constructivism in a teacher education program. *Action in Teacher Education*, XVIII(2), 63-72.

- Lam, T. (1995). *Fairness in performance assessment*. (ERIC Document Reproduction Services No. 391 982).
- Lamon, S. J., & Lesh, R. (1992). *Assessment of authentic performance in school mathematics*. Washington, DC: American Association for the Advancement of Science.
- Leak, L. (2003). *Maryland's response to No Child Left Behind requirements*, Presentation at McDaniel College, Westminster, MD.
- LeMahieu, P., Gitomer, D. H., & Eresh, J. T. (1993). *Portfolios in large-scale assessment: Difficult but not impossible*. Unpublished manuscript, University of Delaware.
- Levine, L. (1971). *The American teacher: A tentative psychological description* (ERIC Document Reproduction Services No. ED 054 068).
- Linn, R. L., Baker, E. L., & Dunbar, S. (1991). Complex performance based assessment: Expectations and validation criteria. *Educational Researcher*, 20(8),15-21.
- Long, C., & Stansbury, K. (1994). Performance assessments for beginning teachers. *Phi Delta Kappan*, 76(4), 318-322.
- Long, H. (1983). Academic performance, attitudes, and social relations in intergenerational college classes. *Educational Gerontology*, 9(5-6), 471 481.
- Loughran, J., & Corrigan, D. (1995). Teaching portfolios: A strategy for developing learning and teaching in preservice education. *Teaching and Teacher Education*, 11(6), 565-577.
- Lyons, N. (1996). A grassroots experiment in performance assessment. *Educational Leadership*, 53(6), 64-67.
- Lyons, N. (1998). *With portfolio in hand: Validating the new teacher professionalism*. New York: Teachers College Press.
- Lyons, N. (1998). Portfolio possibilities: Validating a new teacher professionalism. In N. Lyons (Ed.), *With portfolio in hand: Validating the new teacher professionalism* (pp. 11-22). New York: Teachers College Press.
- MacCoby, E. (1966). Sex differences in intellectual functioning. In E. MacCoby (Ed.), *The development of sex differences* (pp. 23-55). Stanford, CA: Stanford University Press.

- MacCoby, E., & Jacklyn, N. (1975). *The psychology of sex differences*. Stanford, CA: Stanford University Press.
- MacKinnon, A., & Scarff-Seatter, C. (1997). Constructivism: Contradictions and confusion in teacher education. In V. Richardson (Ed.), *Constructivist teacher education: Building new understandings*(pp. 38-55). Washington, DC: Falmer Press.
- Marso, R. N., & Pigge, F. L. (1991, October). *The identification of academic, personal, and affective predictors of student teaching performance*. Paper presented at the Annual Meeting of the Midwestern Educational Research Association, Chicago.
- Martin, R. J. (1994). Multicultural social reconstructionist education: Design for diversity in teacher education. *Teacher Education Quarterly*, 21(3), 77-89.
- Martin-Kniep, G. (1999). *Capturing the wisdom of practice: Professional portfolios for educators*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Marzano, R., Brandt, R., Hughes, C., Jones, B., Rankin, S., et al. (1988). *Dimensions of thinking*. Alexandria VA: Association for Supervision and Curriculum Development.
- McCutcheon, J., Schmidt, C., & Bolden, S. (1997). Relationships among selected personality variables, academic achievement, and student teaching behavior. *Journal of Research and Development in Education*, 24(3), 3 844.
- McDaniel, E. (1994). Performance assessment. In E. McDaniel (Ed.), *Understanding educational measurement* (pp. 182-204). Madison, WI: WCB Brown and Benchmark.
- McDiarmid, G. (1990). The liberal arts: Will more result in better subject matter understanding. *Theory into Practice*, 29(1), 21-29.
- Mehrens, W. A. (1992). Using performance assessment for accountability purposes. *Educational Measurement: Issues and Practices*, 11(1), 3-9.
- Mehrens, W. A., Popham, W. J., & Ryan, J. M. (1998). How to prepare students for performance assessments. *Educational Measurements: Issues and Practices*, 11(1), 18-22.
- Messick, S. (1989). Validity. In R. L. Linn (Ed.), *Educational Measurement* (3rd ed., pp. 13-103). New York: American Council on Education/Macmillan.

- Messick, S. (1994). The interplay of evidence and consequences in the validation of performance assessments. *Educational Researcher*, 23(2), 13-23.
- Mikitovics, A., & Crehan, K. (2002). Pre-professional skills test scores as college of education admission criteria. *The Journal of Educational Research*, 95(4), 215-223.
- Mitchell, R., & Barth, P. (1999). How teacher licensing tests fall short. *Thinking K-16*, 3(1), 3-23.
- Moir, A., & Jessel, D. (1991). *Brain sex: The differences between men and women*. New York: Delta.
- Moss, P. (1992). Shifting conceptions of validity in educational measurement: Implications for performance assessment. *Review of Educational Research*, 62, 229-258.
- Moss, P. (1994). Can there be validity without reliability? *Educational Researcher*, 23, 5-12.
- Moss, P. (1998). Rethinking validity for the assessment of teaching. In N. Lyons (Ed.), *With portfolio in hand: Validating the new teacher professionalism*. New York: Teachers College Press.
- Murnane, R. J., Singer, J., Willet, J., Kemple, J., & Olsen, R. (1991). *Who will teach? Policies that matter*. Cambridge, MA: Harvard University Press.
- Murray, F. (1996). *The teacher educator's handbook: Building a knowledge base for the preparation of teachers*. San Francisco: Jossey-Bass.
- Naizer, G. L. (1997). Validity and reliability issues of performance-portfolio assessment. *Action in Teacher Education*, XVIII(4), 1-9.
- National Board of Professional Teaching Standards. (1991). *What teachers need to know and be able to do*. Arlington, VA: author.
- National Board of Professional Teaching Standards. (2001). *Middle childhood generalist standards*. Arlington, VA: author.
- National Board of Professional Teaching Standards. (2001). *Standards*. Arlington VA: author.

- National Commission on Excellence. (1983). *A nation at risk: The imperative for educational reform* (No. 065-000-00177-2). Washington, DC: US Department of Education.
- National Commission on Teaching and America's Future (1996). *What matters most: Teaching for America's future*. New York: author.
- National Council for Accreditation of Teacher Education (2000). *NCA TE standards, procedures, and policies for the accreditation of teacher education units*. Washington, DC: author.
- National Education Goals Panel. (1994). *Goals 2000: Educate America Act*. Washington, DC: U.S. Government Printing Office.
- National Education Goals Panel. (1997). *The National Education Goals report: Building a nation of learners, 1997*. Washington DC: US Government Printing Office.
- Newmann, F., & Whelage, G. (1993). Five standards of authentic instruction. *Educational Leadership*, 50(7), 8-12.
- Nodding, N. (1991-92). The gender issue. *Educational Leadership*, 49(4), 65-70.
- Novak, J., Herman, J. L., & Gearhart, M. (1996). Establishing validity for performance-based assessments: An illustration for collections of student writing. *Journal of Educational Research*, 89, 220-233.
- O'Neil, J. (1992). Putting performance assessment to the test. *Educational Leadership*, 49(8), 14-19.
- O'Neil, J. (1993). On the New Standards Project: A conversation with Laura Resnick and Warren Simmons. *Educational Leadership*, 51(3), 17-21.
- Oldfather, P., Bonds, S., & Bray, T. (1994). Drawing the circle: Collaborative mind mapping as a process for developing a constructivist teacher education program. *Teacher Education Quarterly*, 21(3), 5-13.
- Olstad, R. G. (1987). *Predictive validity of GPA, CAT, and ATE science specialty tests on scores of a performance based student teaching evaluation instrument* (Teacher Education Research Center Report No 87- 1): Washington University.
- Ornstein, A. C., & Levine, D. U. (2003). *Foundations of education*. Boston: Houghton Mifflin.

- Paulson, F., Paulson, P., & Meyer, C. (1991). What makes a portfolio a portfolio? *Educational Leadership*, 48(5), 60-63.
- Piaget, J. (1973). *The psychology of intelligence*. Totowa, NJ: Littlefield, Adams Publishers.
- Pigge, F. L., & Marso, R. N. (1989,1989). *Academic, affective, and personal attributes of successful student teachers*. Paper presented at the Annual Meeting of the Association of Teacher Educators, St Louis, Missouri.
- Poggio, J. P., Glasnapp, D. R., Green, S. B., & Tollefson, N. (1997). *Conducting licensure validity studies: The need to broaden the evidentiary base*. Paper presented at the Annual Meeting of the American Educational Research Association.
- Popham, W. J. (2000). *Modern educational measurement: Practical guidelines for educational leaders* (3rd ed.). Boston: Allyn and Bacon.
- Post, D. (1990). *A descriptive comparison of adult and traditional students in an undergraduate teacher education program*. Unpublished doctoral dissertation, The Pennsylvania State University.
- Post, D., & Killian, J. E. (1992). Accommodating adult students in undergraduate teacher education programs. *Action in Teacher Education*, 14(4), 9-15.
- Pothoff, D., Carroll, J., Anderson, P., Attivo, B., & Kear, D. (1996). Striving for integration: A portfolio content analysis. *Action in Teacher Education*, XVIII(1), 48-58.
- Rabinowicz, T., Dean, D., Petetot, J., & deCourten-Myers, G. (1999). Gender differences in the human cerebral cortex: More neurons in males; more processes in females. *Journal of Child Neurology*, 14, 98-107.
- Rachal, J. (1983). The androgogy-pedagogy debate: Another voice in the fray. *Lifelong Learning: The Adult Years*, 6(9), 14-15.
- Rakow, S. (1999). Involving classroom teachers in the assessment of preservice intern portfolios. *Action in Teacher Education*, XXI(1), 108-115.
- Reynolds, M. C. (1989). *Knowledge base for the beginning teacher*. Elmsford, New York: Pergamon Press.
- Richardson, V. (1997). Constructivist teaching and teacher education: Theory and practice. In V. Richardson (Ed.), *Constructivist teacher education: Building new understandings* (pp. 3-14). Philadelphia, PA: Fahner Press.

- Richter-Anton, D. (1986). Qualitative differences between adult and younger students. *NASPA Journal*, 23(3), 58-62.
- Riggs, I. M., & Riggs, M. L. (1990, February). *A test of the validity of selected predictors of student success in a teacher education program*. Paper presented at the Annual Meeting of the American Association of Colleges of Teacher Educators, Chicago.
- Riggs, I., & Riggs, M. (1990-91). Predictors of student success in a teacher education program: What is valid, what is not. *Action in Teacher Education*, XII(4), 41-46.
- Rosenblatt, L. (1983). The literacy transaction: Evocation and response. *Theory into Practice*, XXI(4), 268-277.
- Rosenblatt, L. (1991). Literary theory. In J. Flood, J. Jensen, D. Lapp & J. Squire (Eds.), *Handbook of research on teaching the English language arts* (pp. 57-62). New York: Macmillan.
- Rosenblatt, L. (1994). The transactional theory of reading and writing. In R. Ruddell, M. R. Ruddell & H. Singer (Eds.), *Theoretical models and processes of reading* (4th ed., pp. 1057-1092). Newark, Delaware: International Reading Association.
- Rumelhart, D. (1980). Schemata: The building blocks of cognition. In R. Spiro (Ed.), *Theoretical issues in reading comprehension* (pp. 33-58). Hillsdale, NJ: Erlbaum.
- Ryan, J., & Kuhs, T. (1993). Assessment of preservice teachers and the use of portfolios. *Theory into Practice*, 32(2), 75-81.
- Ryan, J., & Miyasaka, J. (1995). Current practices in teaching and assessment: What is driving the change? *NAASP Bulletin*, 79, 1-10.
- Ryan, K., & Cooper, J. (2004). *Those who can, teach* (10th ed.). Boston: Houghton Mifflin.
- Sadker, M., & Sadker, D. (1994). *Failing at fairness: How America's schools cheat girls*. New York: Charles Scribner Sons.
- Salend, S. (1998). Using portfolios to assess student performance. *Teaching Exceptional Children*, 31(2), 36-42.
- Salvia, J., & Ysseldyke, J. (2004). *Assessment in special and inclusive education* (9th ed.). Boston, MA: Houghton Mifflin.

- Salzman, S. A. (1991, February). *Selecting the qualified: Predictors of student teacher performance*. Paper presented at the Annual Meeting of the Association of Teacher Educators, New Orleans.
- Schifter, D. (1996). A constructivist perspective on teaching and learning mathematics. In C. T. Fosnot (Ed.), *Constructivism: Theory, perspectives, and practices* (pp. 73-91). New York: Teachers College Press.
- Schon, D. (1991). *The reflective turn: Case studies in and on educational practice*. New York: Teachers College Press.
- Schram, T. (1995). Using portfolios to mediate learning and inquiry among interns and teachers. *Teaching Education*, 7(2), 71-80.
- Schrunk, D. H. (2000). *Learning theories: An educational perspective* (3rd ed.). Upper Saddle River, NJ: Merrill.
- Schwebel, M. (1994, May 2). Educational pie in the sky. *The Nation*, pp. 591-592.
- Sentz, E. I. (1991) *Predicting success in student teachers from teacher perceiver screeners and Pre-Professional Skills Tests*. (ERIC Document Reproduction Services No. 329 517).
- Shavelson, R., Webb, N., & Rowley, G. (1989). Generalizability theory. *American Psychologist*, 922-932.
- Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4-14.
- Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57(1), 1-22.
- Shulman, L. (1987). From veteran parent to novice teacher: A case study of a student teacher. *Teaching and Teacher Education*, 3(1), 13-27.
- Shulman, L. (1988). A union of insufficiencies: Strategies for teacher assessment in a period of reform. *Educational Leadership*, 46(3), 36-41.
- Shulman, L. (1991). *Final report of the teacher assessment project*. Palo Alto, California: Teacher Assessment Project, Stanford University.
- Shulman, L. (1992, April). *Portfolios in teacher education: A component of reflective teacher education*. Paper presented at the Annual Meeting of American Educational Research Association, San Francisco, CA.

- Shulman, L. (1998). Teacher portfolios: A theoretical activity. In N. Lyons (Ed.), *With portfolio in hand: Validating new teacher professionalism* (pp. 23-38). New York: Teacher College Press.
- Sikula, J. (1990). National commission reports of the 1980s. In W. R. Houston (Ed.), *The handbook of research on teacher education* (pp. 72-82). New York: Macmillan.
- Simmons, J. (1996). Control the purpose, not the contents: Coaching the creation of teaching portfolios. *Action in Teacher Education XVIII*(1), 71-81.
- Skopin, J. (1996). *The relationship between pre-service teacher personality characteristics and the decision to teach at elementary or secondary level*. Unpublished doctoral dissertation, Ohio State University.
- Snow, R. (1993). Construct validity and constructed response tests. In R. Bennett & W. Ward (Eds.), *Constructive versus choice in cognitive measurement: Issues in constructed response, performance testing, and portfolio assessment*. Hillsdale NJ: Erlbaum.
- Snow, C., Burns, S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- Snyder, J., Lippincott, A., & Bower, D. (1998). The inherent tensions in the multiple uses of portfolios in teacher education. *Teacher Education Quarterly*, 25(1), 45-60.
- Soar, R., Medley, D., & Coker, H. (1983). Teacher evaluation: A critique of currently used methods. *Phi Delta Kappan*, 64(4), 239-246.
- Sousa, D. (2001). *How the brain learns* (2nd ed.). Thousand Oaks, CA: Corwin Press.
- State Department of Education (1995). *Teacher education task force report*. Baltimore: State Department of Education.
- Stiggins, R. (1987). Design and development of performance assessments. *Educational Measurement*, 6(3), 33-42.
- Stiggins, R. (2001). *Student involved classroom assessment* (3rd ed.). Upper Saddle River, NJ: Merrill Prentice Hall.
- Stone, B. (1998). Problems, pitfalls, and benefits of portfolios. *Teacher Education Quarterly*, 25(1), 105-114.

- Stroble, E. (1995). Portfolio pedagogy: Assembled evidence and unintended consequences. *Teaching Education*, 7(2), 97-102.
- Supovitz, J. (1997). Mirror, mirror on the wall: Which is fairest test of all? An examination of the equitability of portfolio assessment relative to standardized tests. *Harvard Educational Review*, 67(3).
- Szabo, M., & Lambert, L. (2002). The preparation of new constructivist leaders. In L. Lambert, D. Walker, D. Zimmerman, J. Cooper, M. Lambert, M. Gardner & M. Szabo (Eds.), *The constructivist leader* (2nd ed., pp. 204-238). New York: Teachers College Press.
- Tarule, J. (1988). Voices of returning women: Ways of knowing. *New Directions for Continuing Education*, 39, 19-33.
- Teets, S. T., & Starnes, B. A. (1996). Foxfire: Constructivism for teachers and learners. *Action in Teacher Education*, 18(2), 31-39.
- Tellez, K. (1996). Authentic assessment. In J. Sikula, T. Buttery & E. Guyton (Eds.), *Handbook of research on teacher education 11*, pp. 704-721. New York: Simon & Schuster, Macmillan.
- Tierney, R., & Clark, C. (1998). Portfolios: Assumptions, tensions, and possibilities. *Reading Research Quarterly*, 33(4), 474-486.
- Tudge, J. (1990). Vygotsky, the zone of proximal development, and peer collaboration: Implications for classroom practice. In L. Moll (Ed.), *Vygotsky and education: Instructional implications and applications of sociohistorical psychology* (pp. 155-172). Cambridge UK: Cambridge University Press.
- U.S. Department of Education (1991). *America 2000: An education strategy*. Washington, DC: U.S. Department of Education.
- U.S. Department of Education (1993). *America's teachers: Profile of a profession* (No. NCES 93-025): US Department of Education.
- U.S. Department of Education (1994). *Goals 2000: Educate America Act*. Washington, DC: U.S. Department of Education.
- U.S. Department of Education (1999). *Annual institutional questionnaire on teacher preparation: Appendix C*. Washington, DC: Office of Postsecondary Education.
- U.S. Department of Education (2002). *No Child Left Behind: A Desktop Reference*. Washington, DC: U. S. Department of Education.

- Vadeboncoeur, J. (1997). Child development and the purpose of education: A historical context for constructivism in teacher education. In V. Richardson (Ed.), *Constructivist teacher education: Building a world of new understanding* (pp. 15-37). Philadelphia, PA: Falmer.
- Valencia, S. (1990). A portfolio approach to classroom reading assessment: The whys, whats, and hows. *The Reading Teacher*, 43(4), 338-340.
- Valencia, S., Hiebert, E., & Afflerbach, P. (1994). *Authentic reading assessment: Practices and possibilities*. Newark, DE: International Reading Association.
- Valencia, S., & Place, N. (1994). Literacy portfolios for teaching, learning, and accountability. In S. Valencia, E. Hiebert & P. Affierbach (Eds.), *Authentic reading assessment: Practices and possibilities* (pp. 134-156). Newark DE: International Reading Association.
- Valencia, S., & Place, N. (1994). Portfolios: A process for enhancing teaching and learning. *The Reading Teacher*, 47(8), 666-669.
- Valencia, S., & Au, K. (1997). *Portfolios across educational contexts: Issues of evaluation, teacher development, and system validity* (Reading Research Report No. 73). Athens, GA and College Park, MD: National Reading Research Center.
- Villegas, A. M. (1997). Assessing teachers' performance in a diverse society. In A. L. Goodwin (Ed.), *Assessment for equity and inclusion: Embracing all our children* (pp. 261-278). New York: Routledge.
- Von Glaserfeld, E. (1996). Introduction: Aspects of constructivism. In C. T. Fosnot (Ed.), *Constructivism: Theory, perspectives, and practice* (pp. 3-7). New York: Teachers College Press.
- Vygotsky, L. (1978). *Mind in Society*. Cambridge, MA: Harvard University Press.
- Vygotsky, L. (1986). *Thought and language*. Cambridge, MA: The MIT Press.
- Wade, R., & Yarbrough, D. (1996). Portfolios: A tool for reflective thinking in teacher education? *Teaching and Teacher Education*, 12, 63-79.
- Wagner, C., Brock, D., & Agnew, A. (1994). Developing literacy portfolios in teacher education courses. *Journal of Reading*, 37(8), 668-674.
- Wagner, L., & Brock, D. (1996). Using portfolios to mediate literacy instruction and assessment. In L. Dixon-Krauss (Ed.), *Vygotsky in the classroom: Mediated*

- literacy instruction and assessment* (pp. 161-174). White Plains, NY: Longman.
- Wang, M., Haertel, G., & Walberg, H. (1994). What helps students learn? *Educational Leadership*, 51(4), 74-79.
- White, V. (1994, April 3). Ambitious vision set by "Goals 2000" may be difficult to realize. *The Baltimore Sun*, p. 18A.
- Wiggins, G. (1992). Creating tests worth taking. *Educational Leadership*, 44(8), 26-33.
- Wiggins, G. (1993). *Assessing student performance: Exploring the purpose and limits of testing*. San Francisco: Jossey-Bass.
- Wiggins, G., & McTighe, J. (1998). *Understanding by design*. Alexandria VA: Association of Supervision and Curriculum Development.
- Winograd, P., & Gaskins, R. (1992). Improving the assessment of literacy: The power of portfolios. *Pennsylvania Reporter*, 23, 1-2.
- Wise, A., & Darling-Hammond, L. (1987). *Licensing teachers: Design for a teaching profession*. Santa Monica, CA: RAND Corporation.
- Wise, A. (1997). *Performance-based accreditation: Reform in action*. Retrieved January 27, 2003, from www.ncate.org/newfomiinaction
- Wittrock, M. (1986). Student's thought processes. In M. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 297-314). New York: Macmillan.
- Wittrock, M. (1990). Generative processes of comprehension. *Educational Psychologist*, 24, 345-376.
- Wolf, D., LeMahieu, P., & Eresh, J. (1992). Good measure: Assessment as a tool for educational reform. *Educational Leadership*, 49(8), 8-13.
- Wolf, K. (1991). The schoolteacher's portfolio: Issues in design, implementation, and evaluation. *Phi Delta Kappan*, 73(2), 129-136.
- Wolf, K. (1994). Teaching portfolios: Capturing the complexity of teaching. In L. Ingvarson & R. Chadbourne (Eds.), *Teacher appraisal: New directions* (pp. 108-132). Victoria, Australia: Australian Council for Educational Research.
- Wolf, K. (1996). Developing an effective teaching portfolio. *Educational Leadership*, 53(6), 34-37.

- Wolf, K., Lichtenstein, G., Bartlett, E., & Hartman, D. (1996). Professional development and teaching portfolios. *Journal of Personnel Evaluation in Education*, 10, 279-286.
- Wolf, K., & Siu-Runyan, Y. (1996). Portfolio purposes and possibilities. *Journal of Adolescent and Adult Literacy*, 40(1), 30-37.
- Wolf, K., & Dietz, M. (1998). Teaching portfolios: Purposes and possibilities. *Teacher Education Quarterly*, 25(1), 9-22.
- Wolfe, P. (2001). *Brain matters: Translating research into classroom practice*. Alexandria, VA: Association of Supervision and Curriculum Development.
- Wyatt, R., & Looper, S. (1999). *So you have to have a portfolio: A teacher's guide to preparation and presentation*. Thousand Oaks, CA: Corwin Press.
- Zeichner, K. (1993). *Reflections on the career-long preparation of teachers in Wisconsin*. Madison, Wisconsin: University of Wisconsin.
- Zidon, M. (1996). Portfolios in preservice teacher education: What the students say. *Action in Teacher Education* 4 XVIII(1), 59-70.
- Zubizarreta, J. (1994). Teaching portfolios and the beginning teacher. *Phi Delta Kappan*, 76(4), 323-326.