

THE RELATIONSHIP BETWEEN IN-SERVICE TEACHERS' CULTURALLY
RESPONSIVE TEACHING SELF-EFFICACY AND OUTCOME EXPECTANCY
BELIEFS, INSTRUCTIONAL PRACTICES (CLASS), AND STUDENT
OUTCOMES IN THE URBAN SCHOOL SETTING

A DISSERTATION IN
Curriculum and Instruction
and
Educational Leadership, Policy and Foundations

Presented to the Faculty of the University
of Missouri-Kansas City in partial fulfillment of
the requirements for the degree

DOCTOR OF PHILOSOPHY

by
KARRIE A. SNIDER

B. S. Northwest Missouri State University, 1995
M. A. University of Missouri-Kansas City, 2006

Kansas City, Missouri
2015

© 2015

KARRIE A. SNIDER

ALL RIGHTS RESERVED

THE RELATIONSHIP BETWEEN IN-SERVICE TEACHERS' CULTURALLY
RESPONSIVE TEACHING SELF-EFFICACY AND OUTCOME EXPECTANCY
BELIEFS, INSTRUCTIONAL PRACTICES (CLASS), AND STUDENT
OUTCOMES IN THE URBAN SCHOOL SETTING

Karrie A. Snider, Candidate for the Doctor of Philosophy Degree

University of Missouri-Kansas City, 2015

ABSTRACT

Culturally responsive teaching self-efficacy and outcome expectancy beliefs have emerged as constructs to investigate pre-service teacher preparedness for teaching children who represent culturally, ethnically, economically, linguistically, racially and religiously diverse backgrounds, who often attend urban schools. Once prepared for urban education, the question remains, what are the classroom outcomes for teacher-graduates during their first years of teaching? Using the Culturally Responsive Teaching Self-Efficacy Belief Scale (CRTSE), the Culturally Responsive Outcome Expectancy Beliefs Scale (CRTOE), and the Classroom Assessment Scoring System (CLASS), this researcher explored K-6th grade classroom outcomes of in-service teachers (n=69) from one teacher education preparation program in a Midwest urban area. Multiple regression and correlation analyses were applied to investigate the relationship between CRTSE, CRTOE and CLASS scores as predictor

variables of student outcomes. CRTSE, CRTOE and CLASS scores statistically significantly predicted 19.1 % of the variance student reading outcome scores. CRTSE and CRTOE scores were highly correlated, $r(68) = .562$, $p < .01$. Supplementary analyses revealed participants' rated non-specific scale items higher than items more "culturally" specific. Such differential patterns indicated further development of the CRTSE and CRTOE scales is warranted.

Descriptive analyses indicated contextual factors and differences between the school groups would assist in learning about variance in elementary students' outcomes. This study adds to the body of literature on teacher self-efficacy and outcome expectancy beliefs, and particularly provides teacher education a pathway for understanding the classroom outcomes related to their teacher-graduates.

The faculty listed below, appointed by the Dean of the School of Graduate Studies, have examined a dissertation titled “The Relationship Between In-Service Teachers’ Culturally Responsive Teaching Self-efficacy and Outcome Expectancy Beliefs, Instructional Practices (CLASS), and Student Outcomes in the Urban School Setting” presented by Karrie Snider, candidate for the Doctor of Philosophy degree, and certify that in their opinion it is worthy of acceptance.

Supervisory Committee:

Sue Vartuli, Ph.D., Committee Chair
Department of Curriculum & Instructional Leadership

Bonita Butner, Ph.D.
Department of Educational Leadership, Policy and Foundations

Jacob Marszalek, Ph.D.
Department of Counseling and Educational Psychology

Jovanna Rohs, Ph.D.
University of Missouri-Kansas City, Institute for Human Development

Jennifer Waddell, Ph.D.
Department of Curriculum & Instructional Leadership

CONTENTS

ABSTRACT.....	iii
LIST OF ILLUSTRATIONS.....	ix
LIST OF TABLES.....	x
ACKNOWLEDGEMENTS.....	xii

Chapter

1. INTRODUCTION	1
Statement of the Problem.....	3
Theoretical Basis of the Study	11
Purpose of the Study	16
Research Questions.....	17
Significance of the Study	18
Definition of Terms.....	18
Limitations of the Study.....	21
Organization of the Remaining Chapters.....	23
2. REVIEW OF LITERATURE	24
Beliefs	26
Belief Formation	42
Social Cognitive Theory	44
Self-Efficacy Theory.....	49
Socio-cultural Theory & Culturally Responsive Teaching.....	58
Systems and Their Role in Development	62
Theoretical Implications	72
Teacher-Child Interactions.....	75

Variable Measures	79
Conclusion	94
3. METHODOLOGY	95
Research Questions.....	95
Participants.....	96
Procedures.....	96
Instrumentation	100
Data Analysis	111
Ethical Considerations	117
4. RESULTS	119
Descriptive Analysis	120
Preliminary Analysis.....	156
Regression and Correlation Analyses	185
Supplementary Analysis	201
Conclusion	204
5. DISCUSSION	205
Conclusions.....	206
Discussion.....	214
Limitations	225
Strengths	231
Suggestions for Future Research	232
Educational Significance	236

Appendix

A. PRINCIPAL LETTER	238
B. RECRUITMENT LETTER	240
C. CONSENT FORM.....	242
D. STUDY PRESENTATION SCRIPT	245
E. AMENDED FORMS: RECRUITMENT LETTER, CONSENT FORM, and DIRECTIONS FOR SURVEY PACKET	247
F. TEACHER DEMOGRAPHICS SURVEY	254
G. TEACHER BELIEF AND PRACTICE MEASURES	256
REFERENCE LIST	264
VITA	299

ILLUSTRATIONS

Figure	Page
1. The Contextual Model Systems	66
2. Types and Levels of Systems.....	66
3. Differential Patterns of In-service Teachers' Culturally Responsive Teaching Self-Efficacy and Outcome Expectancy Beliefs	202

TABLES

Table	Page
1. Demographic Characteristics of In-Service Teacher Participants	122
2. In-Service Teacher Participant Characteristics Compared to the 2012 National Public School Teacher Population	124
3. Demographic Characteristics of In-Service Teacher Participants by School Group	126
4. 2013-2014 School Demographic Characteristics by State and School Groups.....	128
5. Culturally Responsive Teaching Self-Efficacy Scale Means and Standard Deviations of Appraisal Items in Comparison to Siwatu (2007).....	132
6. Culturally Responsive Teaching Outcome Expectancy Scale Means and Standard Deviations of Appraisal Items in Comparison to Siwatu (2007).....	138
7. CLASS K-3 and CLASS UE Means and Standard Deviations of Domains and Dimensions	140
8. Comparison of CLASS Means and Standard Deviations across Studies, Classrooms, Time Points and CLASS Versions	143
9. Unstandardized and Standardized NWEA-MAP [®] Assessment Reading and Math Score Means and Standard Deviations for In-service Teachers' Classrooms	148
10. Unstandardized and Standardized STAR Assessment Reading [™] and Math [™] Score Means and Standard Deviations for In-service Teachers' Classrooms	149
11. Spring 2014 NWEA-MAP [®] RIT Score Means and Standard Deviations Compared to National Norms	150
12. Spring 2014 STAR [™] Scaled Scores Means and Standard Deviations Compared to National Norms	151
13. Comparison of National and State Report Cards on 2013 National Assessment of Educational Progress	152
14. Comparison of State Report Cards on 2013 National Assessment of Educational Progress	153

15. Independent Samples t test to Assess Mean Differences by Race	160
16. Independent Samples t test to Assess Mean Differences by Grade Level	167
17. Independent Samples t test to Assess Mean Differences by Morning or Afternoon CLASS Observation	169
18. One-Way ANOVA to Assess Mean Differences by Years in Teaching	174
19. One-Way ANOVA to Assess Mean Differences in IVs and DVs by School Group	178
20. One-Way ANOVA to Assess Mean Differences by Type of Student Assessment.....	183
21. Correlations of Independent Variables and Dependent Variable (Student Reading Outcome z-scores)	188
22. Standard Multiple Regression of In-service Teachers' Culturally Responsive Teaching Self-Efficacy Belief Scores (CRTSE) (X_1), Culturally Responsive Teaching Outcome Expectancy Belief Scores (CRTOE) (X_2), and Observed Classroom Practice Scores (CLASS) (X_3) on Student Reading Outcome z-scores (Y) (N=45)	188
23. Correlations of Independent Variables and Dependent Variable (Student Math Outcome z-scores)	191
24. Standard Multiple Regression to Predict Student Math Outcome Z-scores (Y) From In-service Teachers' Culturally Responsive Teaching Self-Efficacy Belief Scores (CRTSE) (X_1), Culturally Responsive Teaching Outcome Expectancy Belief Scores (CRTOE) (X_2), and scores on Observed Classroom Practices (CLASS) (X_3) (N=45)	191
25. Standard Multiple Regression of In-service Teachers' Culturally Responsive Teaching Self-Efficacy Belief Scores (CRTSE) (X_1), and Culturally Responsive Teaching Outcome Expectancy Belief Scores (CRTOE) (X_2) on Student Reading Outcome z-scores (Y) (N=45).....	199
26. Standard Multiple Regression of In-service Teachers' Culturally Responsive Teaching Self-Efficacy Belief Scores (CRTSE) (X_1) and Culturally Responsive Teaching Outcome Expectancy Belief Scores (CRTOE) (X_2) on Student Math Outcome z-scores (Y) (N=45).....	200

ACKNOWLEDGEMENTS

To my dissertation committee, Dr. Sue Vartuli, Dr. Bonita Butner, Dr. Jake Marszalek, Dr. Jovanna Rohs and Dr. Jennifer Waddell, I offer my sincere appreciation for your critical feedback and constant encouragement. To Dr. Waddell, Denise and the Project CAUSE team, thank you for allowing me to be a part of an amazing group of teacher educators and providing assistance to this dissertation research. I would also like to acknowledge the teachers who opened up their classrooms to us. We appreciate learning from you. To my colleagues and friends, I am so grateful for your words of caring and wisdom when I needed them most. To my dissertation chair, long-time advisor, and early childhood champion, Dr. Sue Vartuli, this may be the only time in my dissertation where I am speechless... Thank you for your brilliance, belief and for creating a mastery experience that cultivated my own self-efficacy. To my wonderful husband Mike, and sons Bret and Bradyn, I thank you most of all. Through coursework, dissertation research and what were probably hundreds of football and baseball games—WE DID IT! Without your sacrifice, love and support I would not have been able to persevere. I love you. May you always believe in you! And to our parents/grandparents, Dwight and Fran, and Dale and Patty, we thank you for the continued sacrifice, love and dedication you have given us.

“The future belongs to those who believe in the beauty of their dreams.” ~Eleanor Roosevelt

CHAPTER 1

INTRODUCTION

Beliefs are as fundamental to teaching (Lortie, 1975; Nespor, 1987; Nieto, 2010; Pajares, 1992), as teacher education is to the developing teacher. Beliefs may lie at the heart of teaching (Kagan, 1992; Pajares, 1992; Vartuli, 1999), but what lies at the heart of teacher education? As teacher education evolves in the twenty-first century, a long history of inquiry regarding the significance, purpose and impact of teacher education endures (Cochran-Smith & Fries, 2005; Hansen, 2008b). The complexities of teaching may be an agreeable notion, however, a consensus among teacher educators and colleges of education does not exist on how best to recruit (Boyd, Grossman et al., 2008; Cochran-Smith & Fries, 2005; Haberman, 1995; Villegas, Strom & Lucas, 2012) or prepare effective pre-service teachers for today's classrooms (Boyd, Lankford, Loeb, Rockoff & Wyckoff, 2008; Cochran-Smith, Feiman-Nemser, McIntyre, & Demers, 2008; Cochran-Smith & Fries, 2005; Levine, 2006; Little & Bartlett, 2010; Milner, 2012). The lack of continuity across schools of education, along with a wide-range of program quality and program curricula components (Weiner, 2006) has raised questions about whether teacher education is making a difference for the teaching practice or for student outcomes (Allen, Coble, Crowe, 2014; Levine, 2006; Milner, 2012). Thus, as it has been for decades, the field of teacher education remains highly scrutinized and criticized (Boyd, Grossman et al., 2008; Cochran-Smith et al., 2008; Cochran-Smith & Fries, 2005; Wideen, 2005).

In response to criticism, researchers have examined whether teacher education preparation has been successful in preparing teachers (Cochran-Smith et al., 2008; Sleeter,

2001) and questioned whether teacher education preparation is related to teacher effectiveness (Cochran-Smith & Fries, 2005; Darling-Hammond, 2010). Wideen (2005) reported a further problem for teacher education is the profound argument that teacher educators rather than schools are responsible for perceived school failure. Debates have increased requests for studies to look for better evidence of the impact of teacher education preparation programs (Boyd, Grossman et al., 2008; Cochran-Smith & Zeichner, 2005; Sleeter, 2001), “especially for sufficient evidence that teacher ‘training’ actually correlates with P-12 student outcomes” (Milner, 2012, p. 149; also Allen et al., 2014; Cochran-Smith, Cannady et al., 2012; Grossman & Loeb, 2010; Little & Bartlett, 2010). Amongst the calls for research, Cochran-Smith & Zeichner (2005) in *The Report of the AERA Panel on Research and Teacher Education* suggested that researchers should not only measure the connection between teacher education and the success of children, but they should specifically illustrate the success of teachers working with the growing population of students of color, students of culturally, linguistically and religiously diverse backgrounds, and students of poverty.

While teacher education has evolved in preparing teachers, particularly with influence from multicultural educators (Banks & Banks, 2004), early-entry (Zeichner, 2010) and alternative certification programs (Darling-Hammond, 2010) have contributed to the variations in wide-spread quality from program to program (Milner, 2012; Weiner, 2006). As such, the issue of teacher and program effectiveness has been confounded by the fact that teacher education programs not only vary in their program structure, but also in the content, delivery and purpose for preparing teachers (Hansen, 2008b; Levine, 2006). Darling-

Hammond (2010) remarked, “Teaching as a profession will not move forward until we settle on some fundamentals about what teachers should have the opportunity to learn and how they should learn it...so they can do it well” (p. 39). This teacher educator-researcher was interested in the teacher efficacy beliefs, instructional practices and related student outcomes of teacher-graduates from one social constructivist teacher education program working to prepare teachers for the successful teaching of students in urban schools.

Statement of the Problem

“Teaching and teacher education are practices whose consequences percolate throughout society, thereby giving rise to a public concerned with their substance, quality and effects” (Hansen, 2008b, p. 18). Hansen (2008b) described varied purposes of teacher education programs. Teacher education should enhance the quality of teaching practitioners (Hollins, 2011; Little & Bartlett, 2010; Wang, Lin, Spalding, Klecka, & Odell, 2011); prepare collegiate students for life skill acquisition; cultivate knowledge and skill acquisition related to the teaching craft; promote theoretical perspectives (Hansen, 2008b); foster social justice education for a democratic and diverse society (Banks & Banks, 2004; Gay, 2013; Garrett & Segall, 2013; Milner, 2010b; Mirra & Morrell, 2011; Robertson, 2008; Sleeter & Delgado Bernal, 2004); or utilize teacher preparation as a “dynamic vehicle for equipping new generations of teachers to play a part in societal transformation” (Hansen, 2008b, p.14). Literature has also called for teacher education to refocus its preparatory work for specific needs, such as equipping teachers with the skills for success in teaching our most diverse population of students, and for teaching in our most diverse school setting—the urban school (Ball, 2013; Blanchett & Wynne, 2007; Gay, 2002; Gay, 2010; Gay & Howard, 2000;

Hollins, 2011; Ladson-Billings, 2001; Milner, 2006, 2010a, 2012; Sleeter, 2001; Sleeter & Delgado Bernal, 2004; Siwatu, Frazier, Osaghae, & Starker, 2011; Weiner, 2006). Milner (2010b) asserted that “whether through traditional or alternative teacher education programs, preparing teachers for diversity, equity and social justice are perhaps the most challenging and daunting tasks facing the field” (p. 119).

Accountability for student performance not only means opportunity to ensure student success, but also means hope towards a successful and fruitful nation. The 2012 PEARSON report, *Learning Curve: Lessons in Country Performance in Education*, suggested anticipated educational benefits, such as increased income, go beyond the individual and serve on a national level as well. The “*Learning Curve*” report highlighted correlational data of educational inputs and outputs—such as school choice, years in school, student performance, and employment rates. The U.S. ranked 17th among the over fifty developing countries included in this Global Index of Cognitive Skills and Educational Attainment (Index) comparison (“Learning Curve”, 2012).

Similar reports have provided the consistent yet average results regarding the achievement of U.S. students (Carnoy & Rothstein, 2013; Education Trust, 2011; National Center for Education Statistics, 2012; U. S. Department of Education, 2014). National reports have exposed educational inequalities. The Nation’s Report Card 2013 Mathematics and Reading, which documented changes from 1990 to 2013, revealed the striking ‘gap’ between Black and White students continues to persist (U. S. Department of Education, 2014). Garcia (2004) reported National Assessment of Educational Progress data of several grade levels including the primary grades. Already as first grade students, Hispanic and Black students

were reported to be underachieving in comparison with their White counterparts (2004).

Garcia asserted that in order to consider an increase in high school and college attainment, large improvements are needed for students as early as the primary grades in order for Latino/a students to be successful (2004).

Perhaps in light of these bleak report cards, partnered with the link of economic progress and educational outcomes, President Obama has advanced educational reform around themes of higher learning standards, more effective measures and assessments of student growth, efforts to “recruit, prepare, develop and advance effective teachers”, and actions to assist the lowest achieving schools (“K-12 Education,” 2013, paragraph 2). Thus, it is notable that many stakeholders have a vested interest in not only the success of students, but also the success of teachers, schools and communities as the nation seeks success for competing in the global economy of the twenty-first century. While *Race To the Top* and other federal and state initiatives outline criteria for improvement in factors influencing student achievement, many researchers and teacher educators are concerned not only with quality teaching alone, but are also concerned with *access* to quality teaching as it pertains to particular contexts and particular populations of students in which unequal distribution of quality teaching (Darling-Hammond, 2004; Hollins, 2011) and resources (Boyd, Lankford, Loeb, Rockoff, Wyckoff, 2008; Darling-Hammond, 2004; Kornhaber, 2004; Kozol, 2005) historically dominate (Weiner, 2000, 2006).

The context of teaching and learning for this current study was urban schools. Urban school teacher educators have promoted that teaching and learning are contextualized phenomena (Hollins, 2011), and that teaching in an urban setting is characterized by promise,

challenge, opportunity and failure (Buendia, 2011; Edmonds, 1979; Lewis, James, Hancock, Hill-Jackson, 2008; Milner, 2010a). Schools located within large, metropolitan areas are often referred to as urban schools.

Urban education has been extensively described in the literature (i.e. Weiner, 1993, 2006). Milner (2008) indicated that scholars have typically described or defined urban education in many ways. He explained that ‘urban’ often reflects one of the geographic categories that have historically been used to organize schools in the United States; rural, suburban and urban (2008). But this geographic nature is not the salient feature defining urban education (Weiner, 2000). Weiner (2000) emphasized:

“Size and bureaucracy [of urban schools] intensify the contradiction between teaching and learning as personal, human activities on the one hand, and the standardization that is intended to make urban schools efficient, fair, and impartial (Kaestle, 1973). The dynamic inter-relationship of these components gives urban schools and [urban] teaching their distinctive nature” (Weiner, 2000, pp. 370-371).

Urban schools are a “microcosm of...economic, political and social phenomena” (Blanchett, Mumford & Beachum, 2005, p. 72). Inequities related to the distribution of educational resources across urban, suburban and rural schools are evident (Cochran-Smith, Davis & Fries, 2004). Low quality teachers and low performing schools dominate urban school districts (Hollins, 2011). Urban schools often employ new teachers who are inadequately prepared for the urban setting (Chizhik, 2003). There is a high rate of teacher attrition (Milner, 2006). School staff in urban settings generally hold low expectations for

such students (Milner, 2008). Thus, teaching practices are focused on “basic” skills and didactic methods of instruction (Gay, 2000; Hollins, 2011; Ladson-Billings, 1994; Stipek, 2004).

Urban schools have historically been comprised of large populations of children who represent diverse cultural, economic, ethnic, linguistic and religious backgrounds (Boutte, 2012; Milner, 2006; Weiner, 2006). The majority of children in urban schools participate in the free or reduced lunch program (Siwatu, 2011a), which reflects the large number of children within this population who are poor (Milner, 2006). The predominant White, monolingual, middle-class, and female teaching force (Cochran-Smith, Davis et al., 2004; Cochran-Smith & Zeichner, 2005; Haberman, 2005; Howard, 2006) does not often share similar cultural, economic racial or linguistic backgrounds with the large population of diverse students (Siwatu, 2011a). Thus, a demographic divide has been created out of the differences between teacher and student cultural experiences and backgrounds (Gay & Howard, 2000). “Perhaps most serious, many White middle-class teachers understand diversity as a deficit to overcome and have low expectations and fears about students who are different from themselves, especially those in urban areas” (Gay & Howard, 2000; Irvine, 1990; Valenzuela, 2002; Weiner, 1993; Yeo, 1997; as cited in Cochran-Smith, Davis et al., 2004, p. 934).

An economic divide makes the demographic divide even more complex (Cochran-Smith, Davis et al., 2004). The U.S. has the highest poverty rate of children living in poverty, and there is an overrepresentation of Black and Hispanic children living in poverty compared to White children (2004). “Villegas and Lucas (2002) conclude that ‘the consistent gap

between racial/ethnic minority and poor students and their White, middle-class peers....is indicative of the inability of the educational system to effectively teach students of color as schools have traditionally been structured” (p. 9, as cited in Cochran-Smith, Davis et al., 2004, p. 934).

“Sadly, urban schools have become notorious for their “nonvictorious” narratives” (Boutte, 2012, p. 516) despite the “many urban schools that provide high-quality education and high-achieving students” (Osher & Fleishman, 2005, p. 84). Unfortunately for all involved, over the course of decades, a myriad of terms have developed a deficit discourse (Weiner, 1993; Carey, 2013) regarding that which is urban. Terms such as ‘inner-city’ (Weiner, 2006), ‘disadvantaged’, ‘marginalized’, ‘oppressed’ and ‘at-risk’ not only depict negative images but have become descriptors of the students who occupy urban classrooms (Milner, 2008).

Overcoming the notion of student ‘failure’ as described by the deficit thinking model (Valencia, 1997) is a centralized goal of urban teacher education programs that adopt philosophical ideals of multicultural education. Multicultural teacher education has been situated by many scholars as an avenue to eradicate the American educational system from the inequalities and inequities that plague its schools, and have particularly effected students from diverse racial, ethnic, social-class, and cultural groups (Banks & Banks, 2004). Such preparation programs challenge pre-service teachers’ prior conceptions and implicit beliefs through targeted programming (see Milner, 2006; Villegas & Lucas, 2002; Waddell & Ukpokodu, 2012), as deficit perceptions are well entrenched in society (Carey, 2013).

Teachers hold particular beliefs, knowledge and skills related to teaching (Banks & Banks, 2004; Fang, 1996; Pajares, 1992, Vartuli, 1999) and teaching students of diverse populations in specific contexts (Gay & Howard, 2000; Kumar & Hamer, 2012; Ladson-Billings, 1995; Siwatu et al., 2011). Conscious and unconscious (Rokeach, 1968) beliefs are formed well before entry into teacher education (Lortie, 1975; Nespor, 1987), which may create challenges for impacting change in beliefs (Vartuli, 1999). Teacher education must help prospective teachers critically examine their beliefs and recognize that beliefs, such as those regarding cultural diversity within the context of schooling, are critical components that influence judgments, actions and outcomes in the classroom (Gay, 2010; Wang et al., 2011).

Critical self-examination of beliefs and conceptions regarding race and class, along with power, privilege, and positionality within the dominant White, middle-class culture begins the journey towards transformationist teaching (Banks, 2004; Howard, 2006). Because transformative change begins within the individual, self-examination is central to developing knowledgeable and effective teachers for diverse populations (Banks, 2004; Cochran-Smith et al., 2004; Howard, 2006; Sleeter & Delgado Bernal, 2004; Villegas & Lucas, 2002). Howard (2006) asserted that transformationist pedagogy “is the place where our passion for equity intersects with our cultural competence and leads to culturally responsive teaching in our classrooms and schools” (p. 133).

The concern for student achievement, now in the hands of teacher education, has produced calls for more rigorous instrumentation and research designs for understanding the complex processes within the linkage between preparation, practice and student learning

(Cochran-Smith & Zeichner, 2005; Cochran-Smith et al., 2012; Henry et al., 2013). Such calls have requested focused discussions around a teacher's ability to enact culturally responsive teaching practices (Siwatu et al., 2011; Sleeter, 2001; Zeichner, 2012). Because beliefs are central to teaching, critical questions must ask—what cognitive structures or beliefs influence the decisions teachers make, how are different beliefs connected to one another (Pajares, 1992), and how are students impacted by this teaching phenomena?

In a study of one of the largest teacher preparation programs in the U.S., Henry et al. (2013) looked at teacher preparation program performance ratings as predictors of teacher effectiveness in the first years of teaching; in short, the predictive validity of these teacher candidate performance indicators were low. These researchers insisted that teacher candidates may receive programming geared towards improving student outcomes, but as they enter the classroom for the first time, they may be unable to put those skills and knowledge into practice (2013). This leads to ponder the complexities of transitioning from pre-service to in-service teacher; where new teachers must navigate between the system and beliefs of their district, school and teaching colleagues, as well as the system and beliefs learned in their teacher education preparatory years. In some instances, such as teaching in an urban school, the navigation and utilization of one's beliefs is confounded by the distinct characteristics of urban school structure and organizational features (Weiner, 2006).

Siwatu (2011a) demonstrated that context matters as pre-service teachers in his study lacked confidence for teaching in urban vs. suburban schools. In general, pre-service teachers also have demonstrated a preference for teaching students like themselves (White and monolingual) (Zimpher, 1989). Because most of the population of teachers being prepared to

teach have developed in homogenous classrooms as students themselves (Barry & Lechner, 1995), the skill set for urban teachers must encompass multicultural knowledge, values, skills and beliefs, but must also include experiences to increase teaching efficacy as it relates to diverse, heterogeneous classrooms (Siwatu et al., 2011).

Therefore, this study explored the efficacy beliefs and instructional practices of teacher-graduates from one teacher preparation program, concentrating on culturally responsive teaching beliefs of teachers in urban contexts. For the growing body of knowledge surrounding culturally responsive education it is essential that we understand more clearly the relationship between *in-service teachers'* culturally responsive pedagogical teaching self-efficacy beliefs, culturally responsive teaching outcome expectancy beliefs, and what influences if any, these beliefs have on teacher-child interactions (instructional practices) and children's learning and development.

Theoretical Basis of the Study

The framework for this study was guided by essential theories that posited the function of teacher beliefs in the classroom, and the potential impact of teacher beliefs on instructional practices and student achievement. The following theories comprised this study's conceptual framework: Bandura's (1997) social cognitive theory, Vygotsky's (1978) socio-cultural theory, Bronfenbrenner's ecological systems theory (1977; 2005), and Pianta & Walsh's (1996) contextual systems model. Culturally responsive teaching (Gay, 2002), as a pedagogical practice related to these theories, was interwoven throughout the theoretical presentation.

Beliefs and the Social Cognitive Theory

Beliefs were central to this investigation of teacher behaviors, teacher practices and student outcomes because as Nespor (1987) described, “if we are interested in why teachers organize and run classrooms as they do we must pay more attention to the goals they pursue...and to their subjective interpretations of classroom processes” (p. 325). The literature review begins by addressing the array of teacher beliefs and teacher efficacy beliefs in prior research. Teachers’ general beliefs were organized under categories such as perceptions and knowledge. Teachers’ pedagogical beliefs refer to what teachers believe to be effective instructional practices, such as classroom management strategies. The difference between these types of teacher beliefs and efficacy beliefs was emphasized.

Self-efficacy beliefs, explained using Bandura’s social cognitive theory (1997), have been posited to be at the heart of teaching (Kagan, 1992; Vartuli, 1999, 2005). Understanding teacher self-efficacy beliefs has been critical in learning about outcomes for students (Ashton & Webb, 1986; Woolfolk Hoy & Spero, 2005; Multon, Brown & Lent, 1991). Bandura (1997) described self-efficacy beliefs as context and task specific. Efficacy beliefs are critical in propelling actions in a goal oriented manner. Further, a resilient self-efficacy propels an individual to do “extraordinary things by productive use of their skills in the face of overwhelming obstacles” (Bandura, 1997, p. 37). Given the often dismal description of urban school settings which may influence in-service teachers perceptions of schools and students, this speaks directly to the questions about the influences on in-service teachers’ development during their first years of instructional practice as they engage in classroom organization, face school realities, and acquire responsibilities independent of their teacher preparation

program. To date, little is known about in-service teachers' self-efficacy and outcome expectancies as related to culturally responsive teaching.

Culturally responsive teaching self-efficacy beliefs (CRTSE) are defined by Siwatu (2007) as: "teachers' beliefs in their ability to execute specific teaching practices and tasks that are associated with teachers who are believed to be culturally responsive" (p. 1090). This set of beliefs represents how efficacious teachers are in teaching populations of children from different racial, ethnic, cultural and linguistic backgrounds. Partnered with CRTSE beliefs, Siwatu (2007) introduced culturally responsive teaching outcome expectancy beliefs. These expectancies are defined as: "teachers' beliefs that engaging in culturally responsive teaching practices will have positive classroom and teaching outcomes" (Siwatu, 2007, p. 1090). Bandura (1997) posited a causal model between efficacy beliefs and outcome expectancies, and differentiated the two concepts: "perceived self-efficacy is a judgment of one's ability to organize and execute given types of performances, whereas an outcome expectation is a judgment of the likely consequence such performances will produce" (p. 21).

Another important distinction that is highlighted in the review concerned the concept of self-efficacy as a component of the self-referent system. Specifically, it is important to distinguish self-efficacy from other 'self' cognitive processes, such as self-concept, self-esteem and self-image. For example, judgments are involved with each of these processes. However, with self-efficacy one judges their personal capabilities towards particular tasks or situations, with self-esteem one judges their self-worth, and with self-concept one creates a composite view of 'self' based off of experiences and judgments from significant others (Bandura, 1997).

Beliefs and the Socio-cultural Theory

Given the understanding that human development is influenced by the social and cultural contexts of the child, calls for research regarding teacher-child interactions have warranted contextualization. Vygotsky (1978) referred to the cultural conditions of the child's immediate context as a contributor to higher mental functions that develop within the child. He believed that a child's learning and development is mediated through the adult or adults in her world (1978). In the same way, it has been suggested that the teacher exists in a socio-cultural structure where influences from various entities interact with the teachers' cognitive activities (Wallace & Priestley, 2011). Therefore, beliefs, as cognitive processes, are heavily influenced by one's environmental features. As such, Lev Vygotsky's socio-cultural theory added a layer to the foundational aspects of this study.

Beliefs and Systems Theories

Urie Bronfenbrenner's ecological systems theory operationalized the social and cultural influences on the individual illustrated by Vygotsky's theory. Bronfenbrenner (1977; 2005) posited a model that depicts the complexity of human development throughout the life span. In particular, he considered the child, the 'center of gravity' and her development being influenced by a progression of systems. Bronfenbrenner's (2005) theory promoted the notion that teacher education along with the other political, social and historical factors of the American society, work to influence local and familial systems that impact the teacher and child in the context of daily classroom life.

Finally, Pianta & Walsh's (1996) contextual systems model further dissected social and cultural influences while challenging deficit discourse. The contextual systems model

described four systems most closely influencing child development as the child, family, classroom and culture (O'Connor & McCartney, 2007). These systems will be addressed in relation to culturally responsive teaching self-efficacy and outcome expectancy beliefs (Siwatu, 2007) and instructional practices reflective of high quality teacher-child interactions (Pianta, Hamre, & Mintz, 2010; Pianta, LaParo, Hamre, 2008a, 2008b).

Teacher-Child Interactions as Instructional Practices

The aforementioned theories were used to describe the learning and development of the teacher (Bandura, 1997) and the child as systems among systems (Bronfenbrenner, 2005; Pianta & Walsh, 1996) and how development is a product of both cultural and social interactions (Vygotsky, 1978). High quality teacher-child interactions were defined by the Classroom Assessment Scoring System (CLASS) (Pianta et al., 2008a, 2008b; Pianta et al., 2010).

CLASS (Pianta et al., 2008a, 2008b; Pianta et al., 2010) provided cutting-edge, research-based evidence of high quality teacher-child interactions. CLASS is both a measurement and professional development tool which operationalizes effective teacher-child interactions. Research has demonstrated that the particular instructional practices captured by the CLASS tool predict positive academic achievement and social success for children (Pianta et al., 2008a, 2008b). Research has also indicated that promoting student success can be accomplished by increasing the quality of teacher-child interactions (Hamre & Pianta, 2005).

National studies have demonstrated that high quality interactions can impact student achievement in positive ways. However, most children experience mid to low levels of

teacher support in the average classroom (Pianta et al., 2008a, 2008b). Understanding what a picture of classroom quality looks like in a national sense, will help to understand what it can be on a local level, particularly as one thinks about the kinds of pedagogical beliefs that promote high quality interactions for all children.

Purpose of the Study

The purpose of this study was to explore the relationship between culturally responsive teaching self-efficacy and outcome expectancy (CRTSE/CRTOE) pedagogical beliefs, teacher instructional practices and student outcomes in the urban K-6th grade school setting. Research currently has been mixed regarding correlational outcomes between teacher beliefs and practices. Scholars have referred to multicultural teacher education research as “piecemeal” (Sleeter, 2001, p. 102), “thin, poorly developed, (and) fragmented” (Ladson-Billings, 1999, p. 114). Given the growing percentage of students with diverse racial, ethnic, cultural and linguistic backgrounds in urban school settings, and the population of teacher-graduates predominantly representing backgrounds of Euro-American cultural norms (e.g. Ladson-Billings, 2001), teacher educators must learn to what extent teacher pedagogical beliefs as reflective of culturally responsive instructional practices contribute to positive outcomes for populations of students of diverse backgrounds (Milner, 2010a, 2010b; Siwatu, 2007; Sleeter, 2001; Villegas & Lucas, 2002). Further, it is important to understand not only the perceived confidence of teachers for teaching urban students in urban settings (the enactment of CRTSE beliefs), but it is also important to understand if teachers believe that engaging in culturally responsive teaching practices makes a difference for their students (the enactment of CRTOE beliefs) (Siwatu, 2007).

Sleeter (2001), in her review of multicultural teacher preparation literature, stated that data is insufficient for understanding how teachers in teacher education programs are learning to be successful in schools whose student populations are culturally diverse. She adamantly recommended that researchers move beyond the pre-service years and follow teacher candidates into the classroom, after they transition from pre-service to in-service teacher. In addition, while researchers investigated variations in teacher education programs who were preparing teachers for local urban school settings (Boyd, Grossman et al., 2008), they have maintained that it is important to investigate novice teachers' experiences from teacher programs geared towards a specific school district or labor market.

This teacher educator-researcher was curious about what happens after graduation for the number of teacher education graduates who secured employment in the teacher education program's local urban partnership districts; where, as pre-service teachers they had participated in practicums and student teaching experiences. In an effort to unravel the complicated nature of the "flow impact on student learning" (Diez, 2010, p. 442), it was important to explore how graduates developed towards effective instruction in the urban context, and how their beliefs and practices impacted their classroom and student outcomes.

Research Questions

This study aimed to explore the following research questions:

1. What is the relationship between in-service teachers' culturally responsive teaching self-efficacy beliefs, culturally responsive outcome expectancy beliefs, instructional practices and student outcome scores?

2. How are in-service teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs related to one another and how do these beliefs impact student outcome scores?

Significance of the Study

The educational significance is twofold. First, this study will advance the literature in the field of teacher education on the topic of teacher efficacy beliefs as related to culturally responsive teaching self-efficacy and outcome expectancy beliefs. Particularly, this study will improve the understanding of how teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs are associated with effective instructional practices and early childhood and elementary student outcomes in urban school settings. It will also advance the knowledge regarding the instrumentation to measure such variables. CRTSE/CRTOE measures have had limited and varied use since their development (Siwatu, 2007; Chu, 2011). Additionally, this study is the first of its kind to explore relationships between culturally responsive teaching beliefs and the Classroom Assessment Scoring System. The intent of this study was to illuminate understandings related to the links between teacher education, teacher beliefs, teacher practices, and student outcomes, as the sample of teachers represented graduates from one teacher education preparation program with a mission of recruiting, preparing and sustaining diverse teachers for urban schools. As such, this study may serve as a pilot to future similar studies.

Definition of Terms

Culturally Responsive Teaching. Siwatu (2007) summarized teaching approaches and instructional practices that include sensitivity and respect for a student's cultural

background as: “*culturally congruent instruction* (Mohatt & Erikson, 1981), *culturally appropriate instruction* (Au & Jordan, 1981), *culturally compatible instruction* (Jordan, 1985; Vogt, Jordan & Tharp, 1987), or *culturally relevant teaching* (Ladson-Billings, 1994, 1995)” (as cited on p. 1086). For the purposes of this research, the instructional approaches in which a teacher considers the contextual and cultural features of a student’s background, and uses this knowledge to plan instruction and respond to students will be referred to as culturally responsive teaching. Thus, “*culturally responsive teaching* is defined as using the cultural characteristics, experiences, and perspectives of ethnically diverse students as conduits for teaching them more effectively” (Gay, 2002, p. 106).

Culturally Responsive Teaching Self-Efficacy (CRTSE). CRTSE are the beliefs teachers hold about their ability to execute culturally responsive teaching practices (Siwatu, 2007). These beliefs were measured by the CRTSE scale.

Culturally Responsive Teaching Outcome Expectancy (CRTOE). CRTOE are the beliefs teachers hold about culturally responsive teaching as having a positive impact on classroom and student outcomes (Siwatu, 2007), and were measured by the CRTOE scale.

Early childhood. Early childhood refers to the years of childhood spanning birth through third grade (Copple & Bredekamp, 2009).

Elementary. Elementary refers to children, classrooms, and teachers of children with the relative ages of children attending first through fifth grade.

In-service teachers. For this study, in-service teachers refers to teacher education graduates who are in their first through fifth year of teaching, as the lead teacher in K-6th grade urban classroom.

Pre-service teachers. Pre-service teachers refers to teaching candidates (or student teachers) in their respective teacher education preparation programs who are in their professional semesters prior to entering the teaching profession.

Student outcomes. Student outcomes were represented by z-scores. Student outcome z-scores were computed based off of standardized assessment data acquired from school districts, charter schools and/or individual schools whose teachers are participating in the study.

Teacher-child interactions. Teacher-child or teacher-student interactions refer to the verbal and non-verbal exchanges between teachers and students within the daily life of the classroom which encompass teacher behaviors and indicators relative to emotional support, classroom organization and instructional support as described and measured by the CLASS K-3 (Pianta et al., 2008a; 2008b) and CLASS UE (Pianta et al., 2010).

Teacher efficacy. In general, teacher efficacy refers to what Woolfolk Hoy (2000) described as “teachers’ confidence in their ability to promote students’ learning” (p. 2).

Upper Elementary. Upper Elementary (UE) refers to the children, classrooms and teachers of children with the relative ages of children attending 4th through 6th grade.

Urban schools. In this study, urban schools refers to schools located in metropolitan areas often classified as urban due to the representation of a higher population density. Weiner (2000) insisted that an urban school is defined by the historical salient features of large size and bureaucratic structures, among other commonalities such as reduced or dismal resources and low quality teachers. Milner (2006) defined the urban context “as one that is heavily populated with culturally and racially diverse learners and has a heavy concentration

of English language learners, a large number of poorer students—particularly students of color, high attrition of teachers, heavy institutional and systemic barriers and meager resources” (p. 346).

Limitations of the Study

The researcher only recruited teacher graduates from one school of education. The researcher focused solely on K-6th grade partnership schools located in the metropolitan area of the university teacher education program. This convenience sample limited the generalizability of the results. Thus, the researcher described the demographics of all study participants and compared study demographics and results with similar national studies in Chapter Four.

Participants for this study voluntarily completed two surveys on an individual basis. The surveys were comprised of position statements that depicted attitudes or beliefs towards specific groups of children, and the participants’ own perception of their teaching abilities along with their perception of the importance of particular instructional practices. The participants’ self-report regarding their culturally responsive teaching beliefs and anticipation of the value of culturally responsive practices may have limitations. Self-report measures can be limiting because various biases may influence a participant’s response such as social desirability or acquiescence bias (Gall, Gall, & Borg, 2007). Further, participants vary by age, race, school type, school experiences, and years of experience, which may influence their interpretation of the statements on the questionnaire. Finally, the participants may have variations in responses based on the time frame within the data collection window in which

they completed the survey, as perceived stressors (i. e. standardized testing window, classroom responsibilities) may also vary participant to participant.

Classroom observations were conducted by a team of observers who were also teacher educators of the school of education preparing the teacher graduates. Although training on this observation tool requires rigorous reliability training, reliability certification testing, and inter-rating to avoid drift, the individual experiences and interpretations of observers may have impacted observations and thus the scores representing teaching practices. In addition, although every effort to conduct observations of graduates that the observer did not directly supervise, previous interactions in college classroom and seminar settings are plausible.

The student outcomes measures were represented by standardized assessments already in use by the schools involved in the study. As such, the assessment tools varied school to school, district to district, and state to state. The researcher used the most efficient statistical applications to be able to compare the standardized scores of the student outcome measures.

Limitations of this study include issues related to sample size. The projected sample size ($n < 80$) was contingent on voluntary participation in the study by graduates of a specific school of education. The overall sample size ($n=69$) was reduced in some analyses based on individual variables. Statistical analyses were contingent upon the sample size. A small sample size impacts statistical power and can lead to Type I error, which would lead to misleading study results.

Organization of the Remaining Chapters

The literature review is presented in Chapter Two. The literature review begins with the examination of teacher beliefs in which the theoretical foundations will be applied. As stated previously, these theories are: Bandura's social cognitive theory (1997), Vygotsky's socio-cultural theory (1978), Bronfenbrenner's ecological systems theory (2005), and Pianta & Walsh's conceptual systems model (1996). The literature review also includes the review of several constructs: self-efficacy as related to teacher efficacy and culturally responsive teaching, and teacher-child interactions, also known as teacher practices. A review of measures for these constructs, along with measures of student outcomes, concludes Chapter Two.

The methodology for this study is presented in Chapter Three. The researcher provided the reader with an overview of the participants recruited for this study, the description of data collection procedures, instrumentation and ethical considerations. Chapter Four contains the analyses and results of the study. Discussion of results, how the results relate to current research, and limitations of the study are discussed in Chapter Five. Suggestions for further research conclude the chapter.

CHAPTER 2

REVIEW OF LITERATURE

Teaching is a complex endeavor (Hansen, 2008a; Hill & Grossman, 2013; Vartuli, 1999) requiring the integration of innumerable cognitive skills and actions. Beliefs teachers hold about their capabilities to deliver effective instruction, about their relationships and interactions with students, and about the contextual features of varied intersecting environments (e. g., home, school, and greater community) represent components that impact both the teachers' behaviors and decisions, as well as each student's development and school achievement (Pajares, 1992; Pianta & Walsh, 1996; Ross, 1995; Tschannen-Moran, Woolfolk Hoy & Hoy, 1998). Cochran-Smith and Zeichner (2005) suggested that improved tools are needed to understand the distinct features involved in the complex phenomena that is teaching and learning. Further, these researchers stated that teacher preparation itself is complex due to interactions amongst a variety of entities; such as teacher preparation programs, local communities, agencies, school districts, and political conditions at the local and state level (2005). Collaboration amongst these entities is considered a key component in the quest for not only improving the effectiveness of teacher preparation and teachers' competencies, but also for improving student learning and development (Cochran & Zeichner, 2005; Darling Hammond, 2010; Gay, 2002; Sleeter, 2001).

Greater accountability has been demanded from all involved in educating young children, and more recently teacher education (Darling-Hammond, 2010; Milner, 2010b). Low student achievement scores, particularly when disaggregated by cultural, economic and racial backgrounds (Carnoy & Rothstein, 2013; Education Trust, 2011; Garcia, 2004; U. S.

Department of Education, 2014), along with inconclusive teacher education research results has fueled the notion that teacher education research should look beyond what pre-service teachers do, and should centralize data on the development from pre-service to in-service teacher (Sleeter, 2001).

As introduced in Chapter One, calls for research have requested for studies to illuminate the linkage between teacher education, teacher practices and student outcomes (Cochran-Smith & Zeichner, 2005; Cochran-Smith et al., 2012; Grossman & Loeb, 2010; Little & Bartlett, 2010; Sleeter, 2001). In addition, because the student population of urban schools reflects a predominant population of students who are in poverty and have cultural, ethnic, linguistic and racial backgrounds different from the population of teachers [White, monolingual, middle-class, and female (Cochran-Smith, Davis et al., 2004; Cochran-Smith & Zeichner, 2005; Haberman, 2005; Howard, 2006; Weiner, 2006)], teacher educators have been interested in preparing and sustaining a teaching force equipped to teach in urban settings (Cochran-Smith & Zeichner, 2005; Gay, 2002; Gay & Howard, 2000; Haberman, 1995; Hollins, 2011; Howard, 2006; Ladson-Billings, 2001; Milner, 2012; Siwatu et al., 2011; Sleeter, 2001; Weiner, 2006).

“A synthesis of the recommendations of Zeichner (1993), Cochran-Smith (1991), Weiner (1993) and (Haberman 1992, 1995a, 1995b) indicated that efficacy is one characteristic of successful urban teachers” (as cited in Guyton & Wesche, 2005, p. 25). Thus, this teacher educator-researcher was curious about the efficacy beliefs of in-service teachers who are graduates from one urban-serving, socio-constructivist teacher education program prepared for teaching in local, urban school partnership districts. This current study

was designed to explore the relationship between in-service teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs, observed classroom teaching practices as measured by the Classroom Assessment Scoring System, and how such teacher beliefs and practices related to student outcomes scores.

The literature review begins with a presentation of teacher belief research. Bandura's (1986, 1997) social cognitive theory provided theoretical implications regarding belief formation. In particular, his theory of self-efficacy defined teacher efficacy and has greatly influenced teacher efficacy research (Labone, 2004; Siwatu, 2007; Soodak & Podell, 1998; Tschannen-Moran, Woolfolk Hoy & Hoy, 1998; Tschannen-Moran & Woolfolk Hoy, 2001). Additional theories (e. g. Vygotsky, 1978; Bronfenbrenner, 1977, 2005; Pianta & Walsh, 1996) situate belief formation within cultural contexts. Next, the review illuminates teacher-child interactions, culturally responsive teaching and connects these constructs to the aforementioned theories. The literature review concludes with a review of measures for the constructs of efficacy and teacher-child interactions (classroom teaching practices).

Beliefs

John Dewey (1933) portrayed reflective thinking or a third meaning of thought as "practically synonymous with belief" (p. 6). Dewey suggested that beliefs are gathered unconsciously, derived from others, contain perspectives, involve intellectual and practical commitment, and in a similar vein to Bandura's social cognitive theory—beliefs produce actions (1933). Hattie (1992) described beliefs as cognitive appraisals, where such knowledge is expressed by "I believe...", "I value...", or "I claim to know" (p. 39). In Bandura's assessment of the integration at work as humans attempt to control their destiny,

belief was suggested to have potential to overcome reality (1997). In particular, perceived self-efficacy beliefs represent this mind-over-action phenomena.

Teacher Belief Research

Teacher beliefs have been a fundamental topic of inquiry in teacher education research (Pajares, 1992), especially for promoting optimal teacher development (Dembo & Gibson, 1985; Fang, 1996; Murphy, Delli & Edwards, 2004; Stipek, 2004; Vartuli & Rohs, 2009). Cochran-Smith and Fries (2005), in their review *Researching Teacher Education in Changing Times: Politics and Paradigms*, suggested that “the assumption is that knowledge and beliefs always mediate teacher’s practices in schools and classrooms and thus knowledge and beliefs greatly influence pupils’ learning opportunities, their [student] achievement and other educational outcomes” (p. 100). Nieto (2009) emphasized that beliefs are the fuel to a teacher’s determination and mission in caring and advocating for children, and beliefs that include attitudes, values and sensibilities are at the heart of teaching (e.g. Vartuli, 1999, 2005).

Calderhead (1996) asserted that understanding what beliefs teachers bring with them to the teaching profession and how those beliefs inform a teacher’s daily practice are central questions “that necessitate an investigation of the cognitive and affective aspects of teachers’ professional lives” (p. 709). Calderhead further explained that in the 1960s to the 1970s the quest to understand teaching led researchers to investigate teacher beliefs, which reflected a shift from viewing teaching as a set of behaviors towards a vision of teaching as thinking (1996). He organized the inquiry related to teaching around three factors: (a) elements of teacher competencies as teacher behaviors that impact learning outcomes; (b) teaching as a

metacognitive interaction between teacher, learner and classroom; and (c) and teacher as conduit of the “political, ideological, and material contexts in which they worked” (Calderhead, 1996, p. 710). As such, in an effort to advance understandings of teacher-as-thinker, teacher beliefs became the spotlight for understanding teacher cognition and thus impacted the research regime.

Teacher belief inquiry inspired researchers to look for patterns between teacher beliefs and practices (Nespor, 1987; Pajares, 1992; Vartuli, 1999; Vartuli & Rohs, 2009) in early childhood education (Berthelsen & Brownlee, 2007; Blay & Ireson, 2009; Coleman & Dymont, 2013; Garvis, 2011; Hindman & Waski, 2008; Hsueh & Tobin, 2003; Maier, Greenfield, & Bulotsky-Shearer, 2013; McMullen, 1999; McMullen, Elicker, Goetze, et. al, 2006; McMullen, Elicker, Wang, et. al, 2005; Stipek & Byler, 1997; Vartuli, 2005; Wang, Elicker, McMullen, & Mao, 2008); in the primary grades (Buchanan, Burts, Bidner, White, & Charlesworth, 1998; Charlesworth, Hart, Burts, Thomasson, Mosely, & Fleege, 1993; File & Gullo, 2002; Stipek, 2004); in middle school and secondary education (Chen, Brown, Hattie, & Millward, 2012; Chong, Klassen, Huan, Wong, & Kates, 2010; Lynn, Bacon, Totten, & Bridges, 2010). Self-efficacy has been investigated in higher education regarding pre-service teacher education (Bird, 1992; Hachfeld, Hahn, Schroeder, Anders, Stanat, 2011; Lofstrom & Poom-Valickis, 2013; Mansfield & Volet, 2010; Ng, Nicholas, & Williams, 2010; Smith, 1997); in students transitioning from candidate to practitioner (Caudle & Moran, 2012); in college student retention and persistence models and research (Bean & Eaton, 2000; Conner, Daugherty, & Gilmore, 2012; Peterson, 1993; Stage & Hossler, 2000); of teacher education program graduates and in-service teachers (Borg, 2011; Levin, He, &

Allen, 2013; Vartuli & Rohs, 2009); of teacher educators themselves (Hallett, 2010); and related to educational reform (Chen, Brown, Hattie, Millward, 2012; Wallace & Priestley, 2011). Teacher belief inquiry has encompassed how teachers assess their capabilities for teaching particular content areas, subject matter knowledge or implementing instructional strategies: mathematics (Lee & Ginsburg, 2007; Swars, Hart, Smith, Smith & Tolar, 2007); reading and language arts (Eisenbach, 2012; Barnyak & Paquette, 2010); science (Simmons, et. al, 1999; Smith & Southerland, 2007); social studies (Fitchett, Starker & Salyers, 2012); technology (Blackwell, Lauricella, Wartella, Robb, & Schomburg, 2013; Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur & Sendurur, 2012; Liu, 2011; Ottenbreit-Leftwich, Glazewski, Newby & Ertmer, 2010); and foreign language teaching and learning (Allen, 2002; Karaata, 2011; Polat, 2010).

Teacher belief inquiry included the examination of teacher self-efficacy beliefs for the successful teaching of particular populations of children and within specific contexts: teaching in urban settings (Furman, Barton & Muir, 2012; Hollins & Guzman, 2005; Leonard, Barnes-Johnson, Dantley & Kimber, 2011; Siwatu, 2011a); teaching students representative of diverse and underserved populations (Lee & Walsh, 2004), such as African-American children (Lynn et al, 2010; Siwatu et. al, 2011), homeless children (Kim, 2013), English Language Learners (Siwatu, 2007; Siwatu, 2011b; Sosa & Gomez, 2012); and teaching students with special needs (Buell, Hallam, Gamel-McCormick & Scheer, 1999).

Definitions and Conceptions of Teacher Beliefs

Defining teacher beliefs has been challenging (Pajares, 1992; Murphy, Delli, Edwards, 2004). Snow, Corno, and Jackson (1996) suggested that beliefs are byproducts of

opinions. Beliefs have been described as incontestable truths (Murphy, et. al., 2004) and interpersonal behaviors (van Uden, Ritzen & Pieters, 2013). Rokeach (1968) posited beliefs as being interrelated with, yet differentiated from values and attitudes: “A belief is any simple proposition, conscious or unconscious, inferred from what a person says or does, capable of being preceded by the phrase, ‘I believe that. . .’” (1968, p. 113). Rokeach added that values reflect abstract representations of a person’s belief and that attitudes are the organizers of such beliefs (1968).

Beliefs as cognition. Teachers’ thought processes have been described as beliefs and implicit theories, suggesting that these cognitive elements influence and guide teachers’ lived actions and decision-making within the classroom context (Calderhead, 1996; Charlesworth et. al., 1993; Cochran-Smith & Fries, 2005; Fang, 1996; Gay, 2010; Howard, 2003; Vartuli, 1999, 2005). Teacher beliefs are conduits and filters through which new information is screened, interpreted and informs practice (Cochran-Smith & Fries, 2005; Debreli, 2012; Kagan, 1992; Wen, Elicker, & McMullen, 2011). Metacognition coordinates problem-solving (Nespor, 1987) and brings awareness of beliefs, influencing the executive functioning of the brain and in turn induces consequences of recalling experiences and memories, making choices, planning and decision-making (Zull, 2011). Beliefs have been suggested to include not only cognitive aspects of thinking, but also affective and evaluative characteristics of the mind (Nespor, 1987; Snow, Corno, & Jackson, 1996).

Beliefs as perceptions. Teacher beliefs are connected with perceptions of particular teaching competencies (van Uden et. al, 2013), knowledge needed for teaching (Kagan, 1992; Fives & Buehl, 2008) as well as perceptions of parental involvement (Stipek, 2004).

Teachers' perceptions related to culture, class status, ethnicity, language, and race can influence their interactions with children (Banks & Banks, 2004; Gay, 2010; Hollins & Guzman, 2005; Howard, 2003; Kim, 2013; Stipek, 2004). Teacher perceptions as beliefs of children and families may easily reflect institutional or structural racism (Boutte, Lopez-Robertson, & Powers-Costello, 2011) which include societal biases and stereotypes given to groups (Steele & Aronson, 1995): African Americans (King, 2004); Asian Pacific Americans (Ooka Pang, Kinag & Pak, 2004); Chinese Americans (Hidalgo, Siu and Epstein, 2004); children and families with low-income (Knapp & Wolverton, 2004); English Language Learners (Hidalgo, Siu and Epstein, 2004; Minami & Ovando, 2004; Suárez-Orozco, Suárez-Orozco & Doucet, 2004); immigrant children and their families (Hernandez, 2004); Latino/a youth (Hidalgo, Siu and Epstein, 2004; Suárez-Orozco, Suárez-Orozco & Doucet, 2004); Mexican Americans (Garcia, 2004); multiracial families and children (Root, 2004); Native Americans (Lomawaima, 2004) and Puerto Rican Americans (Hidalgo, Siu and Epstein, 2004). Delpit (2006) concluded, "we all interpret behaviors, information and situations through our own cultural lenses; these lenses operate involuntarily, below the conscious awareness, making it seem that our own view is simply 'the way it is'" (p. 151).

Examples of pre-existing ideas held by prospective teachers were revealed in *Research on Preparing Teachers for Diverse Populations*, in Tiezzi and Cross's (1997) qualitative study (as cited in Hollins and Guzman, 2005, p. 498). This study indicated pre-service teachers' beliefs and attitudes regarding teaching in urban schools firmly accompanied them into their early field experiences. Hollins and Guzman (2005) summarized, "Common beliefs that students brought to the program included the belief that

inner-city children could not learn and were poor, hostile, and unmotivated and that their parents did not care” (2005, p. 498). Kim’s (2013) study revealed that stereotypical views followed pre-service teachers into their work with young children living in poverty.

Stipek’s (2004) examination of school characteristics, teachers’ goals, and instructional practices led to the finding that teacher beliefs were a function of student ethnicity. “Teachers tended to stress basic skills more, use more didactic and less constructivist teaching strategies, and assign more homework in schools that had a high proportion of low-income students, students of color and students performing below grade level” (2004, p. 558). In Ng’s (2006) secondary study of mid-western pre-service teachers it was observed that contrary to themes of an initial self-report of teacher beliefs (N=293), pre-service teacher interviewees (N=20) indicated economic status and racial variables, along with parent’s education attainment, were somehow impacting teachers’ beliefs of children and urban school settings. Teacher education certainly would seek to rectify such problematic attitudes (Gay, 2010; Zeichner, 2010).

Beliefs as knowledge. Teacher beliefs have been called a personal knowledge system of “assumptions about students, learning, classrooms, and subject matter to be taught” (Kagan, 1992) and knowledge that leads to action (Clark & Peterson, 1986; Caudle & Moran, 2012; Gay, 2002). Clandinin and Connelly (1995) described teacher knowledge as personal practical knowledge: a “body of convictions and meanings, conscious and unconscious, that have arisen from experience (intimate, social, and traditional) and that are expressed in a person’s practices (as cited in Clandinin et. al, 2006, p. 5). Personal practical knowledge is visible through a teacher’s practice (Clandinin et al., 2006).

Fang (1996) also reviewed types of teacher knowledge. Teacher knowledge is suggested to represent beliefs teachers hold about subject matter, teaching instruction, curriculum materials, and personal practical knowledge (1996). Fang (1996) described personal practical knowledge as encompassing a variety of knowledge regarding students, such as their learning styles, interests, strengths and weaknesses. Classroom instructional and management skills were also included in Fang's organization of personal practical knowledge (1996).

Beliefs as reflections of pedagogical practices. Teacher pedagogical beliefs reflect teachers' beliefs about instructional practices. Teachers' pedagogical beliefs have been identified as the basis for teachers' decisions and behaviors executed in the classroom (Fang, 1996; Gay, 2010; Pajares, 1992). Studies have indicated teacher pedagogical beliefs and instructional practices share a relationship (Rimm-Kaufman & Sawyer, 2004; Stipek & Byler, 1997; Vartuli, 1999). Pedagogical beliefs have influenced classroom interactions with children, the types of activity settings provided to children by the teacher (Pianta et al., 2005) and the kinds of instructional materials (Polat, 2010) utilized by the teacher to impact student learning.

Beliefs as developmentally appropriate pedagogical practices. Charlesworth et al. (1993), Marcon (1999; 2002), and others (e. g. Bredekamp & Copple, 1987; Copple & Bredekamp, 2008; Snider & Roehl, 2007; Stipek, 2004) described developmentally appropriate practice (DAP) as constructivist approaches; where the teacher facilitates learning through child-directed experiences, and provides meaningful, relevant curricula experiences. The common view of DAP has included

that such practices are responsive to the child in terms of their age and individual, familial and cultural development (Charlesworth et al., 1993). Researchers investigated whether teachers' DAP beliefs were present amongst the complexities of the classroom (Charlesworth, Hart, Burts, Hernandez, 1991; Charlesworth et al., 1993; Snider & Roehl, 2007; Vartuli, 1999). Study results demonstrated that many teachers believed DAP practices to be important, but such practices were not always enacted (Charlesworth, Hart, Burts, & Hernandez, 1990; Charlesworth et al., 1993; File & Gullo, 2002; Snider & Roehl, 2007). Stipek (2004) noted particularly concerning results about pedagogical practices as a function of teacher implicit beliefs, student characteristics and instructional practices:

“The major contribution of this study concerns the systematic differences found in the nature of teaching. The more low-income children, children of color, and poorly-achieving children in the school, the more didactic and less constructivist teaching were observed. Didactic, scripted teaching was particularly prevalent in schools and classrooms with a high proportion of African American children” (p. 561).

Beliefs as culturally responsive pedagogical practices. Multicultural education is a set of beliefs for prioritizing and reflecting cultural values and how cultural diversity impacts human development (Gay, 2004). Multicultural education includes benchmark principles (social consciousness and reconstruction, educational equity, and child-centeredness) and beliefs related to equity, equality, power systems,

and cultural pluralism (2004). Such benchmarks and beliefs also represent cultural knowledge, dispositions and attitudes (Banks, 2004; Gay, 2004; King, 2004).

In *Culturally Responsive Teaching: Theory and Practice*, Gay (2000) suggested that culture is “a dynamic system of social values, cognitive codes, behavioral standards, worldviews, and beliefs to give order and meaning to our own lives as well as the lives of others (Delgado-Gaitan & Trueba, 1991)” (p. 8). Gay defined culturally responsive teaching in many works, and recently reflected on her 2010 comprehensive definition of this term:

Culturally responsive teaching is the behavioral expressions of knowledge, beliefs and values that recognize the importance of racial and cultural diversity in learning. It is contingent on...seeing cultural differences as assets; creating caring learning communities where culturally different individuals and heritages are valued; using cultural knowledge of ethnically diverse cultures, families, and communities to guide curriculum development, classroom climates, instructional strategies, and relationships with students; challenging racial and cultural stereotypes, prejudices, racism, and other forms of intolerance, injustice, and oppression; being change agents for social justice and academic equity; mediating power imbalances in classrooms based on race, culture, ethnicity and class; and accepting cultural responsiveness as endemic to educational effectiveness in all areas of learning for students from all ethnic groups. (p. 31) (as cited in Gay, 2013, p. 50).

Gay (2000) also stated, that whether we are aware or not, “culture determines how we think, believe, and behave, and these in turn, affect how we teach and learn” (p. 9).

Beliefs regarding cultural diversity within the context of schooling are critical components which influence teachers’ judgments, actions and outcomes in the classroom (Gay, 2010; Wang et al., 2011). Teachers are cultural mediators (Gay, 2000), and therefore must become culturally competent as responsive teachers in their thinking about and in their interactions with students, and especially students whose background is different from their own (Gay, 2002; Haberman, 1995; Howard, 2006; Ladson-Billings, 1995). The first step towards enacting culturally responsive pedagogy involves self-reflection of such multicultural beliefs, attitudes, and issues around culture, ethnicity, gender, economics and race (Banks, 2004; Gay, 2000; Howard, T.; 2003; Howard, G., 2006).

Banks (2004) reviewed early research on children’s racial attitude development. He included work from researchers Clark and Clark (1939) and Goodman (1946) which revealed that the racial attitudes of children, “mirror those of adults that are institutionalized within mainstream society, and that both African Americans and White children express White bias” (as cited in Banks, 2004, p. 233). Because beliefs about cultural, racial, and ethnic differences are formed in childhood (Banks, 2004) and because institutionalized racism (Boutte et al., 2011) permeates society, multicultural education situates itself as an avenue to eradicate the American educational system from the inequities that plague its schools (Banks & Banks, 2004). In light of the demographic divide (Gay & Howard, 2001) and “abysmal” achievement of underserved students (Howard, 2003, p. 196), it is critically important to the

development of teachers and *students* that teachers recognize their beliefs about children and families who represent diverse backgrounds and engage in self-reflection and transformation of such implicit and explicit perceptions (Gay, 2010; Goldenberg, 2013; Howard, 2003; Howard, 2006; Ladson-Billings, 1995).

Beliefs vary. Beliefs have not only been difficult to understand because of the multitude of conversations and conceptions regarding beliefs and what they are (Pajares, 1992), but also because teacher beliefs vary. Vartuli (1999) found that under certain conditions, such as increasing grade level, teachers' beliefs and practices were not consistent. Beliefs have varied by years of experience (Guo, Piasta, Justice, Kaderavek, 2010; Guo, Justice, Sawyer, Tompkins, 2011), by gender (Rubie-Davies, Flint & McDonald, 2011), by education and training (Heisner & Lederberg, 2011), by role—teacher candidate, cooperating teacher and teacher educator (He & Levin, 2008), and by pre-service versus in-service teachers (Rimm-Kaufman, Storm, Sawyer, Pianta & LaParo, 2006; Tschannen-Moran & Woolfolk Hoy, 2007). Beliefs have differed by teacher, parent, and administrator (Grace & Brandt, 2006); by context (Siwatu, 2011a); or by curriculum being implemented (Hagelskamp, Brackett, Rivers & Salovey, 2013; Rimm-Kaufman & Sawyer, 2004).

At times, a relationship between beliefs and practices has been challenging to demonstrate. Rubie-Davies, Flint and MacDonald (2011), in their study of New Zealand primary and elementary teachers (N=68), found a moderate relationship between teachers' goal orientations towards structuring lessons and teacher efficacy beliefs. Wen, Elicker, and McMullen (2011) reported non-existent to weak correlations between early childhood teachers' self-reported pedagogical beliefs about optimal practices for children and their

actual practices in the classroom. Although most teachers ($N=58$) in this study favored child-centered practices in their self-report, the teachers demonstrated a high frequency of teacher-directed practices during classroom observations (2011). Teachers in this study who had more professional training (14% high school or general equivalency diploma; 26% Child Development Associate or AA; 44% bachelor's degrees; 16% graduate degrees) and years of experience ($M=9$ years, $SD=7$, range=1-25 years) were more consistent with their beliefs and practices (2011, p. 952). However, these beliefs and practices tended to favor teacher-directed interactions versus child-directed practices (2011).

Pedagogical beliefs have been found to vary amongst different groups of teachers in other studies as well. Blay and Ireson (2009), in their qualitative study of four early childhood teachers located in a north London state nursery school, discovered teachers held varying pedagogical beliefs regarding naturally occurring activities and practices with young children. Karaata's (2011) study of Turkish private and public teachers ($N=197$) ranging from university ($N=69$), primary ($N=51$) and high school ($N=77$) teachers, found that teachers' beliefs about teaching a foreign language varied between the private and public teacher groups. Additionally, Karaata (2011) noted that some teachers' beliefs were assumptions rather than representations of factual, research based pedagogical beliefs. Snider and Roehl (2007) reported that one-third of their study sample, K-12 teachers from the upper mid-western United States ($N=344$), held similar pedagogical beliefs reflective of constructivism, such as facilitating learning and authentic practices. On other classroom issues related to pedagogical practices the sample was in somewhat stronger agreement (2007). Like Karaata (2011), Snider and Roehl (2007) concluded that not all of the beliefs

teachers reported were reflective of pedagogical and empirical evidence, but rather reflected eclecticism and pragmatics.

Kagan and Tippins' (1991) qualitative approach used narratives to examine pre-service (N=22) and in-service teachers' (N=24) pedagogical beliefs. In-service teachers were enrolled in graduate studies and were teaching in either elementary, middle, or high school classrooms. Pre-service teachers were enrolled in an educational psychology course during the beginning of their teacher training. Case studies were used for the teacher groups to write narrative responses and apply pedagogical knowledge from their coursework (1991).

Although the researchers expressed challenges related to the emergence of themes, the researchers summarized that groups of teachers interpreted classroom problems in different ways (1991). Experienced teachers had the tendency to internalize classroom problems, where pre-service teachers defined classroom problems as external (1991).

Changing Beliefs. The act of changing beliefs has been debated in the literature. Some have suggested teaching beliefs are malleable (Murphy et al., 2004; Swars, Hart, Smith, Smith & Tolar, 2007). Other researchers have reported that beliefs are highly robust to change (Murphy et. al, 2004; Nespor, 1987; Pajares, 1992). "The earlier a belief is incorporated into the belief structure, the more difficult it is to alter..." (Pajares, 1992, p. 317). This phenomena implies beliefs share a strong link to emotions (Snow et al., 1996). Zull (2011) affirmed that emotion and cognition are difficult to separate. As Pajares (1992) stated in reference to the work of Nisbett and Ross (1980), emotional qualities of beliefs are partly responsible for the "mental somersaults" involved in accommodation and assimilation of new information with already established ideas:

Individuals use encoding and decoding biases to confirm prior theories when they selectively retrieve material from memory. In other words, beliefs color not only what individuals recall but how they recall it, if necessary completely distorting the event recalled in order to sustain the belief (1992, p. 317).

Lortie (1975) revealed that teacher education students are like apprentices who come into teaching, having been students themselves, and therefore carry with them already pre-existing ideas related to teaching. Fang (1996) described these beliefs as implicit theories that influenced pre-service teachers' responses to their educational experiences and teacher training. Nespor (1987) reported pre-service teachers' beliefs may be strongly shaped by prior experiences, regardless of teacher education. Therefore, Nespor suggested that teacher educators equip pre-service teachers with the ability and habit to "become reflexive and self-conscious of their beliefs" and then, teacher educators must supply "new beliefs to replace the old" (1987, p. 326).

Villegas & Lucas (2002) asserted that changing beliefs and practices must involve self-reflection and examination of one's own sociocultural consciousness—one's unconscious or implicit beliefs regarding race, ethnicity, social class and language which influence ways of thinking. By tapping into this adaptive unconscious (Berlak, 2008), teachers can develop the racial and cultural competence to fully and genuinely enact culturally responsive teaching practices (Ladson-Billings, 2000). This allows the teacher to promote cultural integrity (Ladson-Billings, 1995).

Caudle and Moran (2012) in their longitudinal qualitative study of teachers transitioning over a four year period from pre-service to in-service teaching discovered that

“there is a reciprocally informing, transactional relationship that evolves over time that is characterized by growing levels of awareness and knowledge of self” (p. 48). The teachers in their study wrestled with understanding the origin of their beliefs, questioning whether it was upbringing or their teacher preparation program that influenced their knowledge. The participants continued to redefine their knowledge bases for teaching overtime.

Tabachnick & Zeichner (1984) found that pre-service teachers did not have altered beliefs after their student teaching experience; rather student teaching only reinforced prior personal theories of teaching. Brookhart & Freeman (1992) reiterated uncertainty in the capabilities of teacher education to alter beliefs. File and Gullo (2002) found that groups of pre-service teachers shifted only slightly in their beliefs from program beginning to end. Clift and Brady’s (2005) extensive review of research regarding the impact of methods courses and field experiences on the development of pre-service teachers’ beliefs described similar mixed conclusions with regards to prospective teachers shifting their beliefs or adapting new ideas.

Mansfield and Volet (2010), in their qualitative study of pre-service teachers’ beliefs about classroom motivation, found that beliefs act as filters, reconciling past experiences and knowledge with new understandings gained through experiences in teacher education classrooms and in the field. Vartuli & Rohs (2009) examined how teacher preparation program components, such as coursework and field experiences, positively impacted and changed student teachers’ and graduates’ beliefs. Prospective teachers should be encouraged to make implicit beliefs explicit through “critical examination of their entering beliefs in light of compelling alternatives or those entering beliefs will continue to shape ideas and practice”

(e. g. Feiman-Menser, 2000, as cited in Vartuli & Rohs, 2009, p. 312). They emphasized that changes in beliefs of teachers during their transition from pre-service to in-service teaching can occur; implying teacher education can make a difference (2009).

Belief Formation

In contemporary teacher education, preparation in becoming a teacher has been largely characterized by prospective teachers becoming familiar with teaching within a context of practice, such as in the practicum, student teaching and internship experience (Zeichner & Conklin, 2008). In light of heavy teacher education criticism and questions regarding teacher belief acquisition, such historical learning-to-teach experiences are beginning to be more and more challenged with regard to their true benefits. Because beliefs are viewed by many researchers as pre-existing attributes within all of us (Lortie, 1975; Pajares, 1992), teacher educators should be curious about how beliefs are formed and the role they play in teaching (Nespor, 1987; Calderhead, 1996).

Teacher beliefs are formed through coexistence within environments (Cheng, Chan, Tang, Cheng, 2009; Snow et al., 1996; Mansfield & Volet, 2010) and through experiences (Nisbett & Ross, 1980; Murphy et. al., 2004; Kim, 2013). Environments that shape the context of teaching (Cheng, et. al., 2009) begin with the classrooms where teachers have grown up in as children themselves (Lortie, 1975; Murphy et. al., 2004). Teachers as “insiders” (Pajares, 1992) observed teaching practices through a significant amount of classroom experiences during childhood and adolescence. Studies have demonstrated that children as young as those in second grade develop their own ideas of what “good teaching” looks like (Murphy, et. al., 2004). Fieldwork locations, practicum settings, as well as the

university classroom are common environments pre-service teachers encounter as contexts for their teacher preparation coursework and training.

Interactions with significant others, such as cooperating mentor teachers, serve as other socializing entities for prospective teachers (Kagan, 1992; Leonard et. al., 2011; Rozelle & Wilson, 2012). Furman, Barton & Muir's (2012) qualitative study regarding pedagogical beliefs and practices determined that pre-service teachers' beliefs were shaped through rich, shared experiences between student and mentor within an inquiry-based partnership. Rozelle & Wilson (2012) described that fifth year teacher interns in their study, participating in a culminating year-long internship, worked diligently to be like their cooperating teachers. In fact, this relationship was deemed so influential, as the interns rarely demonstrated practices promoted in their teacher education coursework (2012). Others have found cooperating teachers only slightly influential on student teacher beliefs (Smith, 1997).

Experiences as conduits for learning and development should include careful examination, because as Dewey suggested, some experiences can be miseducative (1938). Dewey promoted that experiences occur both within and outside the individual, and "above all (educators) should know how to utilize the surroundings, physical and social, that exist so as to extract from them all that they have to contribute to building up experiences that are worthwhile" (1938, p. 40). Gay (2010) and others (Milner, 2006; Obidah & Teel, 2008; Villegas & Lucas, 2002) have insisted that critical priorities of teacher education must involve transforming teacher belief and internal understandings relative to racial, cultural and ethnic diversity. Gay (2010) resounded Smylie's (1995) emphasis on the persuasive qualities of teacher beliefs on practices: "In order to change practice in significant and worthwhile

ways, teachers must not only learn new subject matter and instructional techniques, they must alter their beliefs and conceptions of practice, their theories of practices and their ‘theories of action’ (p.95, as cited on p. 143).

Formation of beliefs can be viewed through the theoretical perspectives of Albert Bandura’s (1997) social cognitive theory, Lev Vygotsky’s (1978) socio-cultural theory and Urie Bronfenbrenner’s (2005) ecological systems theory. These theories, combined with Pianta & Walsh’s (1996) conception of the contextual systems model are presented here to explain not only how beliefs form within individuals and groups, but also how individual development is impacted across time by attributes of the various systems in which they live. Each of these theories promotes the understanding of culturally responsive teaching practices, presented concurrently. Finally, the theories place a microscope on teacher-child interactions as influential intersecting relationships that develop across time and settings.

Social Cognitive Theory

Integration of sensory, cognitive, and physiological systems and features of human development create an intricate process of thought, action and reflection (Bandura, 1997; Zull, 2011). Bandura’s social cognitive theory (1986, 1997) explained the complex nature of these human processes which provide individuals the necessary coordination to control the world around them. Within his theoretical framework, Bandura (1986, 1997) included a dissection of capabilities and mechanisms exemplifying the methods of human behavior enacted for exercise of control.

James Zull (2011), in *From Brain to Mind: Using Neuroscience to Guide Change in Education*, reflects Bandura’s complex model in describing a human system of creative

integration. Zull (2011) discusses integrative cognitive processes, once important for human survival, that provide the unique ability to make and execute a plan—meaning that through selection and manipulation of memories, attention to categorical objects, self-assessment, and with analysis of relevant experiences and factors within the environment, time and space, an individual creatively integrates to predict their best option for action (2011). This neuroscience perspective guides understandings of Bandura’s social cognitive theory, which positions thought as the mediating factor for predicting, analyzing and enacting understanding of one’s behavior (Bandura, 1997).

“Social cognitive theory posits a multifaceted causal structure that addresses both the development of competencies and the regulation of action” (Bandura, 1997, p. 34). This structure works to explain human functioning in terms of reciprocal relationships between three factors—behavior, cognitive and other personal factors, and environmental factors, which “operate as interacting determinants of each other” (1997, p. 18). Bandura (1997) explains that the influence each factor may have on one another will vary depending on the tasks and situations.

It is easy to imagine a classroom context where the teacher and students move through many experiences of varying degrees at varying times and in varying situations, which influence the decisions, reflections, estimations and interactions of the teacher and child. Schunk & Pajares (2010) suggest school determinants could be represented by personal factors, like students’ emotional states and habits of thinking; behavioral factors, such as students’ academic skills; and classroom structures representative of environmental factors. Utilizing specialized cognitive skills to examine such factors, teachers will make

predictions for their choice of actions based on a self-reflective analysis not only of triangulated determinant factors, but also of belief in their capabilities to successfully execute the plan of action (Bandura, 1997; Schunk & Pajares, 2010). Thus, demonstrating a complex, multidimensional cognitive process that includes both reliable and ambiguous information (Bandura, 1989).

Cognitive Processes and Capabilities

Social cognitive theory promotes basic human capabilities considered as important to the process of human control: capabilities to symbolize, employ forethought, learn through modeled or vicarious experiences, self-regulate and self-reflect (Bandura, 1986; Pajares, 1996; Schunk & Pajares, 2010). These processes are helpful for illuminating ways in which teachers develop their thinking, beliefs and execute practices.

Symbolizing allows an individual to revisit memories, imagine a course of action, and mindfully conceive particular solutions (Bandura, 1986). During college courses, pre-service teachers spend time practicing to become reflective practitioners through a variety of symbolic and forethought exercises, in part so that they learn the habits of mind associated with being a reflective teacher (Hollins, 2012). Through observing others and the outcomes of their actions, a person uses vicarious capabilities rather than one's own actual performance and experience as a means to learn or make decisions (Bandura, 1986). Tschannen-Moran, Woolfolk Hoy & Hoy (1998) stated that the more closely the pre-service teacher identifies with the cooperating teacher as a vicarious model, the stronger the impact on the pre-service teacher's efficacy formation.

Self-regulatory capability refers to the ability to self-direct one's actions by referencing internal standards against external standards in order to achieve the most desirable outcome (Bandura, 1986). Bandura (1996) distinguished self-reflection as the prominent feature of social cognitive theory, and further situated self-efficacy beliefs to be the heart of the theory (Pajares, 2002; Schunk & Pajares, 2010).

Distinguishing the Self-Referent Sub-Processes

From Plato and Socrates, Descartes, Locke, Kant and others still today, understanding the notion of 'self' has been a component of man's philosophical history (Hattie, 1992). William James (1890) and then Cooley (1902) were first in promoting the subject in the 19th century. Cooley (1902) who depicted self through his 'looking-glass self', described self-appraisal in terms of the involvement of others; as one seeks to perceive the self, one imagines another's estimate of our self, and within this comparison lies a judgment imagined and an accompanying feeling, such as sense of pride or failure. It is critical to delineate the various self-referent sub-processes, as Bandura did, in order to avoid confusion with other ideas of self. In particular, in order to isolate self-efficacy as the prominent factor in Bandura's theory of cognitive development, one must first determine the differences and similarities between self-efficacy, self-concept and self-esteem.

Efficacy appraisals of 'self' have been described in the past by using seemingly similar constructs—self-concept and self-esteem (e.g. Reyes, 1984) (as cited in Pajares, 1996, p. 560). Bandura (1997) situates these constructs as representative of distinct phenomena, which he notes are sometimes misused interchangeably with self-efficacy. Where self-efficacy is more task specific, self-concept can be viewed as more of a global

assessment of competence (Pajares, 1996). An example of self-efficacy and self-concept being unrelated is given by Pajares (1996): “A student may feel highly efficacious in mathematics but without the corresponding feelings of self-worth, in part because she may take not pride in accomplishments in this area” (p. 561).

Self-concept involves the combination of one’s self-perceptions related to direct experiences and the evaluations of ourselves in those experiences from significant others (Bandura, 1997). Carl Rogers (1959) described self-concept as a construct of three components: self-worth (self-esteem), self-image, and ideal self. Self-worth involves the amount of value one ascribes to their self. In particular, self-worth may be negatively impacted by cultural stereotyping as self-worth perceptions are vulnerable to devaluing biased stereotypes associated with particular racial, ethnic or cultural groups (Bandura, 1986). Self-image refers to an individual’s view of self, whereas ideal self refers to the image encompassing the aspirations one holds of the desired self (Rogers, 1959).

Schunk & Pajares (2011) reminded that self-efficacy beliefs conjure up questions of ‘can I?’, where self-concept and esteem beliefs create questions of ‘how do I feel’. In sum, Bandura (1986) summarized implications (e.g. Pajares & Kranzler, 1995; Pajares & Miller, 1994a, 1995) (as cited in 1986, p. 11) which suggest that efficacy beliefs are highly predictive of behavior versus self-concept, or other self-referent processes. Additionally, Pajares (1996) offered that “knowledge, skill and prior attainments are often poor predictors of subsequent attainments because the beliefs that individuals hold about their abilities and about the outcome of their efforts powerfully influence the ways in which they will behave”

(p. 543). Thus, self-efficacy theory is positioned as a tool for enabling people to assume influence and control over their life's journey (Bandura, 1986).

Self-Efficacy Theory

Bandura (1986) defined perceived self-efficacy as “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (p. 391) and distinguished self-efficacy beliefs as being “not a measure of skills one has but a belief about what one can do under different sets of conditions with whatever skills one possesses” (p. 37). Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) emphasized that self-efficacy is a “future-oriented” belief held by individuals regarding personal competencies for given situations. Bandura suggested that people’s behavior is better predicted by what they believe, than what they are actually capable of (Pajares, 1996, 2002).

Outcome expectancies—judgments of likely consequences produced by actions—work in tandem with efficacy beliefs, as these beliefs work to determine the expectations (Bandura, 1997; Pajares, 1996). Outcome expectancies take three forms: physical (pleasure vs. pain sensory experiences), social (reactions involving social consequences—approval vs. rejection) and self-evaluation (self-reflection in the form of feelings of self-satisfaction vs. self-disgust) (Bandura, 1997). Bandura clarified that the outcome is the consequence of the performance; thus the performance is not the outcome (1997). The cognitive self-assessment of the outcome informs the development of self-efficacy. Finally, Bandura noted that “where performance determines outcome, efficacy beliefs account for most of the variance in expected outcomes (1997, p. 24).

Self-efficacy beliefs have been described as “cognitive, goal-referenced, relatively context-specific, and future-oriented judgments of competence that are relatively malleable due to task dependence (Schunk & Pajares, 2010). Self-efficacy beliefs rely on perceptions and interpretations, and are susceptible to change (Bandura, 1986; Usher & Pajares, 2008). Bandura (1986, 1997) suggested these beliefs are most impressionable early in learning. Pajares (2002) promoted that “self-efficacy beliefs provide the foundation for human motivation, well-being, and personal accomplishment” (paragraph 14). Further, when individuals are assessing a challenge to undertake, their perceived self-efficacy will enact a prediction of how much effort to expend, influence how long to persevere, and determine the amount of anxiety acquired during engagement (Bandura, 1986; Usher & Pajares, 2008). “The stronger the belief in their capabilities, the greater and more persistent are their efforts” (Bandura, 1989, p.1176)

Success, with regard to particular context, skill or performance, will raise the corresponding self-efficacy; failure can lower one’s particular efficacy beliefs (Bandura, 1986, 1997). Over a period of time, however, through repeated successes, a strong sense of efficacy emerges as a result of stabilizing self-schemata (1986). In comparison, a consistent low self-efficacy can “breed poor performances that further undermine” self-efficacy (1986, p. 82). Because self-efficacy appraisals requires an individual to make inferences not only about personal, specific skills that reflect ability, but also about factors which do not relate to personal ability, interpretations are complex and vulnerable (1986). Inclusion of self-doubt, other self-referents and factors such as time, effort, rate and pattern of attainments, along

with biases in self-monitoring of performances, can complicate the already complex judgment process (1986).

Sources of Self-Efficacy

Bandura (1986, 1997) hypothesized that self-efficacy beliefs are constructed from four principle sources: enactive mastery experiences, vicarious experiences, verbal persuasion and social influences, and physiological and affective states. Of these, enactive mastery experiences provide authentic evidence indicating if one can produce a recipe to achieve goals (Bandura, 1986). For this reason, Bandura suggests that mastery experience is the most influential source of efficacy information (1986).

Enactive mastery experiences. Developing a strong sense of self-efficacy is enhanced through mastery experiences, especially as individuals learn how to overcome failures, hone particular skills, and overcome obstacles through adversity (Bandura, 1986; 1997). In school contexts for example, Usher & Pajares (2008) suggested that students who earn successful marks in particular skill areas will view themselves as capable in this area for years to come. Tschannen-Moran and Woolfolk Hoy (2007) identified mastery experiences, the satisfaction related to teaching performance, for novice and career teachers as moderately related to teachers' efficacy. Mastery experiences can both positively (Mulholand & Wallace, 2001) and negatively (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998) influence pre-service teachers' teacher efficacy development.

Vicarious experiences. Self-efficacy is sensitive to vicarious experiences (Bandura, 1986); that is an individual is making a judgment of their capabilities in relation to the capabilities of others. Vicarious experiences include modeling or self-modeling—both

valuable to the acquisition and strengthening of self-efficacy (Bandura, 1997). In order to have the benefits of modeling as described by Bandura, it is important that the vicarious model be closely representative of the observer for self-efficacy to be effected (1997). This may be particularly important to consider with pre-service and in-service teacher development where vicarious modeling may not always be abundantly available, especially for teaching particular curricula content areas (Mulholland & Wallace, 2001).

Verbal persuasion and social influences. Verbal persuasion and social influences comprise the third type of self-efficacy source. It should be noted that Bandura (1997) emphasized “persuasive mentors” (p. 106) as the significant others who are able to properly raise up strengths and weaknesses to assist individuals in their personal development. Verbal persuasion is widely used in school settings, both by teacher educators and administrators giving feedback to those teaching (e. g. Jackson, 2002), and by teachers within the daily context of teacher-child interactions. It is powerful, especially when provided to an individual who already has some positive sense that they can produce desired effects through their own actions (Bandura, 1986). “Evaluative feedback highlighting personal capabilities raises efficacy beliefs” (Bandura, 1997). Realistic verbal encouragement can override self-doubts and propel individuals to believe their capabilities are adequate to perform given tasks (Bandura, 1986).

Physiological and affective states. The final source of self-efficacy involves physiological and affective states. Bandura (1997) described somatic indicators, mood states, and other emotional arousals as both helpful and limiting to self-efficacy beliefs. Emotional reactions can cause individuals to believe they are stronger or more capable than they really

are, which can lead to depression, stress and failure (Pajares, 1996). Bandura (1997) described that physically taxing activities that bring on pain, fatigue, aches, etc., may lead an individual to assume inadequacy about their capabilities. It is evident that individuals can misinterpret their somatic sensations, which can cause panic and confusion over their true capabilities (1997). Zull (2011) explained that somatic markers can lead to complex body responses, as one deals with such emotions as fear, anxiety, pleasure, surprise and excitement. Zull suggested that even when our emotional responses are difficult to predict, if we master our ability to identify what is happening accurately with our feelings, we will learn to understand and control our feelings—which in turn effect the actions we take (2011).

Self-efficacy as a Determinant

Bandura (1997) promoted that self-efficacy beliefs were important contributors to the school environment, in that students, teachers and schools are each influenced by various self-efficacy contributions. Particularly for young children, Bandura (1997) suggested a strong sense of teacher instructional self-efficacy predicted children's academic success (Ashton & Webb, 1986). He also indicated that teachers' low self-efficacy would only complicate the already problematic issues children face, such as school transitions--grade level, classroom and teacher changes (1997).

Teacher's also face challenges within school environments (Weiner, 2006) that can diminish their sense of efficacy (Bandura, 1997). The organizational dimension related to a teacher's self-efficacy is collective efficacy (Bandura, 1997; Goddard, Hoy & Hoy, 2004). Collective school efficacy has been used to describe the shared beliefs teachers and school personnel hold about the school's capabilities to reach desired goals (Bandura, 1997;

Goddard, Hoy & Hoy, 2004). Research has suggested that strong collective efficacy contributes to an individual teacher's efficacy (Bandura, 1997; Lev & Koslowsky, 2008) as well as student achievement (Bandura, 1997; Goddard, Hoy, & Woolfolk Hoy, 2000; Goddard, Hoy & Hoy, 2004) and particularly student achievement in urban elementary schools (Smith & Hoy, 2007).

The field of higher education has posited self-efficacy as a characteristic related to student persistence, integration and retention (Bean & Eaton, 2000; Chartrand, Camp and McFadden, 1992; Conner et al., 2012; Peterson, 1993; Stage & Hossler, 2000). Career decision-making self-efficacy was identified as a critical aspect of a model of college student retention (Peterson, 1993) and occupational pursuits (Bandura, 1997). In their revision of Tinto's interactional theory of student departure, Bean and Eaton (2000) included Bandura's self-efficacy construct to help explain the actions and outcomes of college students. Stage and Hossler (2000) proposed vicarious and mastery experiences enabled college students' success in each aspect of the college transition and attainment processes.

Bandura (1997) positioned self-efficacy as a determinant in the success of career transitions. As teachers begin their career, Woolfolk Hoy and Spero (2005) proposed that the first years of teaching are most critical to the development of teacher self-efficacy beliefs. Woolfolk Hoy and Spero (2005) revealed that teaching efficacy was lower for first year teachers than the student teachers in their sample, noting that the teaching induction year provided "opportunities to gather information about one's personal capabilities for teaching" (p. 353) in a way that the student teaching experience cannot fully immolate. Additionally,

these authors suggested that when support was withdrawn and new teachers assumed the responsibilities of their classrooms independently, efficacy lowered (2005).

It has been presented thus far that efficacy for teaching in culturally diverse contexts (Gay, 2010; Siwatu, 2007) and efficacy for successfully teaching a heterogeneous student population (Siwatu, 2007; Siwatu et al., 2011) is central to preparing and supporting a teaching force for the 21st century and improving educational outcomes for children. Sosa and Gomez (2013) suggested that teachers who have high self-efficacy beliefs have demonstrated success in teaching students of underserved populations. Because studies suggested teacher beliefs are central to the child's learning (Woolfolk Hoy and Spero, 2005; Maxwell, McWilliam, Hemmeter, Ault, & Schuster, 2001) and because teacher self-efficacy fosters other teacher beliefs, it is important to explore the relationship between teacher beliefs, teacher practices and student outcomes.

Beliefs as Teacher Efficacy Appraisals

Teachers' efficacy beliefs are fundamental forces in education (Knolbach & Woolfolk Hoy, 2008). Among the many variables in which teacher efficacy beliefs are related to (Dembo & Gibson, 1985), such beliefs influence teacher perceptions of student achievement, teacher goal setting, and regulate the amount of effort teachers employ in teaching (Woolfolk Hoy and Spero, 2005). Guo et. al. (2011) determined that teachers' self-efficacy interacts with preschool teachers' sense of collaboration and children's engagement; "Collaboration may provide a means by which teachers develop strategies to effectively engage children, and when children are highly engaged, teachers feel more efficacious" (p. 966).

Teacher efficacy is defined as the set of beliefs a teacher has of personal and general capabilities for producing positive outcomes for children; despite potential challenges in doing so (Dembo & Gibson, 1985; Rimm-Kaufman & Sawyer, 2004; Ross, 1995; Siwatu, 2007, 2011a; Siwatu et. al., 2011a; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Ross (1995) included that teacher efficacy results from teachers' interpretations of their past actions, and over time these interpretations "stabilize as persistent, but not static, performance expectations" (p. 228).

Dembo and Gibson (1985) and Ross (1995) reported teacher efficacy as a multidimensional construct. Where personal teacher efficacy (PTE) relates to the expectation or responsibility for cultivating student learning, general teacher efficacy (GTE) reflects the influence of challenge from the environment that may be beyond the teachers' control. Woolfolk Hoy and Spero (2005) investigated PTE and GTE of student teachers at time one, and again in their first year of teaching at time two. Their findings suggested that the year-long student teaching experience, perhaps with the gradual turnover of teaching responsibilities and the elongated support that is different from other student teaching experiences, (e. g. Hoy & Woolfolk, 1990) seemed to provide some protection of efficacy during the early years of teaching. Typically, the GTE of teachers moving from pre-service to in-service falls, indicating new teachers feel less powerful to overcome factors that impact their classroom.

Teacher efficacy influences the choice of environments that people select, as an individual is more likely to select an environment in which they will feel competent in versus inadequate (Jackson, 2002). Siwatu (2011) studied the nature of pre-service teachers (N=34)

sense of preparedness for teaching in the context of urban or suburban school settings. In his simulation, participants self-reported their efficacy beliefs related to teaching in these environments based off of reading the researcher's carefully crafted essays describing and contextualizing the complexities of each setting. Pre-service teachers in this study felt less prepared to teach in an urban school setting as compared to a suburban school.

The novice teachers (N=74) in Tschannen-Moran and Woolfolk Hoy's (2007) study held teacher efficacy beliefs that were not related to various school settings (urban, rural, suburban) or other demographic factors such as gender or race. Poverty status was not included in their model. Availability to teaching resources, mastery experiences (satisfaction with teaching) and verbal persuasion from significant others (i. e., parents, community members, and colleagues) provided 49 % of the variance in novice teachers' self-efficacy scores. The authors note that the novice teachers made more explicit self-efficacy appraisals than the career teachers in the study, and attributed this result to Bandura's (1997) explanation that "self-efficacy beliefs are most in flux early in learning" (as cited on p. 953).

When teachers reflect on their efficacy for teaching particular students, they are making an efficacy statement about the confidence in their abilities to overcome challenges and obstacles and still make a difference in a child's learning (Tschannen-Moran et al., 1998). Siwatu (2007) identified a type of efficacy belief related to teaching students from culturally and linguistically diverse backgrounds; culturally responsive teaching self-efficacy (CRTSE) and outcome expectancy (CRTOE) beliefs. The CRTSE/CRTOE scales measured teachers' efficacy beliefs related to their ability to engage in culturally responsive teaching practices, and the CRTOE measured if the teachers' believed this engagement would lead to

positive outcomes (2007). Siwatu (unpublished manuscript) reminded teacher educators that the culturally responsive teaching competencies compiled to inform the CRTSE/CRTOE reflect culturally responsive pedagogical knowledge and skills, rather than the transformation of teachers' multicultural beliefs and attitudes. Although this process is important to consider in developing a teaching force for the successful teaching of students with culturally and linguistically diverse backgrounds, teacher transformation is often viewed as a life-long journey (Howard, 2006). Field testing and descriptions of the CRTSE/CRTOE measures will be discussed when reviewing instrumentation in the later portion of this chapter.

Siwatu (2011a) reported teachers' perceptions towards teaching different populations of students. Pre-service teachers felt most prepared to teach White American, African American, Hispanic Students and English Language Learners (ELL) in suburban schools versus urban schools. Further, the pre-service teachers in this sample felt most prepared to teach White American students and less prepared to teach African American, Hispanic, ELL students—regardless of the context. (2011) suggested that teacher educators can intentionally foster pre-service teachers' teaching efficacy for teaching populations of diverse students through implementation of specific curricula activities and experiences (i. e., field experiences in classrooms with African American children, urban based community projects, and opportunities to observe and examine culturally responsive teaching).

Socio-cultural Theory & Culturally Responsive Teaching

Vygotsky's (1978) work revolutionized the ways in which cognitive processes of human development were understood. In particular, Vygotsky posited social contexts elicit and shape cognitive processes and images—how we think and what we

think about (Bodrova & Leong, 2007). With potential inspiration having been derived from living in a time of great social upheaval, as suggested by Kozulin (2003) and Fani and Ghaemi (2011), Vygotsky remodeled developmental theory from a simple process of individual design to a complex integration of internal cognitive factors which react with sociocultural patterns among shared experiences with others.

Thought as a Cultural Structure

Vygotsky believed that the human mind was the product of both human history (phylogeny) and the individual's history (ontogeny) (Bodrova & Leong, 2007; Vygotsky, 1978). This notion of the merging of history over time and personal cultural life experiences gave rise to why some (e.g. Bodrova & Leong, 2007) call his theoretical framework the Cultural-Historical Theory. Vygotsky promoted that the child's development of mental structures are effected both by a convergence of outward and internal influences, which represent "the function of the social-cultural experience of the child" (n. d., p. 9).

Shared Experiences Bring About Higher Psychological Functions

Vygotsky (1978) referred to thinking as higher psychological or mental functions, and was active in seeking ways to explain how thinking occurred, developed and how it progressed uniquely in individuals. A central contribution of Vygotsky's theory lies within the concept that higher mental processes can be shared among individuals; that is these processes not only exist internally, but are exchanged during interactions with others (Bodrova & Leong, 2007). The shared experience allows the individual to internalize and then use the mental processes independently; a very different notion of cognition (2007).

Signs and Tools

Teachers are viewed as cultural mediators (Gay, 2000). When teachers use culturally responsive teaching practices, they select tools and symbols to convey positive messages and depict positive images of ethnic and cultural diversity (2000). Vygotsky (1978) described rich, mental processes as aided and drawn out of the individual through the use of psychological signs and tools; speech, symbols, materials, texts, numeracy, etc. (Kozulin, 2003; Vygotsky, 1978). Tools and signs derive their meaning from “cultural conventions that engendered them” (Kozulin, 2003, p. 26), and have been described as mediators of symbolic thought (Bodrova & Leong, 2007; Kozulin, 2003; Vygotsky, 1978).

Kozulin (2003) explained that the mere availability of signs and tools does not mean that children (learners) will capitalize on them, appropriate and internalize their meanings to form inner psychological tools to use independently. Conversely, he explained that teachers are not always intentional in helping students to identify symbolic tools available to them in the classroom or in content material (2003). Further, tools such as language, even when the language is of the same origin, (e.g. Heath, 1983), can be interpreted and shared in culturally different ways. The relationship of the shared experience is critical here, as Vygotsky posits a true understanding of co-constructed knowledge, in that “all mental processes first exist in shared space, and then move to an individual plane” (2007, p. 12).

Zone of Proximal Development

Vygotsky’s Zone of Proximal Development or ZPD has a small role in his theory but is probably one the most identifiable terms with Lev Vygotsky (Chaiklin, 2003). Vygotsky (1978) defined ZPD as the “distance between the actual developmental level as determined

by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). According to Henry Trueba (1989) (as cited in Nieto, 2010), the ZPD is an important social space that implies a child is not learning alone and cannot fail alone. Vygotsky stated ZPD represents, “what the child is able to do in collaboration today he will be able to do independently tomorrow” (Chalikin, 2003, p. 40).

Warford (2011) suggested that pre-service teachers bring to their teacher education program experiences a “zone of proximal teacher development”. Understanding a pre-service or in-service teacher’s ZPD (e.g. Torres, 1996) may be beneficial in supporting acquisition and implementation of teacher beliefs and practices, amidst the many other skills teachers must implement simultaneously in the classroom. “Clearly, the teacher training experience is a complex one, and explorations of this complexity lead to a questioning of both the content and process of the students’ learning” (Calderhead & Shorrock, 1997).

Sleeter, Torres & Laughlin (2004) described how scaffolded inquiry was a pedagogical tool for engaging and guiding pre-service teachers in “Freire’s problem-posing pedagogy” where students critically reflected, examined and learned about social realities in the world around them (p. 82); thus making implicit beliefs explicit. Applying the ZPD criteria to the work of Schon (1983) on reflection-in-action, the supervision and mentorship of pre-service and new teachers, through scaffolding and co-constructed experiences are critical components for supporting teacher thinking and action. Warford (2011) asserted:

Returning to the central point of Vygotskian teacher education, we cannot afford to dismiss teacher education as a simple fact-cramming, but rather the

promotion of a fundamental shift in the candidate's cultural identity.

According to Lempert-Shepell (1995) "the teacher is not only expected to be a cultural mediator but also a teacher-researcher; consequently, the teaching candidate should experience investigative learning during their professional preparation" (p. 438) (as cited on p. 256)

Systems and Their Role in Development

Ecological Theory of Human Development

Bronfenbrenner (2005) posited that human development is both a result of the *person* and the *environment* (2005). Reflecting on his 1977 theoretical proposal and in identifying the cornerstone of his theory's model structure, Bronfenbrenner (2005) defines the ecology of human development as:

... [T]he scientific study of the progressive, mutual accommodation, *throughout the life course*, between an active, growing human being and the changing properties of the immediate settings in which the developing person lives, as this process is affected by the relations between these settings, and by the larger contexts in which the settings are embedded (p. 107).

Defining systems. Bronfenbrenner (1977) identified nested structures or successive levels of systems within his model as the microsystem, mesosystem, exosystem, macrosystem and chronosystem. Systems are ecological environmental units that house activities and experiences emanating from and onto human development, which interrelate and intersect with various other ecological environments throughout time and space (Bronfenbrenner, 2005). Similarly, Pianta, Hamre & Stuhlman (2003) state:

Systems and their component entities are embedded within other systems.

Interactions take place within levels (e.g., beliefs about children affect a teachers' beliefs about a particular child; Brophy, 1985) and across levels (e.g., teachers' beliefs about children are related to their training as well as to the school in which they work; Battstich et al., 1997) overtime (as cited on p. 203).

Rushton's (2003) qualitative study of two pre-service teachers during their student teaching experience in an inner-city school demonstrated the intersection between various systems. The interplay between the teachers' personal efficacy beliefs and their experiences with new realities within the school setting caused cognitive dissonance for the pre-service teachers. As one teacher stated, "sometimes I just wonder if I can make it. I know I will, but sometimes I just don't know how" (2000, p. 181). Overtime, both teachers in the study resolved their dissonance, experienced growth, and found enhanced self-efficacy for teaching (2000). Thus, the influence of systems is an important consideration on the formation and development of in-service teachers' self-efficacy beliefs.

Microsystem. The microsystem is represented by the nucleus; the smallest, inner-circle that embodies an individual's immediate setting. It consists of complex factors, such as time, physical features and roles (parent, teacher, daughter, etc.) As Bronfenbrenner (2005) revised his original microsystem definition (1977) he felt it essential to properly position significant others' psychological traits as influences on the psychological growth of individuals, i.e. children. This reflective definition suggests a significance, critical to the understanding of beliefs, as a microsystem is a: "pattern of activities, roles, and interpersonal

relations experienced by the developing person in a given face-to-face setting with particular physical and material features *and containing other persons with distinctive characteristics of temperament, personality and systems of belief*” (2005, p. 148).

Mesosystem. The definition of the next two nested structures, mesosystem and exosystem, remained unchanged from Bronfenbrenner’s 1977 model (2005). “The mesosystem comprises the interrelations among major settings containing the developing person at a particular point in his or her life” (Bronfenbrenner, 1977, p. 515), such as two or more settings containing the developing person (e. g., the relations between home and school, school and workplace) (Bronfenbrenner, 2005, p. 148). In other words, a mesosystem is a system of microsystems (Bronfenbrenner, 1994, p. 40; 2005, p. 148).

Ladson-Billings (1994) and Gay (2000) described mesosystem relationships. Culturally responsive teachers create a caring, connectedness to each student (1994) by creating a community beyond the classroom. Culturally responsive teachers foster relationships with children and families in places of their community, such as the community church (1994). The development of this relationship is critical because “the cultures of schools and different ethnic groups are not always completely synchronized...therefore, teachers need to understand the different cultural intersections and incompatibilities, minimize the tensions, and bridge the gaps between different cultural systems” (Gay, 2000, p. 12). Ladson-Billings notes, “Because many African American students live in and attend schools in communities that their teachers neither live in nor choose to frequent after school hours means that

few have the opportunity to interact with their teachers outside of their classrooms” (1994, p. 63).

The Contextual Systems Model as a framework for culturally responsive teaching beliefs and practices. Pianta and Walsh (1996) conceptualized the Contextual Systems Model (CSM) to describe the collective impact of complex relationships influencing a child’s development. The CSM provides a way for seeing children, particularly those in jeopardy of school failure (1996). This is uniquely important because the CSM asserts that the “problem” is not the child; the child must be viewed as a member of a social system, involved in social interactions and where construction of meaning occurs in and out of various systems over settings and time (1996). System resources (adults, environment, siblings, or peers) and functions (play and problem-solving) are factors unique to each system that have potential to impact the child’s development. See Figures 1 and 2 on page 66.

Ladson-Billings (1994) and Gay (2000) proposed directives for multicultural teaching practices which centralize the child and families’ cultural beliefs to counteract the breakdown between systems identified by Bronfenbrenner (1977; 2005) and Pianta & Walsh (1996). Numerous other scholars have guided the establishment of culturally relevant and responsive teaching practices, which were conceptualized to illuminate the relationships between the different systems a child navigates (see Delpit, 2012; Howard, G., 2006; Howard, T., 2003;

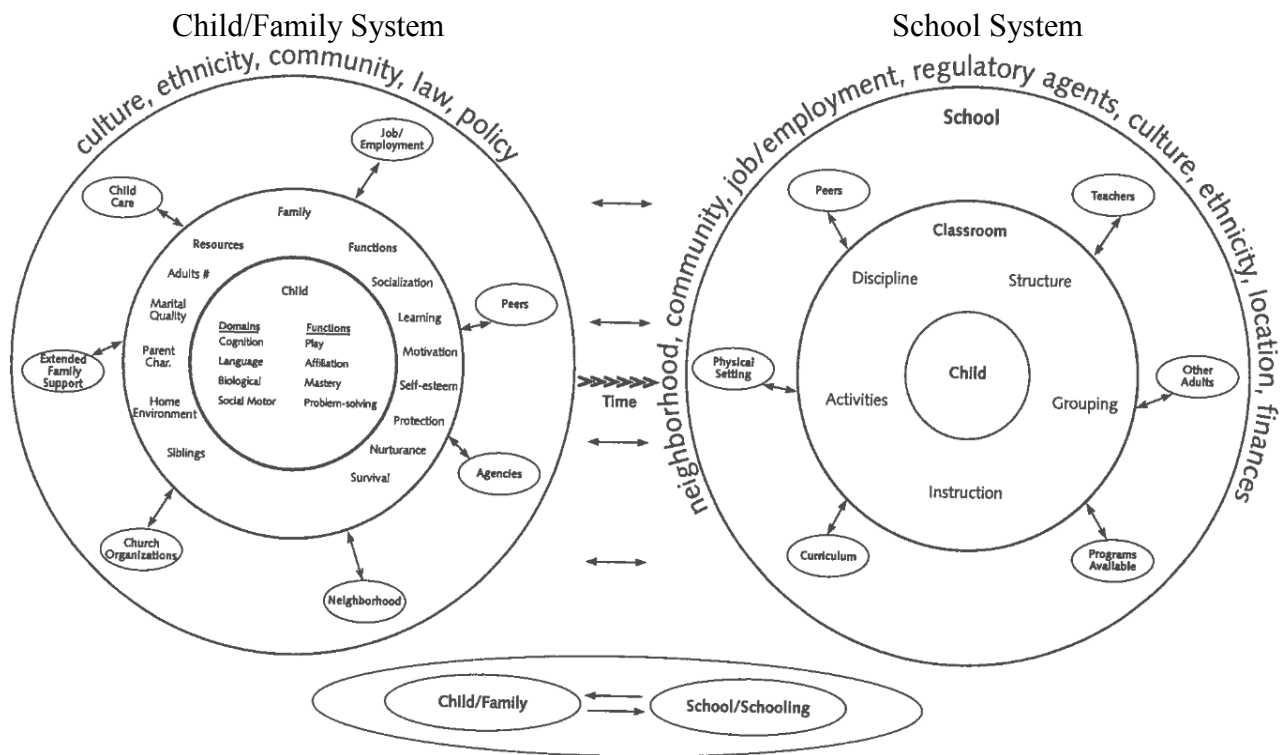


Figure 1. The Contextual Systems Model

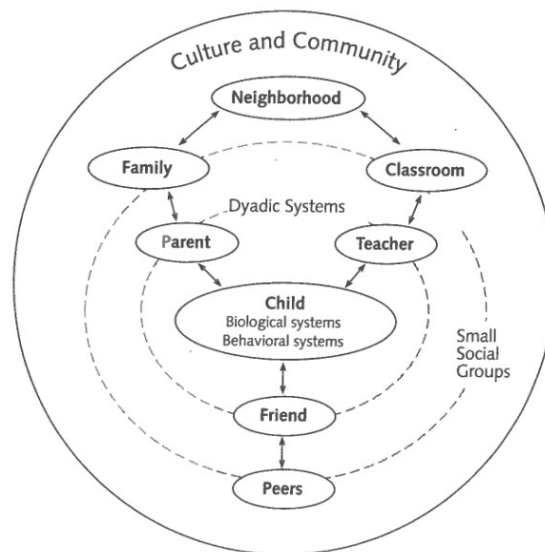


Figure 2. Types and Levels of Systems

From *High-risk children in schools: Constructing sustaining relationships* by R.C. Pianta and D. J. Walsh, 1996, New York, NY: Routledge. Copyright©1996 by Routledge. Reprinted with permission from author.

Gay, 2002, 2010, 2013; Ladson-Billings, 1995, 1999, 2000; Nieto, 2010; Teel & Obidah, 2008; Villegas & Lucas, 2002; Weiner, 2002). Such methods are viewed as conduits for improving the educational and social experiences for populations of students who represent culturally and economically diverse and historically underserved backgrounds (Gay, 2000, 2002; Ladson-Billings, 1994; Nieto, 2010; Villegas & Lucas, 2002).

Culturally responsive teaching practices involve teachers' acknowledgement that schools are social locations. Teachers see schools as systems for transforming the inequalities of power and privilege perpetuated by the dominant society (Villegas & Lucas, 2002). Culturally responsive teachers understand that schools are often agents for reproducing such social inequities (2002). Therefore, culturally responsive teachers see themselves as change agents, having a clear vision for developing achievement in their students (2002). Culturally responsive teachers do not view children from a deficit mindset, or as problematic, rather teachers have caring and affirming attitudes, believing and supporting student achievement (Gay, 2000, 2002; Ladson-Billings, 1994; Villegas & Lucas, 2002).

Pianta and Walsh (1996) suggested that the CSM would illuminate pathways for understanding the “problem” regarding failure does not lie within one location (e. g. child, school, family), but that the “problem” is really an outcome of the breakdown or disconnections between the “relationships of child, family, and schooling and the other individuals and institutions involved in the schooling” (p. 54). These breakdowns are often viewed as cultural differences.

Researchers, such as Tobin (2005) have expressed concern for disconnect related to cultural values and beliefs among American early childhood educators and the families they serve. Continuity of care as a medium to promote positive partnerships among two systems (families and child care center) has been expressed as vital to counteract a ‘cycle of misunderstanding’ (Gioia, 2013). Additionally, when the child and family are not viewed from a strengths-based perspective (Moll, Amanti, Neff & Gonzalez, 1992), the child’s optimal development is jeopardized.

Exosystem. The exosystem is an extension of the mesosystem (Bronfenbrenner, 1977) and “encompasses the linkages and processes taking place between two or more settings” (Bronfenbrenner, 2005, p. 148). Although, the individual is not necessarily contained in these social structures, the entities within the exosystem “*impinge upon or encompass the immediate settings in which the person is found*” (Bronfenbrenner, 1977, p. 515). Neighborhood-community contexts, the parents’ workplace, government agencies and social networks of families are types of exosystems identified as influential on child development through their influence on the family (Bronfenbrenner, 1994).

Hollins (2012) discussed exosystem elements as they pertain to urban communities. The urban area is often characterized by negative attributes such as unemployment status, crime, incarceration rates, and single parent households (2012). Yet many resources as funds of knowledge exist at the exo-level in such communities—community based organizations, service agencies, historic sites, museums and leaders from both political and social groups (Hollins, 2012). The child,

teacher, and family benefit when the teacher and community adopt collaborative based practices where the community is viewed as a resource rather than a challenge (Hollins, 2012; Tobin, 2005). Such practices work to counterbalance conditions outside of the school that effect families and children, and ultimately teaching and learning (Hollins, 2012).

The CSM (Pianta & Walsh, 1996) recognized contemporary realities, such as increasing poverty, homelessness, and changes in family structure as facets of the economic, political and social system effects on the developing child, family and school. Solomon, Battistich, and Hom's (1996) large study (N=476) of elementary classroom teachers in 24 urban and suburban schools demonstrated that exosystem elements such as socio-economic status can be influential on teacher beliefs and attitudes. Regression analyses to control for student achievement revealed that teachers in the high-poverty schools of the sample tended to be more skeptical about students' learning potential, had less value for constructivist approaches to teaching and learning, and were less trusting of students, therefore provided more classroom management control (1996).

Macrosystem. The macrosystem epitomizes cultural or subcultural influences on development and is often referred to by a social address label, such as rural vs. urban (Bronfenbrenner, 2005). It is comprised of the overarching patterns found in the prior systems' characteristics, "with particular reference to the belief systems, bodies of knowledge, material resources, customs, life-styles, opportunity structures,

hazards, and life course options that are embedded in each of these broader systems (1994, p. 40; 2005, p. 149-150).

In attempt to enrich the understanding of this domain, Bronfenbrenner (2005) suggested the belief system is the critical feature of every macrosystem. Such belief systems are described as “developmentally instigative personal characteristics” (2005, p. 149). Belief patterns are passed down through socialization from generation to generation, through such conduits as family, school, church, and government structures. Heath’s (1993) classic study demonstrated that families convey different values and beliefs to their children. Cheng et. al. (2009) proposed that beliefs may be shaped by the context of teaching.

Bronfenbrenner concluded that “consistent with Vygotsky’s formulation, the repertoire of available belief systems, as well as their intensity, is defined by the culture or subculture in which one lives and hence may vary appreciably over both space and time” (2005, p. 149). Wang et. al. (2011), established, “as the nations of the world pursue global economic development that requires increased mutual understanding among nations and better education for children, the role of culture in teacher beliefs is...important to consider” (p. 228).

Chronosystem. The chronosystem represents an input of time responsible for developmental shifts. Developmental shifts are outcomes of experiences within the environment, such as the birth of a sibling, transition into formal schooling, or divorce or death of a parent; and within the individual, such as puberty or severe illness (Bronfenbrenner, 2005). The chronosystem accounts not only for the developmental characteristics of the individual over a span of time, but also involves environmental

consistencies and changes related to time. Chronosystem influences on developmental shifts are reflected in both individual and collective growth. The collective impact of time can be seen in cohorts of individuals who experienced historical events (e.g., “Children of the Great Depression”, “Vietnam Veterans”, “Children of 9-11”) (2005).

By including time in a theoretical model, the model becomes developmental (Bronfenbrenner, 2005), and produces a deepened understanding of the process of development (Pianta & Walsh, 1996). The inclusion of time allows for an analysis of development (i. e. belief formation, teacher-child interactions) to be viewed in light of past and present conditions, and how development across time then impacts future development (1996). For example, Pianta and Walsh (1996) explained, “Including time forces a focus on how expectations of parents (based on their own experiences and history) create perceptions, beliefs and behaviors toward their child’s schooling experience that alter and constrain that experience” (p. 71). In comparison, earlier examples from research throughout this literature review demonstrated how beliefs about teaching and issues of race and diversity are formed early in an individual’s development and thus impact future interactions with others, specifically within the teaching and learning context.

Many theories have involved studies of development across the life span (i.e., Erikson, Piaget). Vygotsky (1978) posited a model of development that included the contribution of personal and cultural history. Bandura (1998) and Zull (2011) discussed the psychological brain functions which integrate self-assessment, prior experiences and memories in the process toward goal oriented actions. Pianta & Walsh (1996) emphasized that “*time*” or “*history*” was a fundamental component in understanding development (p. 71)

and Bronfenbrenner (2005) situated the chronosystem as the missing element in his earlier model.

Theoretical Implications

Bronfenbrenner (1977; 2005), Vygotsky (1978) and Pianta & Walsh (1996) have placed an importance on the development of the individual in relation to significant others. Ladson-Billings (1995) and Gay (2000) have placed instructional practices that reflect cultural beliefs and values as central to development. The influence of one's immediate environment provides direct and indirect effects of the greater socialization that occurs throughout nested systems of influence. As cognitive competence is a central concern of Vygotsky's (1978) thesis and Bronfenbrenner's reflections (2005), and given that individual development can vary from culture to culture throughout space and time, belief systems that emerge through these processes may also reflect variation from person to person, culture to culture, and system to system.

Bronfenbrenner (2005) believed in the importance of studying growth and development within the context of real-life settings. Interestingly, teacher education researchers have remarked that there is a mismatch between simulation learning and learning on-the-job, which is often discovered in the student teaching or induction year. Differences between pedagogical beliefs and practices during teacher training and what teachers experience independently in the field has encouraged teacher educators to explore what might be considered as best practices for developing a future teacher workforce (Grossman, Hammerness, & McDonald, 2009; Vartuli & Rohs, 2009; Siwatu et al., 2011).

The disconnect however does not rest with the developing experiences of the prospective teacher alone, as placements for such experiences often present their own unique and varied complexities. Additional mismatch has been identified to exist between beliefs of the university supervisor, cooperating teacher and pre-service teacher (He & Levin, 2008). Further, because our teaching workforce remains a predominantly White, middle class population of females (Gay, 2013; Ware, 2006) teachers often bring experiences and beliefs to the classroom that are different from children and their families.

Gay (2010) discussed the fact that “most culturally diverse students and their teachers live in different worlds, and they do not fully understand or appreciate one another’s experiential realities” (p. 144). These different worlds can be explained by applying the systems approach to development and understanding that the multiple “worlds” reflect the various systems in which individuals live and grow. Drawing from the work of Vygotsky, Luria and Leontiev, Bronfenbrenner (2005) situates real life experiences as the cultural influences that are central to the development of human beings. He summarized the core perspective of Vygotskian thinking:

Human beings are not only a culture-producing species, they are also culture produced: that is, the psychological characteristics of the species are a joint, interactive function of the biological characteristics and potentials of an active organism, on the one hand, and on the other, of the forms of psychological functioning and possible courses of development existing in a given culture at a particular point in its history (2005, p. 123).

Cognitive performance, thus is rooted in cultural or subcultural context (Bronfenbrenner, 2005). Given this implication, the study of teacher beliefs must be situated in and around the context or systems in which the individual teacher not only emerges from, but enters into. Lortie (1975) debated whether or not teachers were more influenced by their intuition and practical knowledge rather than the empirical and pedagogical practices acquired through the teacher preparation environment and experiences. Snider and Roehl's (2007) study revealed that randomly selected K-12 teachers from three mid-western states (N=600) sometimes made decisions based on pragmatics or what is popular or fun, rather than actions centered on ensuring student achievement (2007). Grossman et. al, (2009), Grossman (2010) and Hollins (2011) and others (e. g. Vartuli, Holley & Snider, unpublished manuscript) have suggested that in order for prospective teachers to learn independently yet under the guidance of teacher educators, teacher preparation programs should make teaching real through practice-based classroom experiences; where responding to and solving real problems and working with real children are hallmark occurrences.

The interplay between teaching contexts as systems which impact teachers' developing beliefs and practices are pivotal for teacher educators to illuminate prior to a teacher's entry into the field of teaching. These systems have collective effects in shaping the conceptualization of culturally responsive teaching efficacy and outcome expectancy beliefs and beliefs about practices. Further, they provide an understanding for the importance of quality teacher-child interactions. In particular, teacher beliefs help us understand teachers' perceptions of children and what they believe about how children learn (Pianta et al., 2005).

Teacher-Child Interactions

It has been well established that teachers, throughout their development, come into contact with a myriad of beliefs, which reflect ideas about teacher knowledge, teacher attitudes and teacher capabilities. It has also been demonstrated through this review that teacher beliefs and practices as related to teacher and child interactions are influenced by teacher efficacy and the multiple environments-as-systems that interact and reciprocate learning and development within and around the child, as well as the teacher. As a result, the teacher shares the center of gravity with the child in the classroom setting, and therefore is extremely important in the child's development.

Teacher and Child Shared Experiences

Shared experiences are vital in the early childhood and elementary classroom setting. In the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development study, teacher-child interactions that fostered co-construction of knowledge through shared experiences with high levels of emotional and instructional support predicted positive social and academic outcomes for children in first, third and fifth grades (Pianta et al., 2008a). Ladson-Billings (1995) promoted that shared experiences cultivate knowledge that is recreated and recycled between teachers and students.

Shared experiences are promoted by teachers applying culturally responsive teaching practices. As such, teachers facilitate collaborative learning activities between themselves and students, between peers, and by developing relationships outside of the school setting with children and families in their homes, neighborhoods and communities (Gay, 2000; Ladson-Billings, 1994; Villegas & Lucas, 2002). For

teachers to treat all children equitably (Ladson-Billings, 1994), it is necessary that teachers examine their sociocultural consciousness and see all children as capable; in that teachers hold high academic expectation for all learners (Ladson-Billings, 1995; Villegas & Lucas, 2002). Language brings about deepened shared experiences between child and adult, such as object-oriented actions, exploration and play; each acting as tools to advance cognitive development (Bodrova & Leong, 2007). Culturally responsive teaching respects and capitalizes on the child's home language within educative experiences. Teachers who exhibit culturally responsive teaching practices promote constructivist practices which resemble co-construction of knowledge, commitment to meaningful learning experiences where the child's culture is a vehicle for learning, and focus on deepened understandings beyond isolation of skills or basic facts (Gay, 2000, 2002; Ladson-Billings, 1995; Villegas & Lucas, 2002).

Learning and Development

Common factors viewed to help student achievement, such as teacher-student ratio, teacher education and credentials, are not enough to ensure that students succeed academically and socially (CASTL, n.d.; Pianta et al., 2005). The literature reveals that to have the most impact on improving student learning and development, the focus of educators should be on the quality of the interactions in the classroom (Mashburn et al., 2008; Hamre & Pianta, 2006).

Vygotsky (1978) promoted that learning and development are interrelated from the very beginning of the child's life, and as a main tenant of this relationship in Vygotskian

perspective—learning leads development. He suggested that in some areas a child must acquire a great deal of learning before development advances; yet in other areas, one step in learning may produce two or more steps in development (1978). Vygotsky (1978) posited that learning takes place through shared interactions either with adults or in cooperation with peers.

Pianta and Walsh (1996) described interactions as activities between 1) teacher and children, 2) groups of children across classroom contexts, 3) schools and community organizations, and 4) parental and school practices (1996). In terms of systems, the developing child, also a system (Pianta et al., 2003) is at the heart of relationships and interactions. The child can be viewed as comprised of systems of development—physical, social, emotional, cognitive (language) and psychological developmental processes (Pianta et al., 2003).

Increasing numbers of young children have been identified as lacking “developmental infrastructure” (Pianta & Walsh, 1996, p. 12). These critical and basic components, such as early brain and body system development, allow the child full capacity to experience and benefit from the reciprocal relationship with and drawing fully from their environment (1996). High quality teacher-child interactions facilitated by the caring, responsive teacher are critical to developing positive outcomes for children.

High quality teacher-child interactions have been well documented in many large-scale national studies that include large sample sizes and a diverse populations of children (CASTL, n.d.; Hamre et al., 2013; Pianta et al., 2008a). Specifically, the Curry School of

Education reported that research conducted in over 6,000 classrooms, grades pk-5, where higher teacher-child interactions were identified, children had greater gains in social and academic development (CASTL, n. d.). Selected studies demonstrated:

Higher levels of instructional support are related to preschoolers' gains in pre-reading and math skills (Mashburn et al., 2006). High levels of emotional support contribute to preschoolers' social competence in the kindergarten year (Curby et al., 2009). High levels of emotional support are associated with growth in reading and math achievement from kindergarten through fifth grade (Pianta, Belsky, Vandergift, Houts, & Morrison, 2008). High levels of classroom organization are associated with gains in first graders' literacy (Ponitz, Rimm-Kaufman, Brock, Nathanson, 2009). Kindergarten children are more engaged and exhibit greater self-control in classrooms offering more effective teacher-child interactions (Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009). First-grade children at risk for school failure perform on par with peers, both socially and academically, when exposed to classrooms with effective teacher-student interactions (Hamre and Pianta, 2005). (as cited in CASTL, n.d., p.2, paragraph 2).

These results have been replicated in several studies, which provides promise for the kinds of interactions that can take place in classrooms. The problem lies within the fact that many students are not experiencing these types of high quality interactions in the PK-5 classrooms across the country (CASTL, n.d.).

Variable Measures

Teacher beliefs within the literature and theoretical frameworks were presented, emphasizing teacher efficacy. As such, instrumentation used to measure efficacy beliefs in previous research is the focus of the next section, which leads up to culturally responsive efficacy beliefs and outcome expectancies. As pedagogical beliefs were discussed as types of teacher beliefs, instrumentation that have measured pedagogical beliefs is briefly highlighted. Instrumentation for teacher-child interactions is also presented.

Measures of Teacher Pedagogical Beliefs

Multiple conceptions of pedagogical beliefs have been presented in the literature review. Scales developed for measuring teacher pedagogical beliefs have reflected classroom practices and teacher decisions, such as activity selection, lesson planning, classroom discipline, and views of children. The Early Childhood Survey of Beliefs and Practices (The Pre-K Survey of Beliefs and Practices) (Marcon, 1999; 2002) was developed to elicit teachers' beliefs about children and classroom practices along a continuum from child-centered teaching to direct instruction. The Teacher Belief Scale (TBS) (Charlesworth, Hart, Burts, & Hernandez, 1990; Charlesworth et al., 1993) was initially titled the Teacher Questionnaire (Charlesworth et al., 1990). This scale was used to measure early childhood teachers' beliefs about instructional practices, and was based on a developmentally appropriate framework of the National Association for the Education of Young Children. The Teacher Belief Q-Sort (TBQ) (Rimm-Kaufman & Sawyer, 2004; Rimm-Kaufman et al., 2006) has been used to elicit teachers' beliefs regarding teaching and classroom discipline practices and beliefs about children. The TBQ was developed to ascertain teachers'

prioritized beliefs, not just simply measuring their agreement with a belief, which is in contrast with the TBS (2006).

Measures of Teacher Efficacy

Since its conception nearly forty years ago, when it first appeared in two RAND corporation studies (Armor, et. al., 1976) teacher efficacy has been measured with a variety of instruments, and in qualitative (Caudle & Moran, 2012; Debreli, 2012; Kim, 2013; Mansfield & Volet, 2010; Pilitsis & Duncan, 2012; Rozelle and Wilson, 2012) and quantitative (de la Torre Cruz & Arias, 2007; Fives & Buehl, 2008; Guo et. al., 2011; Maxwell et. al., 2001; Murphy et. al., 2004) ways. It is understandable why many methods have been employed, as teacher efficacy has been an elusive concept (Tschannen-Moran & Woolfolk Hoy, 2001).

Rotter and Bandura. When teacher efficacy was first measured, the theoretical framework applied in devising the instrumentation was Rotter's (1960) Social Learning Theory, in which locus of control was the guiding component. Armor, et. al.'s, (1976) study included the first teacher efficacy measure, where two items elicited teacher beliefs regarding what were later labeled general teacher efficacy and personal teacher efficacy (Tschannen-Moran et al., 1998; Tschannen-Moran & Woolfolk Hoy, 2001). Additional instruments followed the same theoretical view: Teacher Locus of Control (Rose & Medway, 1981), Responsibility for Student Achievement (Guskey, 1981), and the Webb Efficacy Scale (Ashton et. al, 1982) (as cited in Tschannen-Moran et al., 1998).

RAND studies. As previously mentioned, the development of these instruments was initiated when two items appeared on two Rand Corporation studies, which evaluated various

reading programs and interventions funded by the Federal Elementary and Secondary Education Act (Armor et al., 1976). The two teacher efficacy items were summed to produce a teacher efficacy score. In the first study, teacher efficacy “was strongly related to variations in reading achievement among minority students” and in the second study it was “a strong predictor” in the furthering of the federally funded projects, beyond the funding term (Tschannen-Moran et al., 1998).

General teacher efficacy was captured in RAND Item 1. *“When it comes right down to it, a teacher really can’t do much because most of a student’s motivation and performance depends on his or her home environment”* (Tschannen-Moran, Wolfolk Hoy, and Hoy, 1998, p. 204). Personal teacher efficacy was captured in RAND Item 2. *“If I really try hard, I can get through to even the most difficult or unmotivated students.”* (Tschannen-Moran et al., 1998, p. 204). These items not only sparked research interests regarding what might guide teachers’ decisions in a teaching field already abuzz with research initiatives regarding teacher behavior, but they proved to elicit powerful results which has perpetuated research focused on a construct that has grown to be valuable yet difficult to measure (Tschannen-Moran et al., 1998).

Scales modeled after Bandura (1977). Bandura’s social cognitive theory, which has been described in length in this review and shared the basis for this research, was the next theory to influence teacher efficacy measures. This instrumentation included: the Teacher Efficacy Scale (Gibson & Dembo, 1984), Ashton Vignettes (Ashton, Buhr, & Crocker, 1984), Bandura’s Teacher Self-Efficacy Scale (Bandura, 1997) and the Ohio State Teacher Efficacy Scale (Tschannen-Moran & Hoy, 2001). Bandura’s (1997) scale has been used over

and over, often modified from the 30-item instrument (e. g. Guo et al., 2011; Rimm-Kaufman & Sawyer, 2004).

Gibson and Dembo (1984) modified the RAND scale in hopes to improve the reliability and validity of the measure (Hoy, 2000). Their Teacher Efficacy Scale (TES) was based on Bandura's conceptualization of self-efficacy and Ashton and Webb's (1986) model of teacher efficacy. Ross (1994) asserted the TES to be the standard measure, and as pronounced it has been heavily relied upon in teacher efficacy research.

Context specific efficacy measures. Because teacher efficacy is context specific, many instruments have been designed to elicit particular ideas regarding beliefs about the particular type of teacher efficacy belief. For example, Polat (2011) utilized the Beliefs about EFL (English as a Foreign Language) Materials Questionnaire (BAEFLMQ), moderately reliable ($\alpha = .75$). Emmer (1990) modified the Gibson and Dembo efficacy measure to reflect classroom management beliefs. This same instrument has been modified to measure efficacy beliefs regarding special education (Coladarci & Barton, 1997).

Other instruments have been created for specific content area efficacy beliefs. For example, in mathematics teaching, Teacher Efficacy Beliefs Related to Mathematics Measure (Midgley, Feldlauer & Eccles, 1989) and in science teaching, Science Teaching Efficacy Belief Instrument (Enochs & Riggs, 1990; Leonard, Barnes-Johnson, Dantley, Kimber, 2011) and The Self-Efficacy Teaching and Knowledge Instrument for Science Teachers (Roberts & Henson, 2000).

Measuring Culturally Responsive Teaching Efficacy Beliefs

Preparing culturally responsive teachers involves working with pre-service and in-service teachers to explicitly transform their pre-existing beliefs and attitudes regarding children and families who represent culturally diverse backgrounds, and further developing their capabilities as constructivist teachers to be affirming, competent and confident for teaching in urban settings (e. g. Gay, 2000; Ladson-Billings, 1994; Villegas & Lucas, 2002). For the purposes of this study, the efficacy beliefs that teachers held regarding their preparedness to teach children in urban settings were measured using the Culturally Responsive Teaching Self-Efficacy Scale (CRTSE) and the Culturally Responsive Teaching Outcome Expectancy Scale (CRTOE) (Siwatu, 2007). These scales were selected for this study because they closely represent Bandura's theoretical components of self-efficacy and outcome expectancy beliefs and are highly reflective of culturally responsive teaching practices (Siwatu, 2007). As it has been stated in the review, self-efficacy should be related to the specific task, context or situation. Therefore, examining culturally relevant and responsive teaching practices must contain a scale developed with those elements as guiding principles. These scales were developed in part because little research has measured teachers' culturally responsive teaching self-efficacy and expectancy beliefs.

Other measures have been used to elicit multicultural and/or racial attitudes and dispositions. Such measures include: Bogardus' Social Distance Scale, (Bogardus, 1933); Fey's Acceptance of Other's Scale, (Fey, 1955); Multicultural Efficacy Scale, (Guyton & Wesche, 2005); Cultural Diversity Awareness Inventory, (Henry, 1985); Teacher Multicultural Competence Scale, (Ponterotto, Baluch, Greig & Rivera, 1998); Multicultural Beliefs

Instrument, (Reiff, 1992); Quick Racial and Ethical Sensitivity Test, (Sirin & Rogers-Sirin, & Collins, 2010); Critical Thinking Belief Scale, (Torff & Warburton, 2005). These scales have most often focused on college student and pre-service populations of teachers. Using the CRTSE/CRTOE allowed measurement of practicing teachers in the field, working independently within their own classrooms.

Siwatu (2007) understood that the teaching field needed a tool to measure the reported preparation of teachers for a culturally diverse population of students. He asserted that the tool would capture efficacy and pedagogical beliefs. He set out to create a measure that would be “context-, task-, and domain-specific” as indicated by Bandura (1977) (2007, p. 1089), and thus the framework for the measure was modeled after Bandura’s theory of self-efficacy. The Culturally Responsive Teaching Self-Efficacy Scale (CRTSE) alongside the Culturally Responsive Teaching Outcome Expectancy Scale (CRTOE) measures culturally responsive beliefs and practices of teachers.

To create the items, Siwatu (2007) utilized his in-depth review of literature, and identified competencies which “reflect the skills and knowledge that are clearly identifiable among teachers who engage in culturally responsive teaching” (p. 1089). Such culturally responsive teaching skills have been identified in qualitative studies (e. g. Foster, 1994; Gay, 2000; Ladson-Billings, 1994, as cited in Siwatu, 2007, p.1089). Examples of competencies and their corresponding item included:

Competency: Culturally responsive teachers understand the cultural contributions of the cultures represented in the classroom. These contributions include those made to civilization, history, science, math, literature, arts, and

technology. Culturally responsive teachers use this knowledge to design culturally relevant curricula and instructional activities.

Corresponding sample item from CRTSE: I am able to teach students about their cultures' contributions to science. I am able to design a lesson that shows how other cultural groups have made use of mathematics.

Corresponding sample item from CRTOE: Students will develop an appreciation for their culture when they are taught about the contributions their culture has made over time. (Siwatu, 2007, p. 1090).

Siwatu (2007) applied Bandura's scale development recommendations for devising items with varying the levels of difficulty distributed throughout. Less difficult items reflect general teaching skills such as, "I am able to use a variety of teaching methods" or "I am able to build a sense of trust in my students" (2007, p. 1089). The more difficult items reflect increasingly sensitive content, as well as culturally responsive teaching practices. For example, "I am able to implement strategies to minimize the effects of the mismatch between my students' home culture and the school culture" (2007, p. 1089).

The response format for the CRTSE allowed participants to rate their confidence for executing the particular task in the item on a continuum from 0 to 100. The response continuum ratings of 0 represented "no confidence at all" up to 100 which represented "complete confidence" (p. 1090). In a similar fashion, the response format for the CRTOE required their indication of the probability of success in relation to the items with a rating from 0 to 100. This type of range is particularly different from a traditional Likert scale. However, according to Pajares et al. (2001) (as cited in Siwatu, 2007, p. 1090) the

examination of 0-100 scales rendered greater psychometric strength. The final CRTSE scale that was tested (2007) contained 40 items, while the CRTOE scale had 26 items. Participants' ratings on both scales were summed to generate a total score (2007).

Participants (N=275) represented a pre-service teacher population enrolled in two Midwestern teacher education preparation programs (Siwatu, 2007). Pre-service teachers were Non-White (7.8 %) (e.g., African-American, Asian-American, Mexican-American) and White (92.7%), with a mean age of 21.91 ($SD= 4.87$) (2007). The participants were comprised of 42 freshmen, 63 sophomores, 97 juniors, and 73 seniors (2007). The students in this study had taken a mean of "2.38 ($SD= 1.35$) classes addressing diversity in the classroom" and completed "an average of 1.49 ($SD= .79$) practicum requirements" (2007, p. 1091). The majority of participants indicated that they wanted to teach in a public school, and in a suburban city (45%) (2007). At the time the scales were tested, one other scale, the Demographic Background Questionnaire was also distributed (2007). Participants were given 20 to 25 minutes to complete the packets (2007). Results suggested that if pre-service teachers are efficacious in their ability to enact culturally responsive teaching practices, they had the tendency to believe in positive outcomes associated with these practices (2007).

CRTSE. "The principal component factor analysis varimax rotation of the 40 items yielded seven factors with eigenvalues greater than one, accounting for 67% of the variance in the respondents' scores on the scale" (Siwatu, 2007, p. 1090). Factor solutions were examined, and it was determined that a one-factor solution for this study was used that accounted for 44 % of the total variance explained, which as the author remarked "is somewhat lower than average factor analysis studies, (Henson & Roberts, 2001)" (as cited

on p. 1090). The Chronbach's alpha estimated internal reliability was .96. Factor loadings ranged from .39 to .79. In addition the CRSTE was positively correlated, $r=.70$, $p<.001$, with the CRTOE as hypothesized (2007).

CRTOE. "The principal component factor analysis with varimax rotation of the 26 items yielded four factors with eigenvalues greater than one, accounting for 60% of the variance in the respondents' scores on the scale" (2007, p. 1092). Factor solutions were examined and it was determined to use a one-factor solution for this study which accounted for 45% of the total explained variance (2007, p. 1090). The Cronbach's alpha estimated internal reliability was .95. Factor loadings ranged from .55 to .75 for the sample (2007).

Siwatu (2009) investigated the CRTSE beliefs of student teachers ($n=50$) in the southwest United States and their frequency of using culturally responsive teaching practices in the classroom by using a CRT practices scale. The CRTSE scale was a modified scale of 19 items, with similar 0 to 100 rating scale. The results indicated that student teachers in the sample tended to perceive greater self-efficacy for their ability to enact culturally responsive teaching practices on items reflective of more general practices rather than items that required more "in-depth knowledge of students' cultural background" (p. 330).

Siwatu and Starker (2010) investigated the effectiveness of preparing teachers for teaching culturally diverse students and specifically resolving conflict between African American students by employing CRTSE as a dependent variable in their correlational analyses. The sample of K-12 pre-service teachers ($n=84$) located in the southwest United States were White (90%) and female (79%). The CRTSE scores were summed and then divided by the total number of items per scale to yield a CRTSE strength index. Internal

reliability for the CRTSE scale was .96. The study results indicated that the group of pre-service teachers felt moderately efficacious about resolving conflict involving an African American K-12 student, and that efficacy was positively related to other predictive factors included in the analyses.

Chu (2011) tested the reliability and validity of the CRTSE and CRTOE scales in a pilot study that included thirty-one elementary and middle school special education in-service teachers who were teaching students of culturally, ethnically, racially, and linguistically diverse backgrounds. Teachers in this sample were White (77%), female (87%), and held a Bachelor's (52%) or Master's (48%) degree. The goals of this study were to test a revised CRTSE and CRTOE scale and describe the culturally responsive teaching efficacy and instructional beliefs of special education in-service teachers working students described as having diverse backgrounds.

In order to ease the length of response time for participants to complete an online survey, the number of scale items in Chu's (2011) study was reduced from 40 CRTSE items (Siwatu, 2007) to 20, and from 26 CRTOE items (Siwatu, 2007) to 12. The rating scale incorporated revised the 0 to 100 Likert-type scale of the initial scales and as such included a five point Likert-type scale, "1" being the lowest rating of efficacy or outcome expectancy. Additionally, the items were written to reflect characteristics specific to teachers in the special education field as that the population of interest. For these reasons the scales were not identical to Siwatu's (2007) initial version. The instrumentation yielded an internal consistency reliability of .93 (CRTSE) and .84 (CRTOE) (Chu, 2011).

A revised 31-item version of the CRTSE scale was used in Siwatu's (2011) study (N=34) in which internal reliability ranged from .94 to .96. In Siwatu et al. (2011), qualitative data took priority and the 40 item CRSTE was administered to eight pre-service teachers, who were selected out of the an original sample (N=192), of which were White (94.8%) and Non-White (5.2%) (e. g., Hispanic, Asian, African, African American). The potential value of both the CRTSE and CRTOE scales warranted their use in this study.

Measures of Teacher-Child Interactions

Capturing the complexities of the classroom requires a complex tool. Although other measures, such as the Early Childhood Classroom Observation Measure (Stipek, 2004) and the Classroom Practices Inventory (Hyson, Hirsh-Pasek & Rescorla, 1990) have attempted to capture teaching in the context of real classrooms, the Classroom Assessment Scoring System is a comprehensive and complex tool which captures the multi-dimensional representations of teacher-child interactions. Additionally, the CLASS now spans infancy through secondary education, which offers continuity in observing pre-k through fifth grade classrooms.

The Classroom Assessment Scoring System (CLASS) provides cutting-edge and research based evidence. Research has demonstrated that CLASS operationalizes and measures effective teacher-child interactions that predict positive academic achievement for children (Pianta et al., 2008a). Such high quality interactions are characterized by supporting a child's feelings, thinking and language development by making learning relevant and connected to students' prior knowledge, ideas, engagement and experiences; incorporating ongoing descriptive feedback to children, and persisting with experiences in inquiry and

learning for deeper understandings. National studies have demonstrated that while high quality interactions can impact student achievement in positive ways, most children receive mid to low levels of teacher support in the average classroom (Pianta et al., 2008a; 2008b).

The Pre-K, K-3, and Upper Elementary CLASS (CLASS Pre-K, CLASS K-3, and CLASS UE) tools are used to observe classroom interactions. Observers capture the teacher-child interactions relative to three domains: Emotional Support, Classroom Organization, and Instructional Support. Observers assign ratings based on a 7 point scale at the end of each twenty minute observation session. Ratings across dimensions are then averaged to create a domain score.

The CLASS Pre-K and CLASS K-3 tools are described as reliable and valid tools, with evidence from many national field tests (Pianta et al., 2008a, 2008b). Confirmatory factor analyses were performed from the six large scale studies. In addition, evidence from scores on CLASS measures has demonstrated that scores are stable across cycles, days, the school year and independent of children (2008a, 2008b). The results from the correlational analyses between four observation cycles suggested a high degree of internal consistency (2008a, 2008b).

Each CLASS measure is organized in three domains, which are operationalized by dimensions, behavior indicators and behavior markers representative of teacher behaviors. The Emotional Support Domain is organized into four dimensions: Positive Climate, Negative Climate, and Teacher Sensitivity, Regard for Student Perspective. Examples of high quality teacher-child interactions in this domain include: a match between student and teacher affect, frequently shared social conversations, and respect demonstrated by verbal

and non-verbal communication (Pianta et al., 2008a, 2008b); “the highly sensitive teacher...consistently is able to see what students need both academically and socially and provides support to them in a timely manner” (2008b, p. 37); “the teacher does not rigidly adhere to an agenda or plan at the expense of learning opportunities and students’ interest in activities” (2008b, p. 41); and “even in a structured lesson, a teacher can provide opportunities for students to be autonomous and have choices” (2008b, p. 42).

Classroom Organization Domain reflects a teacher’s proactive and positive encouragement for behavior management, how the productivity of the classroom is maintained, and the types of materials the teacher selects to engage children in learning activities. The three dimensions in this domain are Behavioral Management, Productivity, and Instructional Learning Formats. Examples of high quality interactions in this domain reflect the following characteristics: the teacher uses clear, consistent and proactive measures to reinforce classroom rules and expectations (Pianta et al., 2008a, 2008b); “at the high end of [behavior management] there may be no observed instances of [student] misbehavior” (2008a, p. 48); “In this classroom, it would be difficult to imagine more instructional time being squeezed out of the day” (2008a, p. 52); and

The teacher does not merely go through the motions of asking questions or answering them him- or herself; rather, he or she facilitates students’ involvement through open-ended and factual questions that allow students to get involved in the activity or lesson and assist in their understanding (Pianta et al., 2008b, p. 61).

The Instructional Support Domain reflects the teacher's practices at cultivating higher order thinking skills, metacognitive skills, and language use. Dimensions are divided into Concept Development, Quality of Feedback, and Language Modeling. High quality teacher-child interactions in the instructional support domain reflect some of the following: "This teacher consistently uses strategies that get students thinking about the how and why of learning rather than simply encouraging memorization of isolated facts" (Pianta et al., 2008b, p. 69) and "the teacher often uses students' responses or spontaneous comments to create a learning moment by asking follow-up questions to facilitate a higher level of understanding or performance from the student" (2008b, p. 76).

The CLASS UE is differentiated from the early childhood and primary versions in several ways. The CLASS UE has the same three domains: Emotional Support, Classroom Organization and Instructional Support (Pianta et al., 2010). However, the Instructional Support Domain in the CLASS UE has four dimensions which reflect research-based practices for responding to an elementary student's abilities and needs: Content Understanding, Analysis and Problem Solving, Quality of Feedback, and Instructional Dialogue (2010). Content Understanding captures approaches teachers use to encourage students' integrated understanding of broader knowledge as well as skills, facts, concepts and principles (2010). Analysis and Problem Solving analyzes how teachers encourage higher-order thinking skills and offer students unique opportunities to apply this thinking (2010). Quality of Feedback is very similar to the other versions described here, in that it reflects how teachers respond to students' thinking by expanding their learning through deepening conversations, scaffolding and by offering descriptive feedback to encourage students'

efforts and persistence (2010). Instructional Dialogue is not included in the other two versions addressed. This dimension focuses on “how teachers use structured, cumulative dialogue to guide and prompt students’ understanding of the content and language development” (2010, p. 5).

The CLASS UE has one additional scale, Student Engagement, which is a “global measure of student functioning” (Pianta et al., 2010, p. 6). Student Engagement assesses the participation and engagement levels of the students in the classroom. It is the only CLASS tool that includes a dimension in which the level of teacher supports are not the focus (Pianta et al., 2010). The CLASS UE includes the student outcome measure of Student Engagement based on support from theory and research (2010). However, unlike the CLASS Pre- K and CLASS K-3 that has had extensive, large-scale study field testing, the CLASS UE has limited reliability and validity evidence (2010). A current National Institute of Education Sciences study is awaiting publication (Pianta, Hamre, Berlin, personal communication, November 13, 2014), which will add to the knowledge of CLASS UE. Several studies involving a similar tool, the CLASS S (Secondary) have not reported reliability coefficients. Therefore, this current study will be able to add to the current research being conducted to describe outcomes associated with the CLASS UE.

Regardless of version, CLASS observation procedures require four, twenty minute observation cycles with a ten minute coding session in between each cycle. Activity settings can be coded for number of adults and children, subject area and types of routines and learning activities taking place. Reliable CLASS observers participate in annual reliability training and recertification testing in order to maintain observational standards.

Conclusion

The aim of this chapter was to demonstrate the magnitude in which teacher beliefs extend from the inner cognitive processes of the teacher to the daily life of the classroom. Beliefs are formed through conscious and unconscious processes through immersion in culture, familial and societal traditions. Through reciprocal actions, human development and learning take place in a set of systems which intersect and interact. The future of our nation's children depends on teacher educators who will situate explicitly the teaching beliefs and practices which can offer the greatest impact to promote success for all children.

CHAPTER 3

METHODOLOGY

This study explored the relationship between in-service teachers' culturally responsive teaching self-efficacy beliefs (CRTSE) and outcome expectancy (CRTOE) beliefs, instructional practices (as measured by CLASS), and student outcomes in the urban K-6th grade setting. While exploratory in nature, this study was interested in: (1) the collective predictive nature of in-service teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs (as measured by the CRTSE and CRTOE scales) and instructional practices (as measured by the Classroom Assessment Scoring System) on student outcome scores; and (2) the relationship between in-service teachers' culturally responsive teaching self-efficacy beliefs and in-service teachers' culturally responsive teaching outcome expectancies on student outcome scores.

Research Questions

This exploratory study aimed to answer the following research questions:

1. What is the relationship between in-service teachers' culturally responsive teaching self-efficacy beliefs, culturally responsive outcome expectancy beliefs, instructional practices and student achievement?
2. How are in-service teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs related to one another and how do these beliefs impact student achievement?

Chapter Two provided the theoretical basis for exploring the relationships between teacher beliefs, instructional practices and student outcomes. This chapter presents the methodology utilized to explore the research questions. The following sections provide

details regarding the study methods: participants, procedures, instrumentation, data analysis, and ethical considerations.

Participants

Participants for this study consisted of a convenience sample of in-service teachers recruited from the University of Missouri-Kansas City School of Education Project CAUSE (Change Agents for Urban School Excellence) Early Childhood and Elementary graduate pool who were currently in the Project CAUSE induction study. Project CAUSE was a teacher education program designed to enhance the support of pre-service and in-service teachers and was funded by the U. S. Department of Education's Teacher Quality Partnership grant ("Reflective Practitioner", 2010). Project CAUSE Spring 2014 classroom data (CLASS scores and student outcome reading and math scores) were used in this study.

Procedures

Recruitment & Survey Distribution

In order to recruit in-service teachers participating in the Project CAUSE program, the researcher conferred with the Principal Investigator of Project CAUSE and ascertained permission from the Social Science Institutional Review Board (SSIRB). School district administrators working with recruited teachers were made aware of the study (See Appendix A, "Principal Letter"). Recruitment inclusion criteria was as follows. Teachers were graduates of the UMKC School of Education urban teacher education program, in their first through fifth year of teaching in a kindergarten through 6th grade classroom, and participating in the Project CAUSE study. This participation indicated their school location was one of three partnership districts or one of eight area charter schools. A total of 69 participants were

recruited out of a potential 84. Teachers cited workload, school issues, personal reasons or none when declining to participate.

Participants were recruited during a six week span beginning the last week of March through the first week of May 2014, which encompassed spring breaks and K-6th grade schools' standardized testing schedules. During this time, a participant recruitment letter was emailed to the Project CAUSE in-service teachers who met inclusion criteria (See Appendix B, "Recruitment Letter"). The recruitment letter included information from the researcher and the Project CAUSE Principal Investigator, as Project CAUSE classroom data collected during this time would be used in this study. The recruitment letter outlined the purposes of the study, participation requirements and informed consent procedures. The letter also included dates and times of scheduled study presentation meetings designed to inform participants and support completion of consent form and surveys. Meetings were scheduled through building principals based on geographic locations of schools.

A group of teachers (n=13) attended a study presentation meeting during one regularly scheduled graduate workshop event at the teacher preparation program school of education site. The researcher presented study information, and consent forms and surveys were completed (See Appendix C, "Consent Forms" and Appendix D, "Study Presentation Script").

Soon after sending recruitment emails, the researcher surmised that an alternative method for consent and survey collection was warranted. Concurrently, the researcher learned from Project CAUSE teacher educator-coaches that teachers' time was very limited due to spring-related school responsibilities. As such, the researcher conferred with the Principal Investigator of Project CAUSE, and the protocol was amended through the SSIRB

to provide an alternative method of study recruitment via email and the collection of completed surveys would utilize assistance from Project CAUSE coaches when needed.

Teachers unable to attend the study presentation meetings were emailed a second participant recruitment letter and copy of the amended consent form (See Appendix E, “Amended Forms”). The email detailed the modification for study recruitment and completion of surveys, which addressed delivery of study packets by the researcher to the teacher’s school site and possible pick up of completed packets by the Project CAUSE coach assigned to the participant. This was a natural fit as Project CAUSE coaches visited the participants weekly and had collected data regularly from participants for Project CAUSE research purposes.

The researcher either delivered study packets directly to the teacher or to the teacher’s school mailbox. Teachers were asked to complete packets within one week of receipt. Instructions to seal and sign the envelope upon completion were included in the updated procedures (See Appendix E, “Directions for Survey Packet”). The consent form and presentation script were attached to the email in order to provide comprehensive study details that would have been presented at face-to-face meetings. To provide the opportunity to contact the researcher with questions at any time, the researcher’s contact information was included on multiple sources: emails, letters, instruction sheet, and consent forms. Of the 56 packets that were delivered by the researcher to the teacher’s school site, nine completed packets were picked up by a coach and returned to the researcher’s university office.

Classroom Observations

Classroom observations were conducted over an eight-week period during the last week of March through the second week of May, 2014. The researcher for this study was a

certified reliable observer on both the CLASS K-3 and CLASS UE (Upper Elementary) tools to be used for observing teacher-child interactions. Additionally, the researcher held Train-the-Trainer certification in the CLASS K-3. The researcher utilized training expertise to coordinate with the other three primary Project CAUSE observers, who were all trained, reliable CLASS observers. Two additional reliable CLASS observers were recruited to complete four observations between them. Prior to field observations, observer calibration sessions were conducted by the researcher with all observers. CLASS domains, dimensions and coding procedures were reviewed. Two twenty minute practice videos were viewed and coded. Discussion of codes and questions concluded the sessions.

Classroom observations were organized by the Project CAUSE Coordinator and scheduled with the in-service teacher-participants directly by the observers. Because the context of this research was situated in real classrooms and relied on the available trained personnel to complete observations, certain parameters for observations were important to protect against study limitations. Careful consideration was given when allocating observers to teachers, as all the observers had held additional teacher educator roles over time. Observers were not scheduled with in-service teachers who had been under their direct supervision during student teaching experiences in the teacher education program. The researcher inter-rated with each of the three main observers; all who conducted the majority of the observations (n=65). Inter-rating took place in segments throughout the six week observation period. Inter-rater reliability between the inter-rater observer and observer 1 was 99.8, with observer 2 was 99.1, and with observer 3, 99.4. The overall inter rater agreement was 99.4.

Depending upon the grade level of the classroom, the CLASS K-3 or UE was used to conduct classroom observations. Observations took place on one typical school day, for approximately two hours, and the majority of observations (n=44) took place during the morning (64.7%). Observers requested observations to occur during regularly planned classroom instruction and were responsive to teachers' requests and recommendations for scheduling. The observations did not include segments of the day such as lunch, recess, and classes in physical education or music, etc. Additionally, K-6th grade spring assessment time blocks were avoided.

Instrumentation

For this study both quantitative and qualitative data was collected. The quantitative data consisted of surveys that measured in-service teachers' culturally responsive teacher efficacy beliefs (CRTSE) and outcome expectancy beliefs (CRTOE). CRTSE and CRTOE ratings were summed for each scale and divided by the total number of items to yield a strength index. Strength index scores represented the continuous variable of teacher beliefs. Qualitative data was collected through structured classroom observations that measured teacher instructional practices (CLASS). Observations were then coded using global ratings to provide quantified levels of emotional, organizational, and instructional support to yield scores for the continuous variable teacher instructional practices. Student outcome scores obtained from standardized achievement assessments were used to formulate z-scores representative of average student achievement by classroom. Scores on the CRTSE/CRTOE and CLASS measures comprised the independent variables, and the student outcome scores were the dependent variables in this study.

Surveys

Demographic Survey. A Demographic Information Survey of teacher demographics was used to collect information, such as age, gender, years in teaching, etc. (Vartuli, n.d.). (See Appendix F, “Teacher Demographics Survey”).

Culturally Responsive Teaching Self-Efficacy and Outcome Expectancy Scales.

The Culturally Responsive Teaching Self-Efficacy Scale (CRTSE) and Culturally Responsive Teaching Outcome Expectancy Scale (CRTOE) was used to measure participants’ beliefs about the confidence in their capability to enact culturally responsive teaching practices, and about their beliefs that such practices produce positive classroom outcomes (Siwatu, 2007). Sixty-eight CRTSE and CRTOE surveys were collected from the sixty-nine participants in this study. One participant had submitted a blank survey packet.

Siwatu (2007) introduced and tested the CRTSE and CRTOE scales. The response format for the CRTSE allowed participants to rate their confidence for executing a particular task in the item on a continuum from 0 to 100. The response continuum ratings of 0 represented “no confidence at all” up to 100 which represented “completely confident” (p. 1090). In a similar fashion, the response format for the CRTOE required participants to indicate the probability of success in relation to the particular instructional practices described in the items with a rating from 0 “entirely uncertain” to 100 “entirely certain”. This type of range is particularly different from a traditional Likert scale. However, according to Pajares et al. (2001) (as cited in Siwatu, 2007, p. 1090) the examination of 0-100 scales rendered greater psychometric strength.

CRTSE. Siwatu (2007) presented a factor analysis for the CRTSE scale. “The principal component factor analysis varimax rotation of the 40 items yielded seven factors

with eigenvalues greater than one, accounting for 67% of the variance in the respondents' scores on the scale" (Siwatu, 2007, p. 1090). Factor solutions were examined, and it was determined that a one-factor solution for this study was used that accounted for 44 % of the total variance explained, which as the author remarked "is somewhat lower than average factor analysis studies (Henson & Roberts, 2001, as cited in 2007, p. 1090). The Chronbach's alpha estimated internal reliability was .96 (2007). Factor loadings ranged from .39 to .79 (2007).

CRTOE. Siwatu (2007) presented a factor analysis for the CRTOE scale. "The principal component factor analysis with varimax rotation of the 26 items yielded four factors with eigenvalues greater than one, accounting for 60% of the variance in the respondents' scores on the scale (2007, p. 1092). Factor solutions were examined and it was determined to use a one-factor solution for this study which accounted for 45% of the total explained variance (2007, p. 1090). The Cronbach's alpha estimated internal reliability was .95. Factor loadings ranged from .55 to .75 (2007). In addition the CRSTE was positively correlated, $r=.70$, $p<.001$, with the CRTOE as hypothesized (2007). The Cronbach's alpha reliability coefficients for estimates of internal reliability of the CRTSE and CRTOE scores in this study are reported in Chapter Four.

The final CRTSE scale contained 40 items and the CRTOE scale had 26 items (Siwatu, 2007). In the present study, the CRTSE scale included 41 items. Participants' ratings on both scales were summed to generate two total scores (2007). In subsequent studies, a strength index was reported based off the summed total scores, divided by the number of items on each scale (Siwatu, 2011a; Siwatu, 2011b; Siwatu and Starker, 2011).

Both the total scores and strength indexes are reported in Chapter Four. The CRTSE and CRTOE strength index scores were used as the continuous dependent variables in this study.

The CRTSE and CRTOE scales were selected for use in the present study over other measures used to elicit teacher multicultural education beliefs, particularly because the study involved understanding the enactment of culturally responsive teaching practices and not teacher dispositions related to diversity. Siwatu's (2007) presentation of the CRTSE/CRTOE scales best fit with Bandura's theoretical model and self-efficacy theory as it relates to teacher self-efficacy and outcome expectancies. Further, the instrument was administered to participants' currently working independently in urban school settings where culturally responsive teaching has been identified as critical to teacher and student success. Previous use of the scales primarily involved populations of pre-service teachers.

Observation Instrumentation

Classroom Assessment Scoring System (CLASS). In order to measure classroom instructional practices, the Classroom Assessment Scoring System (CLASS), CLASS K-3 and CLASS UE were used (Pianta et al., 2008a; Pianta et al., 2010). The scales consist of three domains: Emotional Support, Classroom Organization and Instructional Support. Each domain is operationalized by dimensions, behavior indicators and behavior markers. CLASS observations are quantified into global ratings to describe classroom support levels by domain or dimension.

The Emotional Support Domain is organized into four dimensions: Positive Climate, Negative Climate, Teacher Sensitivity, and Regard for Student Perspective. High emotional support examples include: a match between student and teacher affect, teacher responsiveness to children's needs, and support for student autonomy. The Classroom Organization Domain

is organized into three dimensions: Behavioral Management, Productivity, and Instructional Learning Formats. This domain reflects a teacher's proactive and positive encouragement for students' classroom behavior, the provision of materials and activities, as well as behaviors the teacher selects to engage children in learning activities. The Instructional Support Domain includes the dimensions: Concept Development, Quality of Feedback, and Language Modeling. This domain reflect the teacher's practices at cultivating higher order thinking skills, metacognitive skills, and language use.

The CLASS UE is differentiated from the primary-aged tool in several ways. The CLASS UE has the same three domains: Emotional Support, Classroom Organization and Instructional Support (Pianta et al., 2010). However, the Instructional Support Domain in the CLASS UE has four dimensions which reflect research-based practices for responding to an elementary student's abilities and needs: Content Understanding, Analysis and Problem Solving, Quality of Feedback, and Instructional Dialogue (2010). Content Understanding addresses the approaches teachers use to encourage students' integrated understanding of broader knowledge as well as skills, facts, concepts and principles (2010). Analysis and Problem Solving encompasses how teachers encourage higher-order thinking skills and offer students unique opportunities to apply this thinking (2010). Quality of Feedback is very similar to the other versions described here. It reflects how the teacher responds to students' thinking by expanding their learning through deepening conversations, scaffolding and by offering descriptive feedback to encourage students' efforts and persistence (2010). Instructional Dialogue focuses on subject matter conversations and discussions being facilitated by teachers and peers (2010).

The CLASS UE has one additional scale, Student Engagement, which is a “global measure of student functioning” (Pianta et al., 2010, p. 6). Student Engagement assesses the participation and engagement levels of the students in the classroom. It is the only CLASS measure that includes a dimension in which the level of teacher supports are not the focus (Pianta et al., 2010). The CLASS UE included the student outcome measure of Student Engagement based on support from theory and research (2010). However, unlike the CLASS Pre-K and CLASS K-3 that has had extensive, large-scale study field testing, the CLASS UE is lacking reliability and validity evidence (2010). Therefore, this current study will be able to add to the evidence being gathered as discussed in the revised UE CLASS manual (2010).

Regardless of version, CLASS observation procedures require four, ten to twenty minute observation cycles with a ten minute coding session in between each cycle. To be reliable on a CLASS measure, observers complete a rigorous initial-two day reliability training and subsequent reliability testing. Reliability testing requires observers to watch and code five twenty-minute videos through an online website and assign ratings after each individual video. Reliability is achieved when 80% of all codes are within one point of the master codes, and at least two out of the five codes across dimensions are within one point of the master codes. Reliable CLASS observers participate in annual reliability training and recertification testing in order to maintain observational standards.

In this study, reliable CLASS observers assigned global ratings to each of the ten dimensions at the end of each observation cycle. Ratings included a 1 or 2 to represent low levels of support, 3 to 5 to represent mid-level support, and 6 or 7 to represent high levels of support. One item, negative climate, was coded in reverse. Scoring sessions took approximately ten minutes. At the end of four observation cycles, observers transferred the

observation ratings to a summary sheet. A final average for each dimension and domain was calculated. Domain averages were summed to compute a CLASS total score

The CLASS Pre-K and CLASS K-3 measures are described as reliable and valid measures with evidence from the many national field tests (Pianta et al., 2008a, 2008b). Evidence from scores on the CLASS measures have demonstrated that scores are stable across cycles, days, the school year and independent of children (2008a, 2008b). Six large scale studies provided results of confirmatory factor analyses testing on how actual data matched the proposed three domain model (2008a, 2008b). The factor loadings were found to be in the mid to high range (2008a, 2008b). For example, in the Early et al. (2005) eleven state combined study (N=694 preschool classrooms, 5 states) (N=730 kindergarten classrooms, 6 states) factor loadings ranged from .81 to .98 and .66-.93 respectively (2008a, 2008b). The Root Mean Error of Approximation was .17 (2005a) and .10 (2005b). The Goodness of Fit Index was .91 (2005a) and .97 (2005b). The Adjusted Goodness of Fit Index was .77 (2005a) and .92. The Comparative Fit Index was .95 and .98, and the Tucker-Lewis Index was .90 (2005a) and .95 (2005b). Cronbach's alpha estimates indicated adequate internal consistency by both studies (2005a; 2005b): Emotional Support=.94 and .85, Classroom Organization=.89 and .81, and Instructional Support=.89 and .81 (2008a, 2008b). Cronbach's alpha estimates of internal reliability in this study are presented in Chapter Four.

Based on all the reviews of internal consistency assessments from all of the large studies, researchers determined that the Emotional Support and Instructional Support Domains have the higher internal consistency and more consistent factor loadings than the Classroom Organization Domain (Pianta et al., 2008a, 2008b), which is reflective in the

current study as well. However, Pianta et al. (2008a, 2008b) recommended that users of the CLASS create CLASS domain composites according to a three-factor model.

Student Outcome Scores

The three school groups in this study measured K-6th grade student reading and math achievement on two commonly used standardized assessments in the United States. Scores on these norm-referenced reading and math assessments were used as the dependent variables in this study. To obtain student outcome scores, the Project CAUSE Coordinator collected classroom data from Project CAUSE teacher-graduates or the central office of the school group during the months of May-September 2014. This study's participant list was shared with the coordinator in order to collect matched child or classroom data by teacher-participant. Thus, student assessment data was obtained that coordinated with 46 out of the 69 participants in this study, which included a mix of classroom averages and individual student scores by teacher. The remainder of participants for which no student data was acquired was a result of either 1) no testing had occurred during the spring 2014 time frame for those classrooms (n=6), 2) participants or schools did not respond to requests for data or did not release testing information (n=16), or 3) assessments were criterion-referenced state tests (n=1).

STAR Reading™ Enterprise and STAR Math™ Enterprise Assessment

(STAR™). STAR™ Reading and Math assessments are standardized assessments published by Renaissance Learning. The STAR™ website described that over 45 million assessments were completed in the 2012-2013 school year (<http://www.renlearn.com/se/default.aspx>).

These assessments are computer-adaptive, diagnostic assessments as well as student progress monitoring tools. A “proprietary Bayesian-modal item response theory estimation method is

used for scoring” (STAR Math™ Technical Manual, 2014, p. 46). Scaled scores are derived from student assessment completions, and are directly comparable to each other, regardless of grade level.

The 2014 STAR Reading™ and 2014 STAR Math™ Technical Manuals published reliability and validity information from the STAR Reading™ and STAR Math™ Norming Study 2008 that is presented here. Generic reliability estimates for STAR Math™ (N=14,016) ranged from 0.79 to 0.88, with an overall estimate of 0.947. Split-half reliability estimates ranged from 0.88 to 0.97, with an overall reliability of 0.924. Generic reliability estimates for STAR Reading™ (N=69,738) ranged from 0.89 to 0.93, with an overall estimate of 0.95. Split-half reliability estimates ranged from 0.89 to 0.92, with an overall reliability of 0.944. Test-Retest reliability estimates for STAR Reading Norming Study 2008 ranged from 0.82 to 0.90, overall of 0.91.

Northwestern Evaluation Assessment—Measures of Academic Progress® (NWEA-MAP®). The NWEA-MAP® is also a computerized adaptive test, meaning that as the student responds to test questions, the test adjusts up or down in difficulty. As the student responds with correct answers, the test questions become more challenging. (Northwest Evaluation Association, 2012). The NWEA-MAP® assessment utilizes RIT (Rasch Unit) scores. These quantitative scores represent the calculated composite of the student’s performance. “RIT assigns a value of difficulty to each item, and with an equal interval measurement, so the difference between scores is the same regardless of whether a student is at the top, bottom, or middle of the scale” (<http://www.nwea.org/products-services/assessments/map%C2%AE>). Further, the NWEA-MAP® tests produce scores along

a developmental curriculum continua that also allows comparison of learning across grade levels like the STAR™ (Northwest Evaluation Association, 2012).

The NWEA-MAP® is aligned to national and state standards (<https://www.nwea.org/resource/type/brochure/>). Because of the computerized nature of the test, each student has a unique test of 40 to 55 items (2011). NWEA-MAP® curriculum experts select approximately 2,000 test items which correspond to content of the state in which the student is taking the test. This distinguishes the MAP® from nationalized standardized tests.

The Kingsbury Center at NWEA-MAP® is the research institute that manages data quality and conducts research, such as ensuring the validity of item calibration and alignment (www.nwea.map/assessments). In the Kingsbury report, *The State of Proficiency 2011: How student proficiency rates vary across states, subjects, and grades between 2002 and 2010*, concurrent validity was reported between the NWEA-MAP® and 14 state assessments (Durant & Dahlin, 2011). One of the states in this study had assessments included in that study. Pearson correlations averaged 0.79 for reading studies and 0.83 for mathematics studies (Durant & Dahlin, 2011). Further information from this report provide two important points about the scaling procedures employed to ensure validity and stability of the NWEA-MAP® scale:

- 1) The entire NWEA-MAP® item pool is calibrated according to the RIT scale. This ensures that all state-aligned tests created from the pool measure and report on the same scale. There is no need to equate forms of tests, because each derived assessment is simply a subset of a single pre-calibrated pool.
- 2) Ingebo (1997) employed an interlocking field test design for the original paper version of MAP®, ensuring that each item was calibrated against items from at least eight other field test forms. This interlocking

design resulted in a very robust item pool with calibrations that have remained largely constant for over 20 years, even these items have transferred from use on paper-and-pencil assessments to computer-delivered assessments (Kingsbury, 2003, as cited in Durant & Dahlin, 2011, p. 44-45).

Z-scores. Z-scores were created in order to compare the scores from each assessment. First, when necessary individual student raw scores were computed into class averages, as a mix of individual and class average scores had been obtained. Then, the class average score, norm sample mean and standard deviation norm of the appropriate assessment was entered into the z-score formula to compute the z-scores, which yielded two variables—reading student outcome scores (Z_{reading}) and math student outcome scores (Z_{math}) .

$$z = \frac{X - \mu}{\sigma}$$

Reading and math achievement scores have been widely used as measures of student learning (Milner, 2012). Such scores have been used in the CLASS research reported above, and were discussed in Chapter One as common tools to report teaching and learning outcomes. This researcher was interested in how the reading and math achievement scores were related to the teacher-participants' beliefs and practices in this study.

Assessments by school group. For the purposes of reporting assessment type by school group, a categorical variable was created: “no assessment”, “assessment type 1” or “assessment type 2”. The actual assessment will not be identified as two school groups were completely represented by one assessment alone. One of the school groups used assessment type 1, one of the school groups used assessment type 2, and one of the school groups had a mix of assessment type 1 and assessment type 2. Each school group had participants with no assessment as well.

Data Analysis

The research questions, what is the relationship between in-service teachers' culturally responsive teaching self-efficacy beliefs, culturally responsive teaching outcome expectancy beliefs, instructional practices and student achievement; and how are in-service teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs related to one another and how do these beliefs impact student achievement, were examined using descriptive, correlation and regression analysis. The descriptive analysis allowed the researcher to describe the characteristics, beliefs and practices of the in-service teachers of this sample in comparison to other samples in previous studies. For question one, the regression analysis provided the framework to explore the variance in student outcome scores that could be accounted for by variables representing teacher's pedagogical beliefs and instructional practices. For question two, the correlation analysis helped to determine if there was a statistical relationship between the variables representative of culturally responsive self-efficacy and culturally responsive outcome expectancy, and what variance in student outcome scores was accounted for by the variables representing teacher self-efficacy and outcome expectancy beliefs. All significance tests were conducted at the .05 level of significance.

Preliminary Data Screening

The Statistical Package for the Social Sciences Version 22 (SPSS) was used to conduct the statistical analyses. Prior to conducting statistical analyses for testing the research questions, two SPSS data files were created through a double entry process. Case summary reports were compared using a line-by-line proofreading process to correct for data calculation or data entry errors on all quantitative and categorical variables. Errors in the data coding or data entry process were corrected in order to create one master SPSS data file. Data

screening included the examination of frequency distribution tables for any impossible score values or missing values. The researcher decided to correct for eight missing values on the CRTSE. It had been determined values were missing because three items were marked NA—not applicable, and the other five were blank. The items marked NA referred to teaching English Language Learners, and the researcher deducted that the participants may have misinterpreted how to apply that item to their teaching situation if there were no current students in their classrooms who represented an English Language Learner characteristic. The item mean value, rounded to the nearest whole, was entered into the data set to replace the missing CRSTE values.

Descriptive Analysis

Descriptive analysis of the participants in this study were performed, which included: participants' ages, gender, race, years in teaching, certification levels, grade level teaching, etc. When necessary, categorical or quantitative variables of teacher characteristics were recoded into new categorical variables to ensure proper cell size for preliminary tests for differences (i. e. six race categories were recoded into White or Non-White; number of months in teaching was recoded into first year teachers, second year teachers and third-fifth year teachers). Descriptive statistics of the school groups in which the participants were teaching are presented which includes data on the student population of each school group. Tables assist in organizing the descriptive analysis of both categorical and continuous demographic variables. For continuous variables, means and standard deviations are presented.

Preliminary Analysis

Data screening. Preliminary data screening to test for assumptions was performed. The independent and dependent variables were quantitative and continuous variables. Teacher efficacy beliefs were measured using the CRTSE on a 100 point self-report scale from 0 “no confidence at all” to 100 “completely confident”. Teacher outcome expectancy beliefs were measured using the CRTOE on a 100 point scale from 0 “entirely uncertain” to 100 “entirely certain”. A total sum on both scales was divided by the number of scale items to yield a strength index for efficacy and outcome expectancy beliefs. Classroom instructional practices were measured using the CLASS on a 7 point scale from 1 “low” levels of support to 7 “high” levels of support. CLASS scores on three domains and 10 dimensions (CLASS K-3) or three domains and 11 dimensions (CLASS UE) were summed and divided by domains, which yielded an average CLASS total score (CLASS_Total). Continuous student outcome scores for reading and math achievement were collected and converted to z-scores representing classroom averages by participant (Zreading and Zmath). Demographic variables collected were both quantitative (i. e. years in teaching by months) and categorical (i.e. years in teaching by first year, second year, three to five years). Tables provide information regarding the means and standard deviations of these variables. Comparison tables were also included to depict the means and standard deviations of these scores in this sample relative to other samples in the literature.

The independent and dependent variables were inspected for skewness, kurtosis and outliers. Appearance of univariate outliers from examination of boxplots, and skewness and kurtosis statistics, led to further investigation by analyzing z-scores. Conspicuous cases were double checked to ensure proper data entry had occurred. Two z-scores representing reading student outcome scores and two z-scores representing math outcome scores were flagged as

potential univariate outliers, using the cut off value of -2.58 and 2.58 (Field, 2009) (i. e., reading z scores of -4.69 and -2.66 ; math z scores of -3.33 and -2.78). Homogeneity of Variance was analyzed using Levene's test and is reported with each individual test.

Test for differences. Preliminary analyses were employed to test for potential covariates and for differences on the dependent variable. Separate t-tests were used to assess differences on the variables of interest (i.e., CRTSE, CRTOE, CLASS_Total, Zreading and Zmath) between each of the following demographic factors containing two groups: lower or upper elementary grade level, morning or afternoon classroom observation, and race. Separate one-way ANOVAs tested for differences among the variables of interest (i.e., CRTSE, CRTOE, CLASS, Zreading and Zmath) and each the following demographic factors defined by three groups: school group (school group1, school group 2, school group 3); years in teaching (first year of teaching, second year of teaching, and third-fifth year of teaching); and assessment type (no assessment, assessment type 1, assessment type 2). After preliminary t-tests and one-way ANOVAs were inspected, the univariate outliers of reading and math z-scores, reported above, were removed and test rerun. The results of these preliminary tests for differences are presented in Chapter Four. As a result of the preliminary analyses, no covariates were identified to be entered into a regression model.

Regression and Correlation Analysis

In order to test the first research question, *what is the relationship between in-service teachers' culturally responsive teaching self-efficacy beliefs, culturally responsive teaching outcome expectancy beliefs, instructional practices and student achievement*, a multiple regression was performed. Prior to the analysis, scatter plots between all variables were inspected for linearity (Field, 2009) and were deemed sufficient for proceeding. The

assumption of normality was tested by examining a histogram of the residuals and a scatter plot between predicted scores and standardized residuals (Field, 2009). Multicollinearity was inspected with the SPSS Tolerance statistic to verify to what extent the predictor variables were correlated, as predictor variables should not correlate too highly (Field, 2009). An examination of scatterplots of predicted and residuals (ZPRED-ZRESID) (“Screening Data”, n. d.) tested whether scores on pairs of variables were linearly related and tested the assumption of homoscedasticity— whether the variance of the outcome variable was roughly uniform across levels of associations amongst pairs of variables (“Screening Data”, n. d.).

Scatter plots of residuals helped to detect multivariate outliers, as multivariate outliers are extremely influential on the b or β coefficients (Warner, 2013). Casewise diagnostics indicated potential influential cases. Studentized deleted residuals were inspected to ensure there were no residuals greater than three standard deviations. In addition, Mahalanobis’ distance was used to assess for multivariate outliers as potential influential values in the data set. Cook’s Distance also was inspected to assess the measure of influence, and investigate any values above 1. Leverage points were assessed for safe values of 0.2.

P-P Plots were inspected for an approximate normal distribution of residuals. The assumption of homogeneity of regression slopes is an assumption that there is no interaction between the predictors. Warner (2013) states that it is important to screen for possible interactions, whether or not they are expected. The assumption of independent errors was tested with the Durbin-Watson test. The Durbin-Watson is a measure of autocorrelation; testing whether adjacent residuals are correlated (“Screening Data”, n. d.; Field, 2009). Durbin-Watson goes from 0 to 4. A value of 2 indicates scores are uncorrelated (Field, 2009). Durbin-Watson tables were used to assess the statistic

(http://www3.nd.edu/~wevans1/econ30331/Durbin_Watson_tables.pdf). As assumptions were adequately met, a standard regression, where all the predictors are entered into one step, (Warner, 2013), was performed.

Zero-order, part, and partial correlations of each predictor were requested. The R^2 , adjusted R^2 , F and p values are reported along with the amount of variance in student outcome scores accounted for by the regression model. The t ratios for individual regression slopes were examined to assess the contributions of individual predictors. Statistically significant predictors offered a report of the variance explained by these predictors in student outcomes. Tables present the multiple regression outcomes.

To test the first part of the second research question, *how are in-service teachers' culturally responsive pedagogical teaching beliefs related to one another* and how do these beliefs impact student achievement, a multiple correlation analysis was employed. The assumptions for Pearson's r were examined: each score on X should be independent of other X scores; scores on both X and Y should be quantitative and normally distributed; scores on Y should be linearly related to scores on X ; and X , Y scores should have bivariate normal distribution (Warner, 2013).

To test the second part of the second research question, *how are culturally responsive pedagogical teaching beliefs related to one another and how do these beliefs impact student achievement*, a standard multiple regression with two independent variables was performed. Statistics were requested following the same procedures as the initial multiple regression analysis. The correlations and effect sizes of the multiple regression were reported.

Ethical Considerations

A research proposal was prepared and submitted to the proper authorities for approval. The researcher had conferred with pertinent faculty members, such as the Project CAUSE Principal Investigator, in order to coordinate research activities to minimize overlap of requests being made to the potential sample. The researcher completed research requirements of the University of Missouri-Kansas City, which included research protocol approval through the Social Science Institutional Review Board (SSIRB). When alternative methods of recruitment were considered, an amendment was submitted and approved by the SSIRB. Thus, the researcher carried out the approved research design to conduct the study. In addition, the researcher maintained Collaborative Institutional Training Initiative certification.

After the study was approved, school officials (i.e. building principals) were informed about the study and its coordination with Project CAUSE. Prior to taking part in the study, participants received detailed information about the study, completed an informed consent document, and were assured of matters regarding confidentiality. There was no penalty for participants should they decide not to participate or remove their participation at any time. The researcher's and Project CAUSE coordinator's contact information had been given to school officials and study participants.

Because classroom observations were conducted, children were present. However, this study did not employ any treatment or experimental methods with the teacher-participants that could filter to the children who were their classroom students. The presence of an observer should be considered as a potential influence in the classroom environment,

and as such the observers in this study worked to maintain adherence to the reliable and valid observation approaches learned and practiced during their prior rigorous training.

Confidentiality

Assurances to maintain confidentiality were employed and maintained at all times. The participants, children, individual schools or school districts were not identified by name. When the researcher became aware potential identifiers (such as assessment type), generic labels were assigned to minimize potential identification of school information. Identification numbers were given to the participants in this study. Student outcome scores were associated with the participants' numerical identification. Child names did not accompany student outcome scores. All study information was kept in a locked file and in a secure office. The Project CAUSE coordinator, director, and researcher were the individuals who had access to the classroom data.

CHAPTER 4

RESULTS

Chapter Four begins with the research questions of this exploratory study. Next, the descriptions of the participants and the school groups in which the participants were teaching are presented. Preliminary analyses are provided to test for differences among independent, dependent and categorical variables of interest. Then, the study results are presented concurrently with each research question. The chapter ends with the results of supplemental analyses that were explored. Tables and appendices are referenced throughout the chapter to assist in the presentation of information.

The purpose of this study was two-fold. First, this study explored the relationship between in-service teachers' culturally responsive self-efficacy beliefs (CRTSE, Culturally Responsive Teaching Self-Efficacy, Siwatu, 2007); in-service teachers' culturally responsive outcome expectancy beliefs (CRTOE, Culturally Responsive Teaching Outcome Expectancy, Siwatu, 2007); in-service teachers' instructional practices (CLASS, Classroom Assessment Scoring System; Pianta et al., 2008b; Pianta et al., 2010); and student outcome scores (NWEA-MAP[®], Northwestern Evaluation Assessment—Measures of Academic Progress; and STAR[™], STAR Reading[™] Enterprise and STAR Math[™] Enterprise Assessment). Next, this study explored the relationship between in-service teachers' culturally responsive self-efficacy beliefs (CRTSE, Culturally Responsive Teaching Self-Efficacy, Siwatu, 2007) and in-service teachers' culturally responsive outcome expectancy beliefs (CRTOE, Culturally Responsive Teaching Outcome Expectancy; Siwatu, 2007) as well as the relationship of such teacher beliefs with student outcome scores.

Standard regression and multiple correlation analyses were used to address the following research questions:

1. What is the relationship between in-service teachers' culturally responsive teaching self-efficacy beliefs, culturally responsive outcome expectancy beliefs, instructional practices and student achievement?
2. How are in-service teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs related to one another and how do these beliefs impact student achievement?

Descriptive Analysis

Participants in this study are described according to demographic variables of interest related to teaching (i. e., years in teaching, certification, teacher age, race and gender). The descriptive analysis also provides the descriptive statistics on the independent and dependent variables of interest in this study.

Participants

Participants in this study included in-service teachers recruited from the Project CAUSE urban teacher education preparation and induction program who were teaching in one of three urban partnership districts or a charter school in a mid-west metropolitan city. A total of 69 participants were recruited from a potential 84. Teachers cited workload, school issues, personal reasons or none when declining to participate.

This sample of interest was chosen for several reasons. First, the teachers had recently completed teacher preparation programming to prepare them for teaching in urban schools. Learning more about the development of culturally responsive efficacy and instructional practices of beginning teachers, and in particular the beginning teachers from one urban

focused school of education, would assist teacher educators in gaining insights as to how their graduates were progressing as members of the local urban area teaching force. As presented in the literature review for this study, efficacy for teaching in culturally diverse contexts and for teaching heterogeneous groups of students (Gay, 2010; Siwatu, 2007) is central to preparing and supporting a teaching force for the 21st century and improving educational outcomes for children. These teachers were teaching in classrooms where the majority of students reflected culturally, racially, ethnically and economically diverse backgrounds. Therefore, exploring culturally responsive teaching self-efficacy and outcome expectancy beliefs was relevant to both their preparation and their teaching context. Finally, teacher accreditation processes are being reformed to increase the linkage between teacher preparation programs and K-12 student outcomes (Allen et al., 2014). This study can provide insight into the processes of following a set of teacher-graduates into their respective classrooms as in-service teachers.

As participants were recent graduates from the urban teacher education program, all teachers were in their first through fifth year of teaching. The mean for years in teaching was 1.9 years ($SD=1.28$), with a range from the initial months of teaching to five years. The majority of teachers, 42.6% (29) were first year teachers, followed by 26.5% (18) second year teachers, 11.8% (8) third year teachers, 13.2% (9) fourth year teachers, and 5.9% (4) fifth year teachers. All but five of the participants were female, 92.8% (64). The participants were White, 62.4% (43), Black, 21.7% (15), Multiracial, 10.1% (7), Asian, 2.9% (2), and Hispanic 2.9% (2). See Table 1 for the full description of the demographic characteristics of the teacher participants.

Table 1

Demographic Characteristics of In-Service Teacher Participants (n=69)

Characteristics	N	%
School District		
School group 1	33	47.8
School group 2	18	26.1
School group 3	18	26.1
Grade Level		
Kindergarten	6	8.7
First	14	20.3
Second	7	10.1
Third	15	21.8
Fourth	11	15.9
Fifth	8	11.6
Sixth	7	10.1
Specials	1	1.5
Highest Level Education Completed		
BA/BS Early Childhood	7	10.1
BA/BS Elementary	55	79.7
MA/MS Other	7	10.1
Certification Type		
Early Childhood	5	7.2
Elementary	54	78.4
Middle	0	0
Secondary	3	4.4
Early Childhood/Elementary	2	2.9
Elementary/Secondary	1	1.4
Early Childhood & Specialization	1	1.4
Elementary & Specialization	2	2.9
Middle & Specialization	1	1.4
Years in Teaching		
First Year	29	42.0
Second Year	19	27.6
Third year	8	11.6
Fourth Year	9	13.0
Fifth Year	4	5.8
^a Age		
18-23	14	21.5
24-29	44	67.7

(table continued)

Table 1 Continued

Demographic Characteristics of In-Service Teacher Participants (n=69)

Characteristics	N	%
30-35	4	6.2
36-41	3	4.6
Gender		
Male	5	7.2
Female	64	92.8
Race		
Asian	2	2.9
Black	15	21.7
Hispanic	2	2.9
Native American	0	0
White	43	62.4
Multiracial	7	10.1

Note: ^aTwo participants did not report their age.

Participants' characteristics compared to the national teaching population.

While the focus of this study was a sample of interest, it is important for the purposes of generalizability to consider how this sample looks in contrast with the larger population of teachers. Because the study was conducted on beginning teachers, the number of years in teaching does not reflect the same distribution of years as the national teaching population which is expected. However, similar to national trends the majority of the teachers in this sample represented White and Female backgrounds. Table 2 presents a comparison of teacher characteristics of this sample compared to the national teacher population (NCES, 2012).

Table 2

In-Service Teacher Participant Characteristics Compared to the 2012 National Public School Teacher Population

<i>Characteristics</i>	Current Sample		National Sample	
	<i>n</i>	%	<i>n</i>	%
Total n	69	100	3,385,000	100
Age				
Under 30	58	89.2	518,000	15.3
Gender				
Male	5	7.2	802,000	23.7
Female	64	92.8	2,584,000	76.3
Race				
Asian	2	2.9	61,000	1.8
Black	15	21.7	231,000	6.8
Hispanic	2	2.9	264,000	7.8
^a Native American	0	0	17,000	0.5
White	43	62.4	2,773,000	81.9
^b Multiracial	7	10.1	35,000	1.0
^c Pacific Islander	0	0	5,000	0.1
Highest Level Education Completed				
Bachelor's	59	89.4	1,350,000	39.9
Master's	7	10.6	1614000	47.7

Note: Dash indicates information not reported. National Center for Education Statistics

(2012). Retrieved from http://nces.ed.gov/programs/digest/d13/tables/dt13_209.10.asp

^aThe Native American NCES data includes Alaska Natives.

^bMultiracial is noted as “Two or more races” in the NCES categories.

^cPacific Islander was a category included on the NCES data.

Participants’ characteristics by school group. Participation in Project CAUSE indicated that participants’ were located in one of three partnership districts or within an independent charter school. Based on the geographic location of charter schools, and in order to provide adequate cell size for testing differences amongst groups, three school groups

were formed for this study. One school group was comprised of participants from one school district ($n=8$) and eight independent charter schools ($n=25$) located within this school district's boundaries. The other two school groups were defined by two separate school districts. As such, school groups are referred to in this study as school group 1, school group 2 and school group 3.

Almost half of the in-service teachers, 47.8% (33) were located in school group 1. School groups 2 and 3 had the same representation of teacher-participants with 21.6% (18). The participants had a combined total of 1,324 K-6th grade students in their respective classrooms. Almost half of the student population from the respective classrooms of in-service teachers in this study, 47.5% ($n=629$) were in school group 1. School group 2 and 3 had a similar representation of students with 26.4% ($n=349$) and 26.1% ($n=346$) respectively. Class size in school groups ranged from 9 to 34 students per classroom. The average class size for each school group was: school group 1 $M=19.06$ ($SD=5.06$); school group 2 $M=19.39$ ($SD=4.80$); and school group 3 $M=20.35$ ($SD=2.09$). Two different states are represented by the school groups, as school groups 1 and 2 reside in one state, and school group 3 in another.

Table 3 provides a comparison of participant demographics across school groups. Individual child characteristics were not collected in this study. However, Table 4 provides the demographic characteristics of the complete student population from each school group and by state.

Table 3

Demographic Characteristics of In-Service Teacher Participants by School Group

Characteristics	<u>School Group 1</u> (n=33)		<u>School Group 2</u> (n=18)		<u>School Group 3</u> (n=18)	
	N	%	N	%	N	%
Grade Level						
Kindergarten	1	3.0	2	11.1	3	16.7
First	7	21.2	2	11.1	5	27.8
Second	3	9.1	2	11.1	2	11.1
Third	9	27.3	4	22.2	2	11.1
Fourth	4	12.1	3	16.7	4	22.2
Fifth	2	6.1	4	22.2	2	11.1
Sixth	6	18.2	1	5.6	0	0
Art	1	3.0	0	0	0	0
Highest Level Education Completed						
BA/BS Early Childhood	2	6.1	1	5.6	4	22.2
BA/BS Elementary	29	87.9	13	72.2	13	72.2
MA/MS Other	2	6.1	4	22.2	1	5.6
Certification Type						
Early Childhood	1	3.03	0	0	4	22.2
Elementary	26	78.78	15	83.2	13	72.2
Middle	0	0	0	0	0	0
Secondary	3	9.1	0	0	0	0
Early Childhood/Elementary	1	3.03	0	0	1	5.6
Elementary/Secondary	1	3.03	0	0	0	0
Early Childhood & Specialization	0	0	1	5.6	0	0
Elementary & Specialization	1	3.03	1	5.6	0	0
Middle & Specialization	0	0	1	5.6	0	0
Years in Teaching						
First	14	43.8	8	44.4	7	38.9

(table continued)

Table 3 Continued

Demographic Characteristics of In-Service Teacher Participants by School Group

Characteristics	School Group 1 (n=33)		School Group 2 (n=18)		School Group 3 (n=18)	
	N	%	N	%	N	%
Second	8	25.0	5	27.8	5	27.8
Third	3	9.4	2	11.1	3	16.6
Fourth	7	21.8	1	5.6	1	5.6
Fifth	0	0	2	11.1	2	11.1
Age						
18-23	6	18.8	5	27.8	3	16.7
24-29	24	75.0	10	55.5	12	66.6
30-35	1	3.1	2	11.1	2	11.1
36-41	1	3.1	1	5.6	1	5.6
Gender						
Male	3	9.1	1	5.6	1	5.6
Female	30	90.9	17	94.4	17	94.4
^a Race						
Asian	1	3.0	0	0	1	5.6
Black	10	30.3	2	11.1	3	16.6
Hispanic	2	6.1	0	0	0	0
Native American	0	0	0	0	0	0
White	14	42.4	16	88.9	13	72.2
Multiracial	6	18.2	0	0	1	5.6

Note: ^aReported Black, Hispanic and Native American race categories are represented in the multiracial category in school group

1, while the Hispanic race is represented in the multiracial category in school group 3.

Table 4

2013-2014 School Demographic Characteristics by State and School Groups

Characteristic	State and School Group				
	State 1	School Group 1	School Group 2	State 2	School Group 3
Accreditation Status		Unaccredited	Provisionally Accredited		Accredited
Average Years of Teacher Experience	12.3	13.3	11.1	--	--
Average Student-Teacher Ratio	1:18	1:17	1:17	^a 1:19	--
Total K-12 student enrollment	887,520	^b 18,703	6,252	521,089	21,599
Percentage of student enrollment by race					
Asian	*	*	*	2.9%	5.59%
Black	16.4%	58.0%	77.3%	6.9%	34.10%
Native American/Pacific Islander	--	--	--	1.0%	3.33%
Hispanic	5.3%	28.1%	7.8%	18.2%	45.29%
White	73.3%	8.8%	10.4%	66.4%	12.77%
Multi-ethnic	--	--	--	4.6%	--
Number and Percentage of Students Eligible for Free or Reduced-Price Lunch	435,000 (50.0%)	12,696 (89.3%)	5,319 (85.5%)	396,028 (76.0%)	19,414 (89.88%)
Total Proportional Attendance Rates	89.1%	77.4%	81.1%	94.9%	93.5%
Asian	95.0%	85.2%	84.0%	96.4%	95.0%
Black	83.6%	73.7%	80.3%	93.9%	92.7%
Hawaiian/ Pacific Islander	85.6%	64.5%	78.3%	--	--

(table continued)

Table 4 Continued

2013-2014 School Demographic Characteristics by State and School Groups

Characteristic	State and School Group				
	State 1	School Group 1	School Group 2	State 2	School Group 3
Native American	85.2%	71.1%	73.6%	93.9%	89.7%
White	90.6%	79.5%	82.3%	95.3%	92.2%
Multiracial	87.7%	73.4%	78.0%	94.5%	92.3%
Female	89.4%	78.7%	81.8%	95.0%	93.5%
Male	89.3%	76.1%	80.4%	95.1%	93.1%
Four Year Graduation Rate	87.3%	62.1%	80.2%	84.9%	65.5%
Dropout Rate	2.5	10.8	2.2	1.4	2.8

Note: Unless otherwise noted, the data was retrieved from respective state affiliated department of elementary and secondary websites. Dash indicates data were not reported or not available.

*Data source indicated the percent for this category was “suppressed due to a potential small sample size”.

^a Twenty-five percent of student population reported consists of student enrollment data from eight independent charter schools.

^bData point retrieved from National Center for Education Statistics.

Instrumentation

Participants in this study completed a teacher demographics survey and two self-report measures, the Culturally Responsive Teaching Self-Efficacy Scale (CRTSE) and the Culturally Responsive Teaching Outcome Expectancy Scale (CRTSE) (Siwatu, 2007). Classroom observations were conducted using the K-3 and Upper Elementary Classroom Assessment Scoring System (CLASS) (Pianta et al., 2008b; Pianta et al., 2010). Instruments are included in Appendix G, “Teacher Belief and Practice Measures”. Student outcome scores generated from scores on standardized tests were collected, when possible, from the three school groups in this study.

Culturally Responsive Teaching Self-Efficacy Scale (CRTSE). Scores on the CRTSE measured in-service teachers’ (n=68) self-reported appraisals of their capabilities to enact culturally responsive teaching practices on 41 items. High scores on the CRTSE scale indicated in-service teachers’ have a greater sense of efficacy towards particular instructional approaches associated with culturally responsive teaching. CRTSE scores for participants in this study ranged from 2480 to 3980 with a mean of 3409 (379.82). The CRTSE strength indexes ranged from 60.49 (less efficacious) to 97.07 (highly efficacious) with a mean of 83.15 (SD=9.26). Cronbach’s alpha estimates of internal reliability for the CRTSE scale was .95. The CRTSE strength index scores were normally distributed with a skewness of -0.483 ($SE= 0.291$) and kurtosis of -0.569 ($SE=0.574$).

In-service teachers’ culturally responsive self-efficacy was highest for ability to “develop a personal relationship with my students” with a strength index mean of 95.94 (SD=6.38) and “build a sense of trust in my students”, strength index mean of 93.21 (SD=9.79). In-service teachers’ CRTSE appraisals were lowest on items for the ability

to “design a lesson that shows how other cultural groups have made use of mathematics”, strength index mean of 60.43 (SD=26.78) and “teach students about their cultures’ contributions to science”, strength index mean of 65.13 (SD=23.06). The descriptive statistics for the scale are presented in Table 5, which includes a comparison to the CRTSE beliefs of the sample of pre-service teachers in Siwatu’s 2007 instrumentation study, as no study of in-service teachers has been published to date.

Table 5

Culturally Responsive Teaching Self-Efficacy (CTRSE) Scale Means and Standard Deviations of Appraisal Items in Comparison to Siwatu (2007)

Appraisal Item Inventory	Current Study ^a (n=68)		Siwatu (2007) (n=275)	
	M	sd	M	sd
I am able to:				
...adapt instruction to meet the needs of my students.	82.59	10.95	84.26	10.46
...obtain information about my students' academic strengths.	86.72	12.01	86.62	9.76
...determine whether my students like to work alone or in a group.	90.81	12.42	87.28	12.74
...determine whether my students feel comfortable competing with other students.	87.15	12.97	82.06	13.80
...identify ways that the school culture (e.g., values, norms and practices) is different from my students' home culture.	85.19	12.23	80.64	13.57
...implement strategies to minimize the effects of the mismatch between my students' home culture and the school culture.	79.72	13.93	76.04	14.80
...assess student learning using various types of assessments.	82.03	14.17	85.22	12.87
...obtain information about my students' home life.	83.94	14.23	80.28	14.66
...build a sense of trust in my students.	93.21	9.79	92.15	8.41
...establish positive home-school relations.	89.13	10.11	85.06	12.49
...use a variety of teaching methods.	86.54	12.44	89.95	10.22
...develop a community of learners when my class consists of students from diverse backgrounds.	87.88	13.14	85.26	11.78
...use my students' cultural background to help make learning meaningful.	85.84	10.97	84.16	12.52

(table continued)

Table 5 Continued

Culturally Responsive Teaching Self-Efficacy (CTRSE) Scale Means and Standard Deviations of Appraisal Items in Comparison to Siwatu (2007)

Appraisal Item Inventory	Current Study ^a (n=68)		Siwatu (2007) (n=275)	
	M	sd	M	sd
...use my students' prior knowledge to help them make sense of new information.	87.22	11.18	88.08	11.32
...identify ways how students communicate at home may differ from school norms.	84.53	14.23	81.05	12.52
...obtain information about my students' cultural background.	84.22	12.90	85.51	11.50
...teach students about their cultures' contributions to science.	65.13	23.06	74.40	18.70
...greet English Language Learners with a phrase in their native language.	69.03	28.82	71.01	23.78
...design a classroom environment using displays that reflects a variety of cultures.	74.35	23.35	85.03	15.63
...develop a personal relationship with my students.	95.94	6.38	92.76	8.42
...obtain information about my students' academic weaknesses.	88.84	10.43	88.40	9.40
...praise English Language Learners for their accomplishments using a phrase in their native language.	66.51	28.53	71.48	23.56
...identify ways that standardized tests may be biased towards linguistically diverse students.	81.57	18.50	78.58	17.47
...communicate with parents regarding their child's educational progress.	86.47	13.93	87.72	11.11
...structure parent-teacher conferences so that the meeting is not intimidating for parents.	90.01	10.34	88.41	11.11
...help students to develop positive relationships with their classmates.	88.85	10.53	88.21	10.84
...revise instructional material to include a better representation of cultural groups.	78.22	18.60	83.04	13.56
...critically examine the curriculum to determine whether it reinforces negative cultural stereotypes.	78.21	20.45	83.61	12.95

(table continued)

Table 5 Continued

Culturally Responsive Teaching Self-Efficacy (CTRSE) Scale Means and Standard Deviations of Appraisal Items in Comparison to Siwatu (2007)

Appraisal Item Inventory		Current Study ^a (n=68)		Siwatu (2007) (n=275)	
		M	sd	M	sd
...	design a lesson that shows how other cultural groups have made use of mathematics.	60.43	26.78	74.44	21.50
...	model classroom tasks to enhance English Language Learner's understandings.	74.96	22.12	83.28	15.51
...	communicate with the parents of English Language Learners regarding their child's achievement.	72.68	21.34	76.72	18.97
134	...help students feel like important members of the classroom.	90.76	13.88	92.97	8.91
...	identify ways that standardized tests may be biased towards culturally diverse students.	83.04	14.69	80.79	16.39
...	use a learning preference inventory to gather data about how my students like to learn.	83.32	16.00	81.92	15.73
...	use examples that are familiar to students from diverse backgrounds.	82.26	15.24	81.73	13.34
...	explain new concepts using examples that are taken from my students' everyday lives.	89.82	11.89	87.52	11.13
...	use the interests of my students to make learning meaningful.	89.93	9.91	90.36	9.38
...	implement cooperative learning activities for those students who like to work in groups.	87.28	12.62	89.66	10.54
...	design instruction that matches my students' developmental needs.	85.24	11.87	87.80	10.38
...	teach students about their cultures' contributions to society.	76.69	19.49	Not included (table continued)	

Table 5 Continued

Culturally Responsive Teaching Self-Efficacy (CTRSE) Scale Means and Standard Deviations of Appraisal Items in Comparison to Siwatu (2007)

Appraisal Item Inventory	Current Study ^a (n=68)		Siwatu (2007) (n=275)	
	M	sd	M	sd
^b CRTSE Item Total	3332.67	365.23	3361.89	342.03

Note: 100 point scale.

^aOne study participant did not complete the scale, and therefore was not included in the descriptive analysis.

^bCRTSE Item Total reported was computed with scale item 41 omitted as in Siwatu (2007) which used a 40 item scale. In this sample the CRTSE scale included 41 items with mean of 3409.35 (SD=379.82).

Culturally Responsive Teaching Outcome Expectancy Scale (CRTOE). Scores on the CRTOE represented in-service teachers' (n=68) self-reported outcome expectancy beliefs; which are the beliefs that the enactment of particular culturally responsive teaching practices has positive outcomes for students. High scores on the CRTOE scale indicated in-service teachers' held greater beliefs in the positive outcomes of particular instructional approaches associated with culturally responsive teaching. CRTOE scores for participants in this study ranged from 1720 to 2600 with a mean of 2391.41 (201.83). The CRTOE strength indexes ranged from 66.15 (less efficacious) to 100 (highly efficacious) with a mean of 91.97 (SD=7.76). Cronbach's alpha estimates of internal reliability for the CRTOE scale was .95. The CRTOE strength index scores had a high negative skewness of -3.99 ($SE=0.291$) and kurtosis of -0.254 ($SE=0.578$), therefore these scores were not normally distributed. The CRTOE score is based on a self-report measure. Teacher-participants ranked the importance of 26 particular instructional practices related to culturally responsive teaching on a scale of 0 "entirely uncertain" to 100 "entirely certain". There may be a tendency for this particular sample of in-service teachers, who were in teacher preparation that involved the important implications of culturally responsive teaching practices, to rate responses on a self-report measure fairly high, which would cause scores to bunch up together towards the negative end of the normal distribution. This phenomena would account for the skewness in this score's distribution.

In-service teachers' culturally responsive outcome expectancy belief was highest for the possibility that "a positive teacher-student relationship can be established by building a sense of trust in my students" with a strength index mean of 97.07 (SD=6.65) and "using my students' interests when designing instruction will increase their motivation to learn", strength index mean of 93.21 (SD=9.79). In-service teachers' CRTOE beliefs were lowest on items for the possibility

that “changing the structure of the classroom so that it is compatible with my students’ home culture will increase their motivation to come to class”, strength index mean of 79.84 (SD=20.50) and “the frequency that students’ abilities are misdiagnosed will decrease when their standardized test scores are interpreted with caution”, strength index mean of 81.69 (SD=19.42). The descriptive statistics for the scale are presented in Table 6, which includes a comparison to the CRTOE beliefs of the sample of pre-service teachers in Siwatu’s 2007 instrumentation study, as no in-service teacher data has been published to date.

Table 6

Culturally Responsive Teaching Outcome Expectancy (CRTOE) Scale Means and Standard Deviations of Appraisal Items in Comparison to Siwatu (2007)

Expectancy Inventory Items	Current Study ^a (n=68)		Siwatu (2007) (n=275)	
	M	sd	M	sd
1. A positive teacher-student relationship can be established by building a sense of trust in my students.	97.06	6.65	93.49	8.62
2. Incorporating a variety of teaching methods will help my students to be successful.	95.16	8.95	91.96	9.57
3. Students will be successful when instruction is adapted to meet their needs.	94.12	13.87	89.59	10.31
4. Developing a community of learners when my class consists of students from diverse cultural backgrounds will promote positive interactions between students.	95.37	7.84	89.49	10.27
5. Acknowledging the ways that the school culture is different from my students’ home culture will minimize the likelihood of discipline problems.	86.69	14.24	78.11	16.96
6. Understanding the communication preferences (e.g., the value of eye-contact; protocol for participating in a conversation) of my students will decrease the likelihood of student-teacher communication problems.	90.51	14.20	83.08	13.33

(table continued)

Table 6 continued

Culturally Responsive Teaching Outcome Expectancy (CRTOE) Scale Means and Standard Deviations of Appraisal Items in Comparison to Siwatu (2007)

Expectancy Inventory Items	Current Study ^a (n=68)		Siwatu (2007) (n=275)	
	M	sd	M	sd
7. Connection my students' prior knowledge with new incoming information will lead to deeper learning.	96.26	7.64	91.75	9.34
8. Matching instruction to the students' learning preferences will enhance their learning.	94.81	7.80	89.50	10.52
9. Revising instructional material to include better representation of the students' cultural group will foster positive self-images.	92.25	11.33	87.58	12.15
10. Providing English Language Learners with visual aids will enhance their understanding of assignments.	95.87	8.46	90.01	12.50
11. Students will develop an appreciation for their culture when they are taught about the contributions their culture has made over time.	93.29	11.69	87.38	12.91
12. Conveying the message that parents are an important part of the classroom will increase parent participation.	90.96	14.54	85.27	15.44
13. The likelihood of student-teacher misunderstandings decreases when my students' cultural background is understood.	90.53	12.76	85.32	13.99
14. Changing the structure of the classroom so that it is compatible with my students' home culture will increase their motivation to come to class.	79.84	20.50	76.82	17.03
15. Establishing positive home-school relations will increase parental involvement.	90.65	13.63	85.71	12.91
16. Student attendance will increase when a personal relationship between the teacher and students has been developed.	90.03	13.94	86.78	13.87
17. Assessing student learning using a variety of assessment procedures will provide a better picture of what they have learned.	95.66	8.10	88.33	12.17
18. Using my students' interests when designing instruction will increase their motivation to learn.	96.96	6.63	90.67	9.84

(table continued)

Table 6 continued

Culturally Responsive Teaching Outcome Expectancy (CRTOE) Scale Means and Standard Deviations of Appraisal Items in Comparison to Siwatu (2007)

Expectancy Inventory Items	Current Study ^a (n=68)		Siwatu (2007) (n=275)	
	M	sd	M	sd
19. Simplifying the language used during the presentation will enhance English Language Learners comprehension of the lesson.	88.87	16.34	85.02	14.40
20. The frequency that students' abilities are misdiagnosed will decrease when their standardized test scores are interpreted with caution.	81.69	19.42	79.52	17.06
21. Encouraging students to use their native language will help them to maintain their cultural identity.	88.88	14.57	74.62	19.44
22. Students' self-esteem can be enhanced when their cultural background is valued by the teacher.	95.53	7.34	87.23	13.15
23. Helping students from diverse cultural backgrounds succeed in school will increase their confidence in their academic ability.	94.79	8.22	88.54	11.51
24. Students' academic achievement will increase when they are provided with unbiased access to the necessary learning resources.	93.82	9.55	87.34	11.59
25. Using culturally familiar examples will make learning new concepts easier.	94.06	8.12	87.91	11.52
26. When students see themselves in pictures (e.g., posters of notable African Americans, etc) that are displayed in the classroom they develop a sense of self-identity.	93.49	10.18	84.33	16.02
CRTOE Item Total	2391.41	201.83	2245.96	224.08

Note: 100 point scale.

^a One study participant did not complete the scale, and therefore was not included in the descriptive analysis.

Siwatu (2007) introduced and tested the CRTSE and CRTOE scales using a sample of Midwest pre-service teachers ($n=275$). Participants in his sample were pre-service teachers from two teacher education programs in the Midwest, with mean age of 21.91 ($SD=4.87$). They ranged in school levels from freshmen (42), sophomores (63), juniors (97), and seniors (73). The majority of pre-service teachers (56%) were elementary majors. As depicted in the comparison tables above, the CRTSE mean and standard deviation shows that the pre-service teachers in Siwatu's (2007) sample perceived they were more efficacious in their capabilities to enact culturally teaching practices than the sample of in-service teachers in this study. This is possible for several reasons. First, efficacy development is contingent upon particular sources—such as mastery experiences, vicarious experiences, verbal persuasion and social influences, and psychological and affective states. It is possible that the actual experiences and content of the pre-service teachers' sources of self-efficacy are very different from in-service teachers. For example, a pre-service teacher's mastery experiences may be less authentic than teachers who are independently teaching in their own classrooms, versus being under the guide of teacher educators scaffolding various levels of support to developing pre-service teachers. Psychological and affective states of in-service teachers who have assumed full teaching responsibilities in urban schools may influence their self-efficacy assessment differently than in pre-service teachers who are not yet fully accountable for the outcomes of students. Further analyses of the in-service teachers' CRTSE and CRTOE beliefs, and additional comparison to the Siwatu (2007) study is in the supplemental analyses section.

Classroom Assessment Scoring System (CLASS). The CLASS was used to measure observed classroom practices of 68 in-service teachers in this sample. The CLASS K-3 measure was used to measure observations of 41 kindergarten through third grade classrooms, and the

CLASS UE was used to measure observations of 27 fourth through sixth grade classrooms, for a combined 67 CLASS total scores. Classroom observations occurred in four cycles consisting of twenty minutes observing and ten minutes scoring. Average scores across the four cycles represent the level of Emotional Support, Classroom Organization Support and Instructional Support (low, mid, high) teachers demonstrated. Table 7 presents the means and standard deviations for three CLASS domains.

Table 7

CLASS K-3 and CLASS UE Means and Standard Deviations of Domains and Dimensions

Item	M	sd
CLASS Total (n=67)	15.17	1.95
CLASS K-3 Total ^a (n=41)	15.08	1.76
Emotional Support Domain	5.56	0.64
Positive Climate	5.80	0.78
^b Negative Climate	1.30	0.49
Teacher Sensitivity	5.20	0.71
Regard for Student Perspective	4.72	0.97
Classroom Organization Domain	5.82	0.58
Behavior Management	6.03	0.64
Productivity	6.09	0.56
Instructional Learning Formats	5.34	0.87
Instructional Support Domain	3.71	0.85
Concept Development	3.31	0.83
Quality of Feedback	3.87	1.12
Language Modeling	3.95	1.03
CLASS UE Total (n=27)	15.31	2.24
Emotional Support Domain	5.71	0.62
Positive Climate	6.73	0.67
^b Negative Climate	1.93	0.38

(table continued)

Table 7 Continued

CLASS K-3 and CLASS UE Means and Standard Deviations of Domains and Dimensions

Teacher Sensitivity	4.66	0.79
Regard for Student Perspective	5.07	1.10
Classroom Organization Domain	5.73	0.68
Behavior Management	5.97	0.84
Productivity	5.94	0.66
Instructional Learning Formats	5.31	0.98
Instructional Support	4.03	1.12
Content Understanding	4.08	1.29
Analysis and Problem Solving	3.54	1.18
Quality of Feedback	3.92	1.21
Instructional Dialogue	4.70	1.27
Student Engagement	5.66	0.86

Note: CLASS=Classroom Assessment Scoring System

Domains and dimensions measured on a 7 point scale: 1.00-2 (low), 3-5 (mid), 6-7 (high).

^aTwo participants with incomplete data were not included in the analyses.

^bNegative Climate (NC) represents the average NC across cycles of all classrooms. This is the only dimension where desirable scores are low scores. NC is reverse coded when creating the Emotional Support Average.

CLASS mean scores in this study are typical of scores reported across the nation. There are some dimensions in which the current sample is slightly higher than what has been typical in the national means. This may be in part due to the nature of the pre-service and in-service training and preparation of these in-service teachers who were introduced to CLASS strategies early in their pre-service coursework. In addition, many of the teachers in this study participated in the Project CAUSE in-service program where they received on-going support and coaching using CLASS. Evidence from the national studies have presented, that on average, CLASS

scores are mid-high on Emotional Support and Classroom Organization, while Instructional Support ratings are low-mid. Table 8 provides a comparison across studies that included a representation of elementary classrooms.

Table 8

Comparison of CLASS Means and Standard Deviations across Studies, Classrooms, Time Points and CLASS Versions

	Hamre et al., 2013		^a Hagleskam, Brackett, Rivers, & Salovey, 2013		Allen, Gregory, Mikami, Lun, Hamre, & Pianta, 2013		Present Study		Present Study	
	Pre-K-6 th		5 th -6 th		Secondary		K-3		4 th -6 th	
	458-4341		144		37		40		27	
	CLASS pilot, ^b COS; CLASS Pre-k, 2005; CLASS K-3, 2008		CLASS K-3, 2008		CLASS-S, 2008		CLASS K-3, 2008		CLASS 4-6, 2010	
Year of Observations	1998-2009		Fall 2008- Spring 2009		^d 2011		Spring 2013		Spring 2013	
Domain/Dimension	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)
Emotional Support	--	--	--	--	4.7	(0.56)	5.6	(0.64)	5.7	(0.62)
PC	5.1	(0.80)	5.2	(0.89)	4.2	(0.74)	5.8	(0.78)	6.7	(0.67)
TS	4.8	(0.90)	4.8	(0.89)	4.7	(0.81)	5.2	(0.71)	4.7	(0.79)
^c NC	1.4	(0.61)	1.4	(0.71)	1.2	(0.35)	1.3	(0.97)	2.9	(0.38)
RSP	4.3	(0.88)	4.4	(0.76)	3.4	(0.88)	4.7	(0.97)	5.1	(1.10)
Classroom Organization	--	--	--	--	5.0	(0.61)	5.8	(0.57)	5.7	(0.68)
BM	5.3	(0.91)	5.1	(0.88)	5.4	(0.76)	6.0	(0.64)	6.0	0.84
P	4.8	(0.94)	4.8	(0.91)	5.3	(0.67)	5.3	(0.87)	5.9	0.66
ILF	4.1	(1.02)	4.1	(1.01)	4.4	(0.71)	6.1	(0.56)	5.3	(0.98)

(table continued)

Table 8 Continued

Comparison of CLASS Means and Standard Deviations across Studies, Classrooms, Time Points and CLASS Versions

	Hamre et al., 2013		^a Hagleskam, Brackett, Rivers, & Salovey, 2013		Allen, Gregory, Mikami, Lun, Hamre, & Pianta, 2013		Present Study		Present Study	
Grades	Pre-K-6 th		5 th -6 th		Secondary		K-3		4 th -6 th	
Number of Classrooms Observed	458-4341		144		37		40		27	
Instrument, publication year	CLASS pilot, ^b COS; CLASS Pre-k, 2005; CLASS K-3, 2008		CLASS K-3, 2008		CLASS-S, 2008		CLASS K-3, 2008		CLASS 4-6, 2010	
Year of Observations	1998-2009		Fall 2008- Spring 2009		^d 2011		Spring 2013		Spring 2013	
Domain/Dimension	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)
Instructional Support	--	--	--	--	3.8	(0.63)	3.7	(0.85)	4.0	(1.12)
CD	2.6	(1.02)	2.2	(0.81)			3.3	(0.83)		
QF	2.5	(1.13)	2.7	(1.27)	3.9	(0.82)	3.9	(1.12)	3.9	(1.21)
LM	2.8	(0.93)	2.9	(0.55)			4.0	(1.03)		
eCU	--	--			3.8	(0.73)			4.0	(1.29)
^e APS	--	--			3.2	(0.92)			3.5	(1.18)
^e ID					3.9	(0.82)			4.7	(1.27)

Note: Dimensions: PC=Positive Climate, NC=Negative Climate, TS=Teacher Sensitivity, RSP=Regard for Student Perspective,

BM=Behavior Management, P=Productivity, ILF=Instructional Learning Formats, CD=Concept Development, QF=Quality of

Feedback, LM=Language Modeling, CU=Content Understanding, APS=Analysis and Problem Solving, ID=Instructional

Dialogue.

(table continued)

Table 8 Continued

Comparison of CLASS Means and Standard Deviations across Studies, Classrooms, Time Points and CLASS Versions

	Hamre et al., 2013		^a Hagleskam, Brackett, Rivers, & Salovey, 2013		Allen, Gregory, Mikami, Lun, Hamre, & Pianta, 2013		Present Study		Present Study	
	Pre-K-6 th		5 th -6 th		Secondary		K-3		4 th -6 th	
Grades										
Number of Classrooms	458-4341		144		37		40		27	
Observed										
Instrument, publication year	CLASS pilot, ^b COS; CLASS Pre-k, 2005; CLASS K-3, 2008		CLASS K-3, 2008		CLASS-S, 2008		CLASS K-3, 2008		CLASS 4-6, 2010	
Year of Observations	1998-2009		Fall 2008- Spring 2009		^d 2011		Spring 2013		Spring 2013	
Domain/Dimension	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)

Notes continued: Dash indicates data not included in publication.

^aCLASS Domain Scores reported for Hagelskamp et. al., 2013, were at the end of the two year program implementation of RULER professional development and social emotional learning curriculum.

^bThe COS-Classroom Observation System is the early version of the CLASS used in first large scale studies investigating teacher-child interactions.

^cNegative Climate is reverse coded when creating the Emotional Support Domain average. Here it represents the average Negative Climate across cycles of all classrooms. This is the only dimension where desirable scores are low scores.

^d2011 represents the publication date, as exact dates of observations are not specified.

The CLASS K-3 scores in this study were normally distributed with a skewness of -0.365 ($SE=0.374$) and kurtosis of -0.220 ($SE=0.733$). The UE CLASS scores were normally distributed with a skewness of 0.096 ($SE=0.448$) and kurtosis of -0.480 ($SE=0.872$). The combined CLASS total scores were normally distributed with a skewness of -0.198 ($SE=-0.439$) and kurtosis of -0.227 ($SE=0.574$). These values represent the mid-high support levels predominant in the sample means.

The CLASS measure has been used in a number of large-scale national studies that have reported evidence of reliability and validity (Pianta et al., 2008a, 2008b). Cronbach's alpha estimates in the Early et al. (2005) combined study of eleven states (N=694 preschool classrooms, 5 states) (N=730, kindergarten classrooms, 6 states) indicated adequate internal consistency: Emotional Support, $\alpha = .94$ and $\alpha = .85$, Classroom Organization, $\alpha = .89$ and $\alpha = .81$, and Instructional Support $\alpha = .89$ and $\alpha = .81$ (2008a, 2008b). Recent studies in third grade classrooms yielded similar reliability coefficients: Emotional Support $\alpha = .90$, Classroom Organization $\alpha = .83$ and Instructional Support $\alpha = .90$ (Brown, Jones, LaRusso, Eber, 2010) and in urban elementary classrooms: Emotional Support $\alpha = .79$ and Classroom Organization $\alpha = .86$ (Instructional Support was not reported) (Cappella et al., 2012). In the present study Cronbach's alpha estimates of internal reliability for the K-3 and UE CLASS respectively were: Emotional Support $\alpha = .82$ and $\alpha = .82$, Classroom Organization $\alpha = .73$ and $\alpha = .74$, and Instructional Support $\alpha = 0.80$ and $\alpha = .93$.

K-6th Grade Student Outcomes

The three school groups in this study measured K-6th grade student reading and math achievement on two commonly used standardized assessments in the United States: Northwestern Evaluation Assessment—Measures of Academic Progress (NWEA-MAP[®])

and the STAR™ Reading Enterprise and STAR™ Math Enterprise Assessment (STAR™). Student outcome scores were obtained from a total of 46 in-service teachers on both the reading and math measures to be used as the dependent variables in this study. Classrooms varied by which assessment was used to measure student reading and math achievement. As such, classroom average z-scores by teacher were computed from the individual raw student scores or the teachers' classroom raw score averages to yield the z-scores that would allow comparison across the two types of standardized assessments in this study. (The classroom average scores are referred to as z-reading and z-math scores throughout the remainder of Chapter Four.) Z-reading scores in this sample had a mean of -0.66 (SD=0.91), with a range of -4.69 to 0.84. Z-math scores in this sample had mean of -0.48 (SD=0.88), with a range of -3.33 to 1.43.

The z-reading and z-math means and standard deviations were organized within various tables. Tables 9 and 10 depict the unstandardized (raw scores) and standardized (z-scores) means and standard deviations by grade level on both the NWEA-MAP® and STAR™ Reading and Math assessments, respectively, for the classrooms in this sample. Tables 11 and 12 depict how the scores from classrooms of the teachers in this study compared to those in the national norming data. It is evident that the raw scores on both assessments in this study often fell below national norms.

Table 9

*Unstandardized and Standardized NWEA-MAP[®] Assessment Reading and Math Scores¹
Means and Standard Deviations for In-service Teachers' Classrooms*

Unstandardized NWEA-MAP [®] Scores				Standardized NWEA-MAP [®] Scores	
NWEA-MAP [®] Reading Assessment					
Grade	N	M	Sd	M	Sd
K	13	155	0.00	-0.24	0.00
1	32	168	7.78	-1.145	1.39
2	61	186	5.69	-0.070	0.98
3	105	192	6.34	-1.073	1.14
4	73	197	12.67	-1.483	2.32
5	90	209	4.86	-0.4075	0.84
6	48	212	0.00	-0.670	0.00
NWEA-MAP [®] Math Assessment					
Grade	N	M	Sd	M	Sd
K	13	158	0.00	0.0600	0.00
1	32	170	4.24	-1.135	0.74
2	61	187	1.53	-0.480	0.28
3	105	197	8.09	-1.010	1.48
4	73	207	11.64	-0.585	1.91
5	90	213	3.59	-0.878	0.55
6	48	219	2.83	-0.760	0.44

Note: Classroom averages were reported for teacher-participants' classrooms in the sample.

Classroom average scores were computed using scores from individual students when not already provided by the school groups in this study.

Table 10

Unstandardized and Standardized STAR Reading™ and STAR Math™ Score¹ Means and Standard Deviations for In-service Teachers' Classrooms

Unstandardized STAR™ Scores				Standardized STAR™ Scores	
STAR Reading™					
Grade ²	N	M	sd	M	sd
1	104	178	30	-0.2320	-0.85
2	60	251	11	-0.6867	0.08
3	66	388	59	-0.4250	0.33
4	112	462	113	-0.4720	0.53
5	88	522	61	-0.6425	0.24
6	64	551	18	-0.8767	0.06
STAR Math™					
Grade ²	N	M	sd	M	sd
1	104	471	37	0.0440	0.41
2	60	474	40	-0.4667	0.46
3	66	597	28	-0.0025	0.30
4	112	641	63	-0.1580	0.64
5	88	668	16	-0.4250	0.16
6	64	717	7	-0.4367	0.06

Note: ¹Classroom averages were reported for participants in the sample. Classroom average scores were computed using scores from individual students when not already provided by the school groups in this study.

²Kindergarten students are not tested on the STAR Reading™ or STAR Math™ assessments.

Norming sample retrieved from Renaissance Learning. (2014). STAR Reading™ Technical Manual and Renaissance Learning. (2014) STAR Math™ Technical Manual.

Table 11

Spring 2014 NWEA-MAP[®] RIT^a Score Means and Standard Deviations Compared to National Norms

		Current Study			Norming Sample		
Grade	Classrooms	N	M	sd	N	M	sd
NWEA-MAP [®] Reading							
K	1	13	155	0.00	1916	156	5.33
1	2	32	168	7.78	1957	174	5.59
2	3	61	186	5.69	2218	188	5.82
3	6	105	192	6.34	2452	198	5.57
4	4	73	197	12.67	2397	205	5.46
5	4	90	209	4.86	1916	211	5.82
6	2	48	212	0.00	1304	216	5.42
NWEA-MAP [®] Math							
K	1	0	158	0.00	1927	158	5.98
1	2	104	170	4.24	1960	177	5.74
2	3	60	187	1.53	2188	189	5.34
3	6	66	197	8.09	2438	202	5.46
4	4	112	207	11.64	2417	210	6.11
5	4	88	213	3.59	1859	219	6.62
6	2	64	219	2.83	1315	224	6.47

Note: n=students in this study. N=schools in the norming population. Classroom average

scores were computed using scores from individual students or were otherwise provided in data from school groups. Norming sample retrieved from Northwest Evaluation Association (2012). RIT scale school norms study for use with Measures of Academic Progress (MAP[®]) and MAP[®] for primary grades: An executive summary. Portland, Oregon: Northwest Evaluation.

^aAssessment scores were classroom averages reported for teacher-participants in the sample.

Table 12

Spring 2014 STAR™ Reading and STAR Math™ Scaled Score¹ Means and Standard Deviations Compared to National Norms

Current Study				Norming Sample		
STAR Reading™						
Grade	Classrooms	M	sd	N	M	sd
K	0					
1	104	178	30	54,570	204	112
2	60	250	11	288,910	355	151
3	66	388	59	270,570	464	178
4	112	460	113	250,200	563	214
5	88	522	61	214,390	688	260
6	64	551	18	96,130	816	303
STAR Math™						
Grade	Classrooms	M	sd	N	M	SD
K	0					
1	104	410	37	20,240	406	91
2	60	474	40	53,422	514	86
3	66	597	28	91,485	597	93
4	112	641	62	80,790	656	97
5	88	668	16	69,478	710	100
6	64	718	7	47,215	763	106

Note: n=students in this study. N=schools in the norming population. Classroom average

scores in the current study were computed using scores from individual students or were otherwise provided in data from school groups. ^aScaled scores represent classroom averages for participants in the sample or in the norming population.

Norming sample retrieved from Renaissance Learning. (2014). STAR Reading™ Technical Manual. Renaissance Learning, Inc. and Renaissance Learning. (2014). STAR Math™ Technical Manual. Renaissance Learning, Inc.

As stated in Chapter Three, the NWEA-MAP[®] and STAR[™] assessments were given labels of assessment type 1 and assessment type 2 (not necessarily in that order), as two school groups were each completely represented by only one of these assessments, and another school group a mix of both assessments. Further, two of the school groups whose student scores were completely defined by different assessments were also located in two different states. This allowed the researcher to consider other standardized tests that students in such states are compared to, on a national level. The National Assessment of Educational Progress (NAEP), which was referred to in Chapter One of this study, is a common assessment given at grades 4 and 8 that is used to report national progress of student achievement, and historically has been used to compare student progress in the United States based on gender and race. The comparison of student progress on the NAEP in the states of this study is presented in Table 13. The student progress on the NAEP in the states of this study is presented in Table 14.

Table 13

Comparison of National and State Report Cards on 2013 National Assessment of Educational Progress

	Student Performance Category			
	% Below Basic	% Basic	% Proficient	% Advanced
NAEP Grade 4 Reading				
National	33	33	26	8
State 1	30	35	28	7
State 2	29	33	30	8
NAEP Grade 4 Mathematics				
National	18	41	33	8
State 1	17	44	33	5
State 2	11	41	40	8
(table continued)				

Table 13 Continued

Comparison of National and State Report Cards on 2013 National Assessment of Educational Progress

	Student Performance Category			
	% Below Basic	% Basic	% Proficient	% Advanced
NAEP Grade 8 Reading				
National	22	42	31	4
State 1	22	43	32	4
State 2	22	42	33	3
NAEP Grade 8 Mathematics				
National	21	39	30	10
State 1	26	41	26	7
State 2	21	39	30	10

Note: Data was retrieved from National Center for Education Statistics and the state department of secondary and elementary education websites of each respective state.

Table 14

Comparison of State Report Cards on 2013 National Assessment of Educational Progress

Assessment by State	Performance Category							
	% Below Basic		% Basic		% Proficient		% Advanced	
	State 1	State 2	State 1	State 2	State 1	State 2	State 1	State 2
NAEP 2013 Grade 4 Reading								
Asian/Pacific Islander	18	24	34	29	31	33	17	14
Black	56	53	31	30	12	15	2	2
Hispanic	35	45	35	35	23	17	7	3
Native American/Alaska Native	--	--	--	--	--	--	--	--
White	24	22	36	34	32	34	9	10
Two or more races	--	--	--	--	--	--	--	--

(table continued)

Table 14 Continued

Comparison of State Report Cards on 2013 National Assessment of Educational Progress

	Performance Category							
	% Below Basic		% Basic		% Proficient		% Advanced	
NAEP 2013 Grade 4 Mathematics								
Asian/Pacific Islander	--	3	--	29	--	48	--	20
Black	40	29	46	49	13	21	1	1
Hispanic	23	19	49	50	26	29	3	2
Native American/Alaska Native	--	--	--	--	--	--	--	--
White	11	7	43	40	39	44	6	9
Two or more races	--	--	--	--	--	--	--	--
NAEP 2013 Grade 8 Reading								
Asian/Pacific Islander	--	20	--	36	--	35	--	9
Black	44	46	43	41	13	13	1	0
Hispanic	20	34	48	46	30	19	2	1
Native American/Alaska Native	--	--	--	--	--	--	--	--
White	16	16	42	42	37	39	4	3
Two or more races	--	--	--	--	--	--	--	--
NAEP 2013 Grade 8 Mathematics								
Asian/Pacific Islander	--	17	--	28	--	31	--	24
Black	44	44	43	38	13	15	1	3
Hispanic	20	33	48	43	30	20	2	4
Native American/Alaska Native	--	--	--	--	--	--	--	--
White	16	15	42	38	37	35	4	12
Two or more races	--	--	--	--	--	--	--	--

Note: Data retrieved from National Center for Education Statistics.

Preliminary Analysis

Independent sample t-tests and one-way ANOVAs were conducted to determine differences between the independent and dependent variables respectively, and particular demographic characteristics that produced categorical variables. These preliminary tests for differences would help identify any covariates that should be entered into the multiple regression models.

t-Test for Differences: By Teacher Race

CRTSE by teacher race. An independent samples t-test was conducted to determine if there were differences in teachers' culturally responsive teaching self-efficacy based on in-service teachers' self-identified race: non-White; Asian, Black, Hispanic, Native American, or Multi-racial ($n=25$) and White ($n=43$). The CRTSE strength index scores for the group of in-service teachers who self-identified as non-White had a range of 68.83 to 97.07. The CRTSE strength index scores for the group of in-service teachers who had identified as White had a range of 60.49 to 96.83. There were no outliers in the data as assessed by inspection of a boxplot. CRTSE strength index scores for each level of race were normally distributed, as assessed by Shapiro-Wilk's test ($\rho > .05$), and there was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .262$). On average, the group of in-service teachers who self-identified as non-White were more efficacious in their culturally responsive teaching capabilities ($M=85.07$, $SD=8.10$) than the group of in-service teachers who self-identified as White ($M=82.04$, $SD=9.80$). This difference was not significant $t(66) = 1.305$, $p = .196$.; however, the effect size as indexed by Cohen's d , was .32; a lower mid-sized effect. The 95% CI for the non-significance between sample means, $M_1 - M_2$, had a lower bound of -1.60 and an upper bound of 7.65.

CRTOE by teacher race. An independent samples t-test was conducted to determine if there were differences in teachers' culturally responsive teaching outcome expectancy beliefs based on in-service teachers' self-identified race: non-White; Asian, Black, Hispanic, Native American, or Multi-racial (n=25) and White (n=43). The CRTOE strength index scores had a range of 66.15 to 100 for the group of teachers who self-identified as non-White; Asian, Black, Hispanic, Native American, or Multi-racial. The CRTOE strength index scores had a range of 71.04 to 100 for the group of in-service teachers who self-identified as White. There were two outliers in the data (both outliers were the lowest CRTOE strength index score reported per group, respectively), as assessed by inspection of a boxplot. Those outliers were not removed from the data as the teachers' self-report appraisal ratings represent the naturally occurring perceptions about the potential positive influence of culturally responsive teaching practices for students of in-service teachers' in this sample.

CRTOE strength index scores for each level of race were not normally distributed, as assessed by Shapiro-Wilks' test ($p > .05$). CRTOE strength index scores of the group who self-identified as non-White had a skewness of -1.356 (SE=0.464), kurtosis 2.550 (SE=1.165). CRTOE strength index scores of the group who self-identified as White had a skewness of -1.146 (SE=0.361), kurtosis 0.578 (SE=0.709). The non-normality of the CRTOE scores distribution in these two sub-groups was expected based on the overall distribution statistics reported in the descriptive analysis section above. Also it is important to incorporate into the interpretation of such scores the understanding that this sample of in-service teachers were educated in their teacher preparation program to value the importance of enacting culturally responsive practices within their urban school settings. It is also likely that in-service teachers completing a questionnaire from their degree-granting institution that

promoted culturally responsive pedagogy may tend to also rank these practices closer to the high end of the scale.

There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p=.665$). On average, the group of in-service teachers who self-identified as White held stronger outcome expectancy beliefs in culturally responsive teaching practices ($M=92.91$, $SD=7.64$) than the group of in-service teachers who self-identified non-White ($M=90.38$, $SD=7.86$). This difference was not significant $t(66) = -1.303$, $p = .197$; however, the effect size as indexed by Cohen's d , was .32; a lower mid-sized effect. The 95% CI for the non-significance between sample means, $M_1 - M_2$, had a lower bound of -6.41 and an upper bound of 1.35.

CLASS by teacher race. An independent samples t test was conducted to determine if there were differences in teachers' levels of emotional, organizational and instructional support as evident by their observed instructional practices (CLASS) based on in-service teachers' self-identified as: non-White; Asian, Black, Hispanic, Native American, or Multi-racial ($n=25$) and White ($n=42$). The CLASS scores for the group of in-service teachers who had self-identified as White had a range of 11.19 to 18.70. The CLASS scores for the group of in-service teachers who had self-identified as non-White; Asian, Black, Hispanic, Native American, or Multi-racial had a range of 11.19-19.86. There were no outliers in the data as assessed by inspection of a boxplot. CLASS scores for each level of race were normally distributed, as assessed by Shapiro-Wilk's test ($\rho > .05$).

The CLASS scores for the group of in-service teachers who had self-reported as White had a skewness of -.219 ($SE=.365$) and a kurtosis of -.238 (.717). The group of teachers who had self-reported as non-White had a skewness .040 ($SE=.464$) and a kurtosis

of $-.315$ ($SE=.902$). There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .510$). On average, the group of inservice teachers who self-identified as non-White were slightly higher on levels of instructional practices ($M=15.40$, $SD=2.14$) than the group of in-service teachers who self-identified as White ($M=15.04$, $SD=1.85$). This difference was not significant $t(65)=.721$, $p =.473$; however, the effect size as indexed by Cohen's d , was $.18$; a small effect. The 95% CI for the non-significance between sample means, $M_1 - M_2$, had a lower bound of $-.632$ and an upper bound of 1.35 .

Dependent Variables

For the purposes of assessing differences on particular demographic variables of interest on the DVs, the univariate outliers that had been flagged in initial descriptive data analyses were removed from the data set to perform the preliminary and subsequent statistical tests that include student outcome scores as the dependent variable. There were 46 participants who had matched student data out of the 69 participants in this study. Removal of the univariate outliers yielded a sample of 44 for each test on each dependent variables.

Student reading z-scores by teacher race. An independent samples t test was conducted to determine if there were differences in student reading z-scores based on inservice teachers' self-identified race: non-White; Asian, Black, Hispanic, Native American, or Multi-racial ($n=14$) and White ($n=30$). The student reading z-scores for the group of inservice teachers who self-identified as non-White had a range of -2.13 to 0.41 . The student reading z-scores for the group of in-service teachers who self-identified as White had a range of -1.57 to 0.84 . The univariate outliers had been removed from the data set based on inspection of z-scores beyond ± 2.58 (Field, 2009) during descriptive analyses, and as expected the inspection for boxplots indicated no outliers were present.

Reading z-scores for each level of race were normally distributed, as assessed by Shapiro-Wilk's test of variances, $p=.117$ and $p=.679$, respectively. The z-scores for the in-service teachers self-identified as non-White had a skewness of $-.652$ ($SE=.597$) and kurtosis of 1.451 ($SE=1.154$). The z-scores for the in-service teachers who self-identified as White had a skewness of 0.368 ($SE=0.427$) and kurtosis of -0.219 ($SE=0.833$). There was homogeneity of variances, as assessed by Levene's test for equality of variances $p = 0.525$. On average, the group of inservice teachers who self-identified as White had slightly higher classroom averages on student reading z-scores ($M = -0.43$, $SD=0.11$) than the group of in-service teachers who self-identified as non-White ($M = -0.74$, $SD=0.17$). These differences were not significantly statistically different, $t(39) = -1.566$, $p=.125$; however, the effect size as indexed by Cohen's d , was $.48$, a medium effect. The 95% CI for the non-significance between the sample means, $M_1 - M_2$, had a lower bound of $-.708$ and an upper bound of $.089$.

Student math z-scores by teacher race. An independent samples t-test was conducted to determine if there were differences in student math z-scores based on in-service teachers' self-identified race: non-White; Asian, Black, Hispanic, Native American, or Multi-racial ($n=13$) and White ($n=31$). The student math z-scores for the group of in-service teachers who self-identified as non-White had a range of -1.66 to 0.85 . The student math z-scores for the group of in-service teachers who self-identified as White had a range of -2.23 to 1.43 .

The univariate outliers had been removed from the data set based on inspection of z-scores beyond ± 2.58 (Field, 2009) during descriptive analyses, and as expected the inspection for boxplots indicated no outliers were present. Student math z-scores for each level of race were normally distributed, as assessed by Shapiro-Wilk's test of variances,

$p=.246$ and $p=.636$, respectively. The z-scores for the in-service teachers who had self-identified as non-White had a skewness of -0.316 ($SE=0.616$) and kurtosis of 2.701 ($SE=1.191$). The z-scores for the in-service teachers who had self-identified as White had a skewness of 0.110 ($SE=0.421$) and kurtosis of 1.347 ($SE=0.821$). There was homogeneity of variances, as assessed by Levene's test for equality of variances $p=0.391$. On average, the group of in-service teachers who self-identified as non-White had slightly higher classroom averages on student reading z-scores ($M= -0.34$, $SD=0.16$) than the group of in-service teachers who self-identified as White ($M= -0.37$, $SD=0.13$). The differences on student math scores for the two groups based on in-service teachers' self-identified race were not significantly statistically different, $t(42) = 0.139$, $p=.890$; however, the effect size as indexed by Cohen's d , was $.04$, a very low effect. The 95% CI for the non-significance between the sample means, $M_1 - M_2$, had a lower bound of -0.420 and an upper bound of $.482$. Table 15 presents the results for the t test to assess mean differences in the variables of interest by two categories of self-identified race.

Table 15

Independent Samples t test to Assess Mean Differences by Race

Independent Variable	Grouping Variable		<i>t</i> test statistics			
	M (SD)		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	Non-White (n=25)	White (n=43)				
CRTSE	85.07 (8.10)	82.04 (9.80)	1.305	66	.196	.32
CRTOE	90.38 (7.86)	92.91 (7.64)	-1.303	66	.197	.32
CLASS	15.40 (2.14)	15.04 (1.85)	0.721	65	.473	.18

(table continued)

Table 15 Continued

Independent Samples t test to Assess Mean Differences by Race

	Grouping Variable		<i>t</i> test statistics			
	M (SD)		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Dependent Variable	Non-White (n=14)	White (n=30)				
Student Reading Z-scores	-0.74 (0.17)	-0.43 (.11)	-1.566	42	.125	.48
Student Math Z-scores	-0.34 (0.16)	-0.37 (.13)	0.139	42	.890	.04

t-Test for Differences: By Grade Level

CRTSE by grade level. An independent samples t-test was conducted to determine if there were differences in teachers' culturally responsive teaching self-efficacy beliefs based on the grade level in which in-service teachers' were teaching, kindergarten through third grade (primary grades, n=39) or fourth-sixth grade (upper elementary grades, n=29). This variable also corresponded to the versions of the CLASS tool (K-3 CLASS or Upper Elementary CLASS) used to measure teacher instructional practices. The CRTSE strength index scores for the group of in-service teachers who were teaching in primary classrooms had a range of 61.61 to 97.07. The CRTSE strength index scores for the group of in-service teachers who were teaching in upper elementary classrooms had a range of 60.49 to 96.83. There were no outliers in the data as assessed by inspection of a boxplot. CRTSE strength index scores for each level of race were not normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$). The CRTSE strength index scores for the in-service teachers who were teaching in primary classrooms had a skewness of -.586 (SE=.378) and kurtosis of -.848 (SE=.741). The CRTSE strength index scores for the in-service teachers who were teaching in upper elementary classrooms of had a skewness of -.311 (SE=.434) and kurtosis of .183

($SE=.845$). There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .313$).

On average, the group of in-service teachers who were teaching in primary classrooms had a very similar strength of efficacy in their culturally responsive teaching capabilities ($M=83.24$, $SD=9.81$) as the group of in-service teachers who were teaching in upper elementary classrooms ($M=83.04$, $SD=8.63$). This difference was not significant $t(66) = .087$, $p = .931$; however, the effect size as indexed by Cohen's d , was .02; an extremely low effect size. The 95% CI for the non-significance between sample means, $M_1 - M_2$, had a lower bound of -4.37 and an upper bound of 4.77.

CRTOE by grade level. An independent samples t-test was conducted to determine if there were differences in teachers' culturally responsive teaching outcome expectancy beliefs based on the grade level in which in-service teachers' were teaching, kindergarten through third grade (primary grades, $n=39$) or fourth-sixth grade (upper elementary grades, $n=29$). This variable also corresponded to the versions of the CLASS tool (K-3 CLASS or Upper Elementary CLASS) used to measure teacher instructional practices. The CRTOE strength index scores for the group of in-service teachers who were teaching in primary classrooms had a range of 66.15 to 100. The CRTOE strength index scores for the group of in-service teachers who were teaching in upper elementary classrooms had a range of 77.31 to 100. There were three outliers in the data as assessed by inspection of a boxplot on CRTOE strength index scores in the primary teachers' group. As these self-reported assessments represent perceptions of teachers in naturally occurring settings, they remained in the data set.

The CRTOE strength index scores for each level of teaching were not normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$). The CRTOE strength index scores for the in-service teachers who were teaching in primary classrooms were not normal as assessed by Shapiro-Wilk's test, $p = .001$, and had a skewness of -1.508 ($SE=.378$) and kurtosis of $-.1.95$ ($SE=.741$). The CRTOE strength index scores for the in-service teachers who were teaching in upper elementary classrooms of had a skewness of $-.421$ ($SE=.434$) and kurtosis of $-.832$ ($SE=.845$). As previously mentioned, scores on CRTOE may be negatively skewed, as the sample of in-service teachers were trained to value and enact culturally responsive teaching practices. There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .606$).

On average, the group of in-service teachers who were teaching in primary classrooms had a very similar strength in their beliefs that culturally responsive teaching instructional strategies provide positive benefits to students ($M=92.29$, $SD=8.44$) as the group of in-service teachers who were teaching in upper elementary classrooms ($M=91.56$, $SD=6.88$). This difference was not significant $t(66) = .381$, $p = .704$; however, the effect size as indexed by Cohen's d , was $.09$; an extremely low effect size. The 95% CI for the non-significance between sample means, $M_1 - M_2$, had a lower bound of -3.09 and an upper bound of 4.56 .

CLASS by grade level. An independent samples t-test was conducted to determine if there were differences in teachers' levels of emotional, organizational, and instructional support as evident by their observed instructional practices (CLASS scores) based on the grade level in which in-service teachers' were teaching; kindergarten through third grade (primary grades, $n=39$) or fourth-sixth grade (upper elementary grades, $n=29$). This variable

also corresponded to the versions of the CLASS tool (K-3 CLASS or Upper Elementary CLASS) used to measure teacher instructional practices. The CLASS scores for the group of in-service teachers who were teaching in primary classrooms had a range of 11.19 to 18.16. The CLASS scores for the group of in-service teachers who were teaching in upper elementary classrooms had a range of 11.19 to 19.86. There were no outliers in the data as assessed by inspection of a boxplot. The CLASS scores for each level of teaching were normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$). The CLASS scores for the in-service teachers who were teaching in primary classrooms had a skewness of $-.334$ ($SE=.378$) and kurtosis of $-.279$ ($SE=.741$). The CLASS scores for the in-service teachers who were teaching in upper elementary classrooms had a skewness of $.038$ ($SE=.434$) and kurtosis of $-.323$ ($SE=.845$). There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .269$).

On average, the group of in-service teachers who were teaching in upper elementary classrooms had provided very similar levels of emotional, organizational and instructional support as evident in their instructional practices ($M=15.35$, $SD=2.16$) as the group of in-service teachers who were teaching in primary classrooms ($M=15.06$, $SD=1.78$). This difference was not significant $t(66) = .269$, $p = .546$; however, the effect size as indexed by Cohen's d , was $.07$; an extremely low effect size. The 95% CI for the non-significance between sample means, $M_1 - M_2$, had a lower bound of -1.25 and an upper bound of 0.66 .

Student reading z-scores by grade level. An independent samples t-test was conducted to determine if there were differences in student reading z-scores based on the grade level in which in-service teachers' were teaching; kindergarten through third grade (primary grades, $n=22$) or fourth-sixth grade (upper elementary grades, $n=22$). Univariate

outliers had been removed from the data set based on inspection of z-scores beyond ± 2.58 (Field, 2009) during descriptive analyses, and as expected the inspection for boxplots indicated no outliers were present. The z-scores were normally distributed for the group of in-service teachers teaching in primary classrooms, as assessed by Shapiro-Wilk's test, $p=.196$, but were not normally distributed for in-service teachers teaching in upper elementary classrooms, $p=.002$. The z-scores for the in-service teachers who were teaching in primary classrooms had a skewness of -0.906 ($SE=.491$) and kurtosis of $.515$ ($SE=.953$). The reading z-scores for the in-service teachers who were teaching in upper elementary classrooms of had a skewness of 1.076 ($SE=.491$) and kurtosis of $.641$ ($SE=.953$). There was homogeneity of variances, as assessed by Levene's test for equality of variances, $p = .729$.

On average, the group of in-service teachers who taught in upper elementary classrooms had slightly higher classroom averages on student reading z-scores ($M= -0.50$, $SD=0.13$) than the group of in-service teachers who were teaching in primary grades ($M= -0.55$, $SD=0.14$). There were no statistically significant differences in student reading z-scores for groups of primary or upper elementary classrooms; $t(42) = -0.271$, $p = .787$; however, the effect size as indexed by Cohen's d , was $.04$; an extremely small effect size. The 95% CI for the non-significance between sample means, $M_1 - M_2$, had a lower bound of -0.433 and an upper bound of 0.331 .

Student math z-scores by grade level. An independent samples t-test was conducted to determine if there were differences in student math z-scores based on the grade level in which in-service teachers' were teaching; kindergarten through third grade (primary grades, $n=22$) or fourth-sixth grade (upper elementary grades, $n=22$). Univariate outliers had been removed from the data set based on inspection of z-scores beyond ± 2.58 (Field, 2009) during

descriptive analyses, and as expected the inspection for boxplots indicated no outliers were present. The z-scores were normally distributed for the group of in-service teachers teaching in primary classrooms, as assessed by Shapiro-Wilk's test, $p=.611$, but were not normally distributed for in-service teachers teaching in upper elementary classrooms, $p=.047$. The math z-scores for the in-service teachers who were teaching in primary classrooms had a skewness of -0.266 ($SE=.491$) and kurtosis of 1.488 ($SE=.953$). The math z-scores for the in-service teachers who were teaching in upper elementary classrooms of had a skewness of 0.708 ($SE=.491$) and kurtosis of 1.087 ($SE=.953$). There was homogeneity of variances, as assessed by Levene's test for equality of variances, $p = .221$.

On average, the group of in-service teachers who taught in primary classrooms had slightly higher classroom averages on student math z-scores ($M= -0.35$, $SD=0.16$) than the group of in-service teachers who were teaching in upper elementary grades ($M= -0.38$, $SD=0.13$). There were no statistically significant differences in student math z-scores for groups of primary or upper elementary classrooms; $t(42) = 0.125$, $p = .901$; however, the effect size as indexed by Cohen's d , was $.02$; an extremely small effect size. The 95% CI for the non-significance between sample means, $M_1 - M_2$, had a lower bound of -0.386 and an upper bound of 0.437 . Table 16 presents the results for the t test to assess mean differences in the variables of interest by categories related to the grade level of in-service teachers' classrooms.

Table 16

Independent Samples t test to Assess Mean Differences by Grade Level

	Grouping Variable		<i>t</i> test statistics			
	M (SD)		<i>t</i>	<i>df</i>	<i>P</i>	<i>D</i>
Independent Variable	Primary (n=39)	Upper Elementary (n=29)				
CRTSE	83.24 (9.81)	83.04 (8.63)	0.087	66	.931	.02
CRTOE	92.29 (8.44)	91.56 (6.88)	0.381	66	.704	.09
CLASS	15.06 (1.78)	15.35 (2.16)	0.269	65	.546	.07
Dependent Variable	Primary (n=22)	Upper Elementary (n=22)				
Student Reading Z-scores	-0.55 (0.14)	-0.50 (.13)	-0.271	42	.787	.04
Student Math Z-scores	-0.35 (0.16)	-0.38 (.12)	0.125	42	.901	.02

t-Test for Differences by Time of CLASS Observation: Morning vs. Afternoon

An independent samples t-test was conducted to determine if there were differences in teachers' levels of emotional, organizational, and instructional support as evident by their observed instructional practices (CLASS scores) based on the time of day the classroom observation was held: AM (n=44) PM and (n=24). Although morning observations are preferred based on the recommendations of the CLASS protocol, it is important to note that some teachers' schedules prohibited morning observations because their students attended other classrooms or school functions at that time (i. e. Art, Music, Physical Education. Library, Counselor visits, Standardized Testing prep, Recess or Lunch). The CLASS scores for the group of in-service teachers who were observed in the morning had a range of 11.19 to 19.86. The CLASS scores for the group of in-service teachers who were observed in the afternoon had a range of 11.19 to 18.70. There were two outliers in the data as assessed by

inspection of a boxplot, which one was the maximum CLASS score of the morning group (19.86) and the minimum CLASS score of the morning group (11.19). These scores were kept in the data set. The CLASS scores for each level of teaching were normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$). The CLASS scores for the in-service teachers who were observed in the morning had a skewness of $-.093$ ($SE=.357$) and kurtosis of $-.292$ ($SE=.702$). The CLASS scores for the in-service teachers who were observed in the afternoon had a skewness of $.178$ ($SE=.472$) and kurtosis of $-.563$ ($SE=.918$). There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .241$).

On average, the group of in-service teachers who were observed in the morning had provided higher levels of emotional, organizational and instructional support as evident in their instructional practices ($M=15.55$, $SD=1.80$) as the group of in-service teachers who were observed in the afternoon ($M=14.52$, $SD=2.06$). This difference was significant $t(66) = 2.128$, $p = .037$. The effect size, as indexed by Cohen's d , was $.52$; a medium-effect size. The 95% CI for the non-significance between sample means, $M_1 - M_2$, had a lower bound of $.06$ and an upper bound of 1.98 .

It was presumed that there would not be differences related to the time of the CLASS observation and the individual ratings of CRTSE and CRTOE completed by the in-service teachers, nor the student outcome scores. However, since there was statistical significance based on morning and afternoon observations on CLASS scores, an independent t-test was conducted to test for differences on CRTSE scores, CRTOE scores, student reading z-scores and student math z-scores by these groups to ensure that this sample characteristic is not a co-variate for further statistical analyses. None of the scores based on the time of the classroom observations were statistically significantly different. The CRTSE by AM or PM

observation yielded the equal variances unassumed, $t(36.856) = -.545$, $p = .589$, CI [-6.64, 3.82], $d = 0.18$. The CRTOE by AM or PM observation yielded the equal variances unassumed, $t(45.212) = -.480$, $p = .633$, CI [-5.06, 3.11], $d = 0.14$. The readings z-scores by AM or PM observation test for differences yielded $t(42) = -1.169$, $p = .249$, CI [-0.63, 0.17], $d = 0.36$. The math z-scores by AM or PM yielded $t(42) = 0.935$, $p = .355$, CI [-0.23, 0.63], $d = 0.28$. Table 17 presents the results for the t test to assess mean differences in the variables of interest by categories related to time of the classroom observations.

Table 17

Independent Samples t test to Assess Mean Differences by Morning or Afternoon CLASS observation

	Grouping Variable		<i>t</i> test statistics			
	M (SD)		<i>t</i>	<i>df</i>	<i>p</i>	<i>D</i>
Independent Variable	AM (n=44)	PM (n=24)				
CLASS	15.55 (1.80)	14.52 (2.06)	2.128	66	.037*	.52
	AM (n=43)	PM (n=24)				
CRTSE	83.24 (9.81)	83.90 (11.12)	-0.595	38.856	.589	.18
CRTOE	91.50 (7.64)	92.50 (8.13)	-0.480	45.212	.633	.14
Dependent Variable	AM (n=29)	PM (n=15)				
Student Reading Z-scores	-0.61 (0.58)	-0.38 (.71)	-1.169	42	.249	.36
Student Math Z-scores	-0.29 (0.64)	-0.49 (.73)	0.935	42	.355	.29

Note: $p < .05^*$.

One-Way ANOVA test for Differences: By Years in Teaching

The categorical variable representing three groups of years in teaching (first year, $n=28$; second year, $n=19$, and third-fifth year, $n=21$) was used in the preliminary tests with dependent variables: CRTSE, CRTOE and CLASS. The categorical three groups of years in teaching (first year, $n=20$; second year, $n=12$; and third-fifth year, $n=12$) was used in the preliminary tests with the dependent variables reading z-scores, and the categorical groups of years in teaching (first year, $n=19$; second year, $n=13$; and third-fifth year, $n=12$) was used in the preliminary tests with the dependent variables math z-scores.

CRTSE by years in teaching. A one-way between-S ANOVA was conducted to compare the means of strength index scores on a scale measuring culturally responsive teaching self-efficacy of in-service teachers ($n=68$) who were in their first through fifth year of teaching. The first and second year in-service teachers' efficacy scores were normally distributed, as assessed by Shapiro-Wilk's test of normality, $p=.286$, and $p=.199$ respectively. The third year teachers' efficacy scores were not normally distributed, as assessed by Shapiro-Wilk's test of normality, $p=.025$. As found earlier in preliminary analyses, it is not surprising that these scores are negatively skewed. There were no outliers in the data as assessed by inspection of a boxplot. There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .651$).

CRTSE scores were statistically significantly different between different levels of years in teaching $F(2, 65) = 3.286$, $p = .044$. Multiple comparisons were made using the Tukey HSD test. Based on this test, (using $\alpha=.05$) it was found that culturally responsive teaching self-efficacy (CRTSE scores) increased from the first year of teaching ($M=80.21$, $SD=9.18$), to the second year of teaching ($M=83.44$, $SD=8.52$), to the third-fourth year of

teaching ($M=86.83$, $SD=9.05$) in that order. There was an increase in CRTSE scores from the first year teaching group ($M=80.2$, $SD=9.2$) to the third year of teaching ($M=86.83$, $SD=9.0$), a mean increase of 6.6, 95% CI [0.4, 12.8], which was statistically significant ($p = .034$). This corresponds to an effect size of $\eta^2 = .092$. This is a large effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

CRTOE by years in teaching. A one-way between-S ANOVA was conducted to compare the means of strength index scores on a scale measuring culturally responsive teaching outcome expectancy beliefs of in-service teachers ($n=68$) who were in their first through fifth year of teaching. The first year in-service teachers' efficacy scores were normally distributed, as assessed by Shapiro-Wilk's test of normality, $p=.097$. The second and the third year teachers' efficacy scores were not normally distributed, as assessed by Shapiro-Wilk's test of normality, $p=.028$ and $p=.001$ respectively. As found earlier in preliminary analyses, it is not surprising that these scores are negatively skewed. There was one potential outlier in the third-fifth year of teaching group, as assessed by inspection of a boxplot and it was left in the data set. There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .583$). In this sample of in-service teachers, culturally responsive teaching outcome expectancy beliefs were lowest for the group of second year teachers ($M=91.49$, $SD=8.34$), higher for the first year group ($M=91.77$, $SD=6.58$), and highest for the third-fourth year of teaching ($M=92.69$, $SD=7.76$) in that order. CRTOE scores were not statistically significantly different between different levels of years in teaching $F(2, 65) = 0.133$, $p < .876$. This corresponds to an effect size of $\eta^2 = .004$. This is a very small effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

CLASS by years in teaching. A one-way between-S ANOVA was conducted to compare the means of scores on a scale measuring levels of emotional, organizational, and instructional support as evident by in-service teachers' observed instructional practices (n=68) who were in their first through fifth year of teaching. The in-service teachers' efficacy scores were normally distributed for each group of years in teaching, as assessed by Shapiro-Wilk's test of normality, $p=.785$, $p=.117$, and $p=.362$, respectively. There were no outliers in the data as assessed by inspection of a boxplot. There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .993$). In this sample of in-service teachers, CLASS scores were ($M=15.11$, $SD=2.01$) for the first year teachers, were ($M=15.15$, $SD=1.89$) for the second year teachers, and were ($M=15.31$, $SD=1.98$) for the third-fourth year of teachers. CLASS scores were not statistically significantly different between different levels of years in teaching $F(2, 65) = 0.067$, $p < .935$. This corresponds to an effect size of $\eta^2 = .002$. This is a very small effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

Reading z-scores by years in teaching. A one-way between-S ANOVA was conducted to compare the mean scores on a standardized assessment measuring elementary students' reading achievement by in-service teachers (n=44) who were in their first through fifth year of teaching. The student outcome scores of first year in-service teachers were not normally distributed, as assessed by Shapiro-Wilk's test of normality, $p=.041$. The second and the third year teachers' classroom scores were normally distributed, as assessed by Shapiro-Wilk's test of normality, $p=.971$ and $p=.341$ respectively. Reading z-score univariate outliers had previously been removed based on z-scores beyond ± 2.58 values, as such there were no outliers based on inspection of boxplots. There was homogeneity of variances, as

assessed by Levene's test for equality of variances ($p = .080$). In this sample of in-service teachers, student outcome scores represented by classroom average z-scores were ($M = -0.67$, $SE = 0.43$) for the group of first year teachers, were ($M = -0.50$, $SD = .81$), for the group of third-fourth teachers and were ($M = -0.32$, $SD = 0.67$) for the group of second year teachers. Reading z-scores were not statistically significantly different between different levels of years in teaching $F(2, 41) = 1.204$, $p < .310$. This corresponds to an effect size of $\eta^2 = .055$. This is small effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

Math z-scores by years in teaching. A one-way between-S ANOVA was conducted to compare the mean scores on a standardized assessment measuring elementary students' math achievement by in-service teachers ($n = 44$) who were in their first through fifth year of teaching. The student outcome scores across years in teaching were normally distributed, as assessed by Shapiro-Wilk's test of normality, $p = .829$, $p = .226$ and $p = .487$, respectively. Math z-score univariate outliers had previously been removed based on z-scores beyond ± 2.58 values, as such there were no outliers based on inspection of boxplots. There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .148$). In this sample of in-service teachers, student outcome math scores represented by classroom average z-scores were ($M = -0.48$, $SE = 0.43$) for the group of first year teachers, were ($M = -0.33$, $SD = .92$) for the group of third-fourth year teachers, and were ($M = -0.21$, $SD = 0.71$) for the group of second year teachers. Math z-scores were not statistically significantly different between different levels of years in teaching $F(2, 41) = 0.654$, $p < .525$. This corresponds to an effect size of $\eta^2 = .030$. This is small effect (Cohen, 1988, as cited in Warner, 2013, p. 208). Table 18 presents the ANOVA statistics for each independent and dependent variable.

Table 18

One-Way ANOVA to Assess Mean Differences by Years in Teaching

	Grouping Variable			ANOVA statistics			
	M (SD)			<i>f</i>	(<i>dfb</i> , <i>dfw</i>)	<i>p</i>	η^2
	First Year (n=28)	Second Year (n=19)	Third Year (n=21)				
Independent Variables							
CRTSE	80.21 (9.18)	83.44 (8.52)	86.83 (9.05)	3.286	(2, 65)	.044*	.092
CRTOE	91.77 (6.58)	91.49 (7.76)	92.69 (7.76)	0.133	(2, 65)	.876	.004
CLASS	15.11 (2.01)	15.15 (1.89)	15.31 (1.98)	0.067	(2, 65)	.935	.002
Dependent Variables							
Reading z-scores	-0.67 (0.43)	-0.50 (0.81)	-0.32 (0.67)	1.204	(2, 41)	.310	.055
Math z-scores	-0.48 (0.43)	-0.33 (0.92)	-0.21 (.71)	0.654	(2, 41)	.525	.030

Note: $p < .05^*$. $\eta^2 = .000-.010$, small effect; $\eta^2 = .022-.059$, η^2 = medium effect; .083-.138,

large effect; $\eta^2 > .168$, extremely large effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

One-Way ANOVA test for Differences: By School Group

CRTSE by school group. A one-way between-S ANOVA was conducted to compare means of strength index scores on a scale measuring culturally responsive teaching self-efficacy of in-service teachers (n=68) who were teaching in one of three school groups: school group 1 (n=32); school group 2 (n=18); and school group 3 (n=18). The in-service teachers' CRTSE scores were normally distributed, as assessed by Shapiro-Wilk's test of normality, $p = .477$, $p = .355$, and $p = .331$, respectively. There were no outliers in the data as

assessed by inspection of boxplots. There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p=.089$).

Culturally responsive teaching efficacy (CRTSE scores) were different from School Group 3 ($M=81.03$, $SD=11.03$), to School Group 2 ($M=82.78$, $SD=10.30$), to School Group 1 ($M=84.56$, $SD=7.46$), who had the highest CRTSE scores. This was not a statistically significant difference on CRTSE scores between groups, $F(2, 65) = 0.855$, $p=.430$. This corresponds to an effect size of $\eta^2 = .026$. This is a lower, medium effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

CRTOE by school group. A one-way between-S ANOVA was conducted to compare means of strength index scores on a scale measuring culturally responsive teaching outcome expectancy beliefs of in-service ($n=68$) teachers who were teaching in one of three school groups: school group 1 ($n=32$); school group 2 ($n=18$); and school group 3 ($n=18$). The in-service teachers' CRTOE scores were not normally distributed for school groups 1 and 2, as assessed by Shapiro-Wilk's test of normality, $p=.002$ and $p=.001$, respectively. The CRTOE scores were normally distributed as assessed by Shapiro-Wilk's test of normality, $p=.083$ for school group 3. There were no outliers in the data as assessed by inspection of boxplots. There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p=.768$).

Culturally responsive teaching outcome expectancy belief strength index scores were different from School Group 3 ($M=91.05$, $SD=8.23$), to School Group 2 ($M=91.54$, $SD=7.32$), to School Group 1 ($M=93.67$, $SD=8.23$), who had the highest CRTOE scores. However, CRTOE scores were not statistically significant between different school groups F

(2, 65) = 0.598, $p=.553$. This corresponds to an effect size of $\eta^2=.020$. This is a small effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

CLASS by school group. A one-way between-S ANOVA was conducted to compare means of strength index scores on a scale measuring culturally responsive teaching outcome expectancy beliefs of in-service ($n=68$) teachers who were teaching in one of three school groups: school group 1 ($n=33$); school group 2 ($n=17$); and school group 3 ($n=18$). The CLASS scores were normally distributed across groups as assessed by Shapiro-Wilk's test of normality, $p=.556$, $p=.113$, and $p=.184$, respectively. There were no outliers in the data as assessed by inspection of boxplots. There was homogeneity of variances for CLASS scores as assessed by Levene's Test of Homogeneity of Variance ($p=.167$).

CLASS scores were statistically significantly different between different school groups $F(2, 65) = 6.691$, $p=.002$. Multiple comparisons were made using the Tukey HSD test. Based on this test, (using $\alpha=.05$) it was found that levels of classroom teaching practices (CLASS scores) were different from the lowest mean, School Group 3 ($M=14.12$, $SD=2.06$), to School Group 1 ($M=15.17$, $SD=1.75$), to the highest mean, School Group 2 ($M=16.34$, $SD=1.56$). Thus, there was a statistically significant increase in CLASS scores from School Group 3 ($M=14.12$, $SD=2.06$) and School Group 2 ($M=16.34$, $SD=1.56$), a mean increase of 2.2, 95% CI [0.70, 3.74], $p = .001$. This corresponds to an effect size of $\eta^2=.17$. This is a large effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

Reading z-scores by school group. A one-way between-S ANOVA was conducted to compare the mean scores on a standardized assessment measuring elementary students' reading achievement by in-service teachers ($n=44$) who were located in one of three school groups: school group 1 ($n=15$); school group 2 ($n=14$); and school group 3 ($n=15$). The

reading z-scores associated with in-service teachers' were normally distributed, as assessed by Shapiro-Wilk's test of normality, $p=.123$, $p=.335$, and $p=.281$, respectively. As univariate outliers had been removed prior to the test of differences based on values beyond ± 2.58 , there were no outliers in the data as assessed by inspection of boxplots. There was a violation of homogeneity of variances, as assessed by Levene's test for equality of variances ($p=.015$), therefore the Welch ANOVA is reported from the Robust Tests of Equality of Means table. Classroom reading achievement was lowest on scores from School Group 1 ($M= -0.79$, $SD=0.59$), to School Group 2 ($M= -0.41$, $SD=0.81$), and slightly higher in School Group 3 ($M= -0.39$, $SD=0.36$) in that order. The overall F for the one-way ANOVA was not statistically significant, Welch's $F(2, 24.109) = 2.434$, $p=.109$. This corresponds to an effect size of $\eta^2 = .087$. This is a small effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

Math z-scores by school group. A one-way between-S ANOVA was conducted to compare the mean scores on a standardized assessment measuring elementary students' math achievement by in-service teachers ($n=44$) who were located in one of three school groups: school group 1 ($n=13$); school group 2 ($n=16$); and school group 3 ($n=15$). The math z-scores associated with in-service teachers' were normally distributed, as assessed by Shapiro-Wilk's test of normality, $p=.055$, $p=.786$, and $p=.161$, respectively. As outliers had been removed prior to the test of differences based on values beyond ± 2.58 , there were no outliers in the data as assessed by inspection of boxplots. There was a violation of homogeneity of variances, as assessed by Levene's test for equality of variances ($p=.031$), therefore the Welch ANOVA is reported from the Robust Tests of Equality of Means table. Classroom math achievement scores were lowest from School Group 2 ($M= -0.51$, $SD=0.91$), to School Group 1 ($M= -0.43$, $SD=0.48$), and slightly higher in School Group 3 ($M= -0.14$, $SD=0.45$) in

that order. The overall F for the one-way ANOVA was not statistically significant, Welch's $F(2, 26.378) = 1.749, p = .193$. This corresponds to an effect size of $\eta^2 = .059$. This is a small effect (Cohen, 1988, as cited in Warner, 2013, p. 208). Table 19 presents the results from each one-way ANOVA testing mean differences by school group.

Table 19

One-Way ANOVA to Assess Mean Differences in IVs and DVs by School Group

	Grouping Variable			ANOVA statistics			
		M (SD)		f	(dfb, dfw)	p	η^2
	School Group 1	School Group 2	School Group 3				
Independent Variables							
CRTSE	(n=32)	(n=18)	(n=18)				
	84.56 (7.46)	82.78 (10.30)	81.03 (11.03)	0.855	(2, 65)	.430	.026
CRTOE	(n=32)	(n=18)	(n=18)				
	93.67 (8.23)	91.54 (7.32)	91.05 (8.23)	0.598	(2, 65)	.553	.020
^a CLASS	(n=33)	(n=17)	(n=18)				
	15.17 (1.75)	16.34 (1.56)	14.12 (2.06)	6.691	(2, 65)	.002*	.171
Dependent Variables							
Student	(n=15)	(n=14)	(n=15)				
Reading	-0.79	-0.41	-0.39	^b 2.434	(2, 24.19)	.109	.087
Z-scores	(0.59)	(0.81)	(0.36)				
Student	(n=13)	(n=16)	(n=15)				
Math	-0.43	-0.51	-0.14	^b 1.749	(2, 26.378)	.193	.059
Z-scores	(0.48)	(0.91)	(.45)				

Note: $p < .05^*$; $\eta^2 = .000-.010$, small effect; $\eta^2 = .022-.059$, η^2 = medium effect; .083-.138,

large effect; $\eta^2 > .168$, extremely large effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

^aMultiple comparisons were made using Tukey HSD test.

^bWelch's F reported.

One-Way ANOVA test for Differences: By Assessment Type

Two standardized assessments, the NWEA-MAP[®] and STAR[™] Reading and Math Enterprise, were used by the school groups. Assessment type 1, assessment type 2, and no assessment type were categories formed in order to test for differences based on standardized assessments.

CRTSE by assessment type. A one-way between-S ANOVA was conducted to compare the mean strength index scores on a scale measuring culturally responsive teaching efficacy of in-service teachers (n=68) who had student outcome scores represented by three assessment types: no assessment (n=20), assessment type 1 (n=24) and assessment type 2 (n=23). CRTSE scores were normally distributed as assessed by Shapiro-Wilk's test of normality, $p=.296$, $p=.400$, and $p=.156$, respectively. There were no outliers as assessed by inspection of boxplots. There was homogeneity of variances for CRTSE scores as assessed by Levene's Test of Homogeneity of Variance ($p=.634$).

CRTSE strength index scores were different in each group from the lowest being the group with no assessment $M=82.74$ ($SD=10.37$), to assessment type 1 $M=83.00$ ($SD=9.06$), and the highest being the assessment type 2 group $M=83.76$ ($SD=9.04$) in that order. CRTSE scores were not statistically significant between different school groups $F(2, 64) = 0.069$, $p=.933$. This corresponds to an effect size of $\eta^2 = .002$. This is a very small effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

CRTOE by assessment type. A one-way between-S ANOVA was conducted to compare the mean strength index scores on a scale measuring culturally responsive teaching efficacy of in-service teachers (n=68) who had student outcome scores represented by three assessment types: no assessment (n=20), assessment type 1 (n=24) and assessment type 2

($n=23$). CRTOE scores were not normally distributed across assessment types as assessed by Shapiro-Wilk's test of normality, $p=.001$, $p=.045$, and $p=.004$, respectively. There were no outliers as assessed by inspection of boxplots. There was homogeneity of variances for CRTOE scores as assessed by Levene's Test of Homogeneity of Variance ($p=.902$).

In-service teachers' culturally responsive teaching outcome expectancy belief scores changed from the group with no assessment, ($M=91.57$, $SD=8.92$), to assessment type 1 ($M=91.97$, $SD=7.04$), to assessment type 2 ($M=92.65$, $SD=7.73$), in that order. CRTSE scores were not statistically significant between different school groups $F(2, 64) = 0.104$, $p=.902$. This corresponds to an effect size of $\eta^2 = .003$. This is a very small effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

CLASS by assessment type. A one-way between-S ANOVA was conducted to compare mean scores on a scale measuring levels of Emotional Support, Classroom Organization, and Instructional Support as evident by teachers' observed instructional practices (CLASS scores) across three groups of assessment types (no assessment, $n=21$; assessment type 1, $n=24$; and assessment type 2, $n=22$). CLASS scores were normally distributed as assessed by Shapiro-Wilk's test of normality, $p=.559$, $p=.279$, and $p=.333$, respectively. There were no outliers as assessed by inspection of boxplots. There was homogeneity of variances for CLASS scores as assessed by Levene's Test of Homogeneity of Variance ($p=.541$).

CLASS scores were statistically significantly different between different school groups $F(2, 64) = 4.639$, $p=.013$. Multiple comparisons were made using the Tukey HSD test. Based on this test, (using $\alpha=.05$) it was found that CLASS scores increased from the assessment type 1 group ($M=14.30$, $SD=2.07$), to the no assessment type group, ($M=15.43$,

$SD=1.62$), to the assessment type 2 group ($M=15.92$, $SD=1.81$). There was an increase in CLASS scores from assessment type 1 ($M=14.3$, $SD=2.1$), to assessment type 2 ($M=15.9$, $SD=1.8$), a mean increase of 1.6, 95% CI [0.31, 2.94], which was statistically significant, $p = .012$. This corresponds to an effect size of $\eta^2 = .127$. This is a large effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

It should be noted that characteristics of the CRSTE, CRTOE and CLASS scores represented in the no assessment type group are comprised of participants from school group 1 and 3. The assessment type 2 group is entirely comprised of school group 2 participants and the assessment type 1 group is entirely comprised of school group 3 participants. CLASS scores were statistically significantly different by School Group. Because CLASS scores were also statistically significantly different by assessment type, the researcher inferred that the assessment type variable was representing the characteristics of the participants based off of school groups, which are is most likely causing the differences on CLASS scores. Assessment types directly corresponded between the two school groups having the statistically significant differences in the reported one-way ANOVA.

Reading z-scores by assessment type. A one-way between-S ANOVA was conducted to compare in-service teachers' ($n=44$) mean classroom average scores (reading z-scores) on a scale measuring elementary students' reading achievement by two assessment types: assessment type 1 ($n=24$) and assessment type 2 ($n=20$). Reading z-scores were normally distributed as assessed by Shapiro-Wilk's test of normality, $p=.863$, $p=.056$ respectively. Reading z-score outliers had been removed prior to conducting the test for differences based on z-score values beyond ± 2.58 , and as expected there were no outliers as assessed by inspection of boxplots. There was heterogeneity of variances for reading z-scores

as assessed by Levene's Test of Homogeneity of Variance $p=.001$. Elementary classroom z-scores representing student reading achievement were different from assessment type 2 ($M= -0.54$, $SD= 0.85$) to assessment type 1 ($M= -0.52$, $SD= 0.36$) in that order, but the differences between reading z-scores based on school groups were not statistically significant, Welch's $F(2, 24.527) = 0.007$, $p=.936$. This corresponds to an effect size of $\eta^2 = .000$, which is little effect.

Math z-scores by assessment type. A one-way between-S ANOVA was conducted to compare in-service teachers' ($n=44$) mean classroom average scores (math z-scores) on a scale measuring elementary students' math achievement by assessment types: assessment type 1 ($n=24$) and assessment type 2 ($n=20$). Math z-scores were normally distributed as assessed by Shapiro-Wilk's test of normality, $p=.849$, $p=.162$ respectively. Math z-score outliers had been removed prior to conducting the test for differences, and as expected there were no outliers as assessed by inspection of boxplots. There was heterogeneity of variances for reading z-scores as assessed by Levene's Test of Homogeneity of Variance $p=.018$. Elementary classroom z-scores representing student math achievement were different from assessment type 2 ($M= -0.55$, $SD= 0.85$), to assessment type 1 ($M= -0.21$, $SD= 0.42$) in that order, but the differences between math z-scores based on assessment type were not statistically significant, Welch's $F(2, 26.669) = 2.640$, $p=.116$. This corresponds to an effect size of $\eta^2 = .066$. This is a small-to-medium effect (Cohen, 1988, as cited in Warner, 2013, p. 208). Table 20 presents the one-way ANOVA test for differences between means on IVs and DVs across two groups by student assessment type.

Table 20

One-Way ANOVA to Assess Mean Differences on IVs and DVs by Type of Assessment

	Grouping Variable			ANOVA statistics			
		M (SD)		<i>f</i>	(<i>dfb</i> , <i>dfw</i>)	<i>p</i>	η^2
	No Assessment	Assessment Type 1	Assessment Type 2				
Independent Variables							
CRTSE	(n=20)	(n=24)	(n=23)				
	82.74	83.00	83.76	0.069	(2, 64)	.933	.002
	(10.37)	(9.06)	(9.04)				
CRTOE	(n=20)	(n=24)	(n=23)				
	91.57	91.97	92.65	0.104	(2, 64)	.902	.003
	(8.92)	(7.05)	(7.73)				
^a CLASS	(n=21)	(n=24)	(n=22)				
	15.43	14.30	15.92	6.691	(2, 65)	.012*	.127
	(1.62)	(2.07)	(1.81)				
Dependent Variables							
Student Reading Z-scores	--	(n=24) -0.52 (0.36)	(n=20) -0.54 (0.85)	^b 0.007	(2, 24.527)	.936	.000
Student Math Z- scores	--	(n=24) -0.55 (0.85)	(n=20) -0.21 (.42)	^b 2.640	(2, 26.69)	.116	.066

Note: $p < .05^*$; $\eta^2 = .000-.010$, small effect; $\eta^2 = .022-.059$, $\eta^2 =$ medium effect; .083-.138,

large effect; $\eta^2 > .168$, extremely large effect (Cohen, 1988, as cited in Warner, 2013, p. 208).

^aMultiple comparisons were made using Tukey HSD test.

^bWelch's *F* reported.

Regression and Correlation Analyses

Research Question One Results

To explore question one, *what is the relationship between teachers' culturally responsive self-efficacy beliefs, culturally responsive teaching outcome expectancy beliefs, instructional practices and student achievement*, two separate standard multiple regressions were performed on the dependent variables, student reading achievement and student math achievement respectively.

Explaining variance in student reading outcome scores. The first standard multiple regression was performed between student reading achievement (reading z-scores) as the dependent variable and teachers' culturally responsive efficacy belief strength index scores (CRTSE), culturally responsive teaching outcome expectancy belief index scores (CRTOE), and CLASS total scores as the predictor variables. The analysis was performed using SPSS REGRESSION.

Prior to the analysis, CRTSE strength index scores, CRTOE strength index scores, CLASS total scores and student reading z-scores were examined through various SPSS programs for fit between their distribution and the assumptions of multivariate analysis. These variables were examined for the 45 in-service teachers who had classroom data represented by student reading outcome scores in the sample.

Independence of errors was assessed using the Durbin-Watson statistic, 2.211. This value allows us to assume independence of errors as it falls close to the acceptable value of 2 (Field, 2009). Studentized residuals were plotted against the predicted values, which yielded a scatter plot for inspecting the collective linearity between predictor variables and the outcome variable. The scatterplot indicated an approximate linear relationship. Pairwise

linearity was checked using within-group scatterplots. Partial regression scatterplots depicted an approximate linear relationship between each predictor variable and the student reading outcome variable, respectively. Homoscedasticity of residuals (equal error variances) was evident by inspecting scatterplots. Multicollinearity was assessed by inspecting the correlations matrix for values greater than 0.7 and using Tolerance and variance inflation factor (VIF) values, looking for Tolerance values less than 0.1 or a VIF value greater than 10 to detect a collinearity problem (Field, 2009). In this sample, all Tolerance values were .667, .680 and .976 and VIF statistics were 1.499, 1.470, and 1.024. As such, the assumption for multicollinearity was met.

Multivariate outliers were assessed using Mahalanobis distance at $p < .001$ as $\chi^2(3) = 16.266$ (Tabachnick & Fidel, 2007, Appendix C, Table C.4, p. 949). Cases did not exceed the Mahalanobis statistic of 8.770, and as such, there were no multivariate outliers detected. Casewise Diagnostics were also inspected which indicated that one particular case in the data set had a z-score beyond the value of ± 3 indicating a potential outlier. Studentized deleted residuals were inspected to determine if there were any residuals greater than 3 standard deviations. This same case (z-score, -4.69) had a studentized deleted residual of -5.83. Based on this review, it was determined to remove this case. As such, the assumptions test statistics for the regression models are results after exclusion of the case.

Leverage values were inspected to determine if there were any cases that exhibited high leverage, using 0.5 and above as dangerous values. Values in the data set were below 0.20, so there were no problematic leverage values. Cook's Distance values to inspect for influential cases were sufficient at 0.26 and below. The assumption of normality of residuals was met with the inspection of a P-P Plot, which was slightly peaked.

The overall regression was statistically significant, $R = 0.437$, $R^2 = 0.191$, adjusted $R^2 = 0.130$, $F(3, 40) = 3.148$, $p = .035$. That is, student reading outcome scores were predicted from in-service teachers' culturally responsive teaching self-efficacy beliefs, culturally responsive teaching outcome expectancy beliefs, and observed instructional practices (CLASS scores). Thus, approximately 19.1% of the variance in the student reading outcome scores was being accounted for in the regression model.

The t ratios for the individual regression slopes were examined to assess the contributions of individual predictors (controlling for the other predictors). Of the three predictors only one was considered statistically significant: in-service teachers' culturally responsive teaching outcome expectancy beliefs with $t(43) = 2.717$, $p = .010$. This indicates that in-service teachers' outcome expectancy beliefs—beliefs that particular culturally responsive teaching strategies are beneficial for producing positive outcomes for students—have some value in predicting the reading achievement of their students.

The remaining t ratios are as follows: culturally responsive teaching self-efficacy, $t(43) = -0.397$, $p = .694$; and instructional practices as measured by CLASS, $t(43) = .379$, $p = .707$. The nature of the predictive relations in teachers' self-efficacy was not in the expected direction. The negative sign for the t value indicates that as in-service teachers' efficacy increased, student outcome scores decreased. The proportion of variance explained by each of the predictors was as follows: $sr^2_{\text{unique}} = -0.056$ for CRTSE, $sr^2_{\text{unique}} = 0.386$ for CRTOE and 0.054 for CLASS.

The general equation to predict student reading outcome scores from culturally responsive teaching self-efficacy strength index scores, culturally responsive teaching

outcome expectancy strength index scores, and scores on a measure of instructional practices:

Raw score version:

$$\text{Reading Z-score}' = -4.449 + (-0.005 \times \text{CRTSE}) + (0.044 \times \text{CRTOE}) + (0.018 \times \text{CLASS})$$

Standard score version:

$$\text{Reading Z-score}' = (-0.069 \times Z_{\text{CRTSE}}) + (0.468 \times Z_{\text{CRTOE}}) + (0.055 \times Z_{\text{CLASS}})$$

The effect of $b_1 = -0.005$ for CRTSE strength index scores in this sample is interpreted as: every one point increase in teachers' culturally responsive self-efficacy is associated with a decrease of -0.006 in student reading scores, after controlling for culturally responsive teaching outcome expectancy beliefs and instructional practices. The effect of $b_2=0.044$ for CRTOE strength index scores is interpreted as: every one point increase in CRTOE strength index scores is associated with an increase of .044 in the reading z-scores of students, after controlling for culturally responsive teaching self-efficacy and instructional practices. The effect of $b_3=0.055$ for CLASS scores is interpreted as: every one point increase in CLASS scores is associated with an increase of .055 in the reading z-scores of students, after controlling for culturally responsive teaching self-efficacy and culturally responsive teaching outcome expectancies. The only statistically significant increase in students' reading z-scores is evident by b_2 , culturally responsive teaching outcome expectancies.

Overall, the results from the regression to predict student reading outcome scores indicated a significant model, where the independent variables collectively predicted student reading achievement. Table 21 displays the correlations between the variables. Table 22 displays the unstandardized regression coefficients (b) and intercept, the standardized regression coefficients (β), R , R^2 , and the adjusted R^2 of all three independent variables.

Table 21

Correlations of Independent Variables and Dependent Variable (Student Reading Outcome z-scores)

Variable	1	2	3	4
1. Z-reading scores	--			
2. CRTSE	.202	--		
3. CRTOE	.431	.563	--	
4. CLASS	.057	.140	.026	--

Table 22

Standard Multiple Regression of In-service Teachers' Culturally Responsive Teaching Self-Efficacy Belief Scores (CRTSE) (X_1), Culturally Responsive Teaching Outcome Expectancy Belief Scores (CRTOE) (X_2), and Observed Classroom Practice Scores (CLASS) (X_3) on Student Reading Outcome z-scores (Y) ($N=45$)

Variable	B (SE)	B
(Constant)	-4.449*(1.412)	
CRTSE	-.005 (.013)	-.069
CRTOE	.044*(.016)	.468
CLASS	.018 (.047)	.055
R	.437	
R^2	.191	
Adjusted R^2	.130	
$F(df_1, df_2)$	(3, 4)	

Note: * $p < .05$

Explaining variance in student math outcome scores. The second standard multiple regression was performed between student math achievement (math z-scores) as the dependent variable and teachers' culturally responsive efficacy belief strength index scores

(CRTSE), culturally responsive teaching outcome expectancy belief index scores (CRTOE), and instructional practices (CLASS) as the predictor variables. The analysis was performed using SPSS REGRESSION.

Prior to the analysis, CRTSE strength index scores, CRTOE strength index scores, CLASS scores and student math z-scores were examined through various SPSS programs for fit between their distribution and the assumptions of multivariate analysis. These variables were examined for the 45 in-service teachers who had classroom data represented by student math outcome scores in the sample. The data set was filtered by the math student z-scores prior to entering the predictors and the outcome variable into the regression model.

Independence of errors was assessed by the Durbin-Watson statistic, 1.970. This value allows us to assume independence of errors. Studentized residuals were plotted against the predicted values, which yielded a scatter plot for inspecting the collective linearity between predictor variables and the outcome variable. The scatterplot indicated an approximate linear relationship. Pairwise linearity was checked using within-group scatterplots. Partial regression scatterplots depicted an approximate linear relationship between each predictor variable and the student reading outcome variable, respectively. Homoscedasticity of residuals (equal error variances) was evident by inspecting scatterplots. Multicollinearity was assessed by inspecting the correlations matrix for values greater than 0.7 and using Tolerance and variance inflation factor (VIF) values, looking for Tolerance values less than 0.1 or a VIF value greater than 10 to detect a collinearity problem (Field, 2009). In this sample, all Tolerance values were .669, .687 and .968 and VIF statistics were 1.496, 1.456, and 1.033. As such, the assumption for multicollinearity was met.

Multivariate outliers were assessed using Mahalanobis distance at $p < .001$ as $\chi^2(3) = 16.266$ (Tabachnick & Fidel, 2007, Appendix C, Table C.4, p. 949). Cases did not exceed the Mahalanobis statistic of 8.741, and as such, there were no multivariate outliers detected. Casewise Diagnostics were also inspected which indicated that one particular case in the data set had a z-score beyond the value of ± 3 indicating a potential outlier (-3.33). Studentized deleted residuals were inspected to determine if there were any residuals greater than 3 standard deviations. The same case as previously flagged in the casewise diagnostics yielded a studentized deleted residual of -3.598. It was determined to remove this case and it should be noted that this was the same case removed from the previous regression. Leverage values were inspected using 0.5 and above as dangerous values. Values in the data set were below 0.20, so there were no problematic leverage values. Cook's Distance values to inspect for influential cases were sufficient at 0.363 and below. The assumption of normality of residuals was met with the inspection of a P-P Plot, although it was slightly peaked.

The overall regression was not statistically significant, $R = 0.219$, $R^2 = 0.048$, adjusted $R^2 = -0.023$, $F(3, 40) = 0.673$, $p = .574$. That is, student math outcome scores were not predicted from in-service teachers' culturally responsive teaching self-efficacy beliefs, culturally responsive teaching outcome expectancy beliefs, and observed instructional practices. Table 23 displays the correlations between variables. Table 24 displays the unstandardized regression coefficients (b) and intercept, the standardized regression coefficients (β), R , R^2 , and adjusted R^2 .

Table 23

Correlations of Independent Variables and Dependent Variable (Student Math Outcome z-scores)

Variable	1	2	3	4
1. Z-math scores	--			
2. CRTSE	.116	--		
3. CRTOE	.216	.558	--	
4. CLASS	-.026	.173	.056	--

Table 24

Standard Multiple Regression to Predict Student Math Outcome z-scores (Y) From In-service Teachers' Culturally Responsive Teaching Self-Efficacy Belief Scores (CRTSE) (X_1), Culturally Responsive Teaching Outcome Expectancy Belief Scores (CRTOE) (X_2), and scores on Observed Classroom Practices (CLASS) (X_3) ($N=45$)

Variable	<i>B</i> (SE)	<i>B</i>
(Constant)	-2.260 (1.653)	
CRTSE	6.906E-5 (.016)	.001
CRTOE	.022 (.019)	.281
CLASS	-.013 (.056)	-.038
<i>R</i>	.219	
<i>R</i> ²	.048	
Adjusted <i>R</i> ²	-.023	
<i>F</i> (<i>df</i> ₁ , <i>df</i> ₂)	(3, 40)	

Research Question Two, Part One Results

Correlation analysis between CRTSE and CRTOE. To explore the first part of question two, *how are in-service teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs related to one another* and how do these beliefs impact student achievement, a correlation analysis was performed to assess the relationship between

culturally responsive teaching self-efficacy strength index scores (CRTSE) and culturally responsive teaching outcome expectancy strength index scores (CRTOE). The Pearson product-moment correlation analysis was conducted to assess the relationship among these variables using SPSS EXPLORE and SPSS CORRELATE. Prior to the analysis, data were analyzed to test for assumptions required for valid Pearson's correlation results.

Two continuous variables were used in the correlation analysis. Culturally responsive teaching self-efficacy strength index scores (CRTSE) and culturally responsive teaching outcome expectancy strength index scores (CRTOE) were derived from summing the ratings on items and dividing by the number of items on each respective scale (CRTSE, 41 and CRTOE, 26) to yield a value of 0 to 100. For CRTSE, scores represent how capable in-service teachers viewed their abilities to enact culturally responsive teaching strategies (0—no confidence at all to 100—completely confident) and for CRTOE, scores represent how probable in-service teachers believe certain culturally responsive teaching practices to be for positively influencing classroom and student outcomes (0—entirely uncertain to 100—entirely certain).

Scatterplots indicated linearity between the CRTSE and CRTOE variables, and no outliers were detected. CRTSE and CRTOE scores were not normally distributed, as assessed by Shapiro-Wilk's test of normality, $p=.023$ and $p=.001$, respectively. CRTSE strength index scores had a slight negative skewness -0.483 ($SD=0.291$) and a kurtosis of -0.560 ($SD=0.574$). CRTOE strength index scores had a larger negative skewness of -1.163 ($SD=0.291$) and kurtosis of 1.136 ($SD=0.574$). This was expected as mentioned in the preliminary analyses section at the beginning of Chapter Four. Pearson's correlation analyses are

somewhat robust to deviations from normality (www.statistics.laerd.com), so it was determined to proceed without transforming the data.

There was a strong, positive correlation between the in-service teachers' strength index scores as measured on the CRTSE Scale and the CRTOE Scale, $r(68) = .562, p < .001$ (two-tailed). Thus, an increase in culturally responsive teaching self-efficacy beliefs was strongly correlated with an increase in culturally responsive teaching outcome expectancy beliefs. The r^2 was $=.315$, a large effect (Warner, 2013).

Research Question Two, Part Two

To explore the second part of question two, how are in-service teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs related to one another *and how do these beliefs impact student achievement*, a multiple regression was performed to predict scores on student achievement. Two separate standard regressions were conducted using the dependent variables, student reading z-scores and student math z-scores, respectively.

Predicting student reading outcome scores from CRTSE and CRTOE The first multiple regression was performed between student reading achievement (reading z-scores) as the dependent variable, and teachers' culturally responsive efficacy belief strength index scores (CRTSE) and culturally responsive teaching outcome expectancy belief index scores (CRTOE) as the predictor variables. The analysis was performed using SPSS REGRESSION. The data set was filtered by the reading student z-scores prior to entering the predictors and outcome variable into the regression model.

Prior to the analysis, CRTSE strength index scores, CRTOE strength index scores, and student reading z-scores were examined through various SPSS programs for fit between

their distribution and the assumptions of multivariate analysis. These variables were examined for the 45 in-service teachers who had classroom data represented by student reading outcome scores in the sample.

Independence of errors was assessed using the Durbin-Watson statistic, 2.300. This value allows us to assume independence of errors. Studentized residuals were plotted against the predicted values, which yielded a scatter plot for inspecting the collective linearity between predictor variables and the outcome variable. The scatterplot indicated an approximate linear relationship. Pairwise linearity was checked using within-group scatterplots. Partial regression scatterplots depicted an approximate linear relationship between each predictor variable and the student reading outcome variable, respectively. Homoscedasticity of residuals (equal error variances) was evident by inspecting scatterplots. Multicollinearity was assessed by inspecting the correlations matrix for values greater than 0.7 and using Tolerance and variance inflation factor (VIF) values, looking for Tolerance values less than 0.1 or a VIF value greater than 10 to detect a collinearity problem. In this sample, all Tolerance values were .672 for each variable, and VIF statistics were both 1.488. As such, the assumption for multicollinearity was met.

Multivariate outliers were assessed using Mahalanobis distance at $p < .001$ as $\chi^2(2) = 13.816$ (Tabachnick & Fidel, 2007, Appendix C, Table C.4, p. 949). Cases did not exceed the Mahalanobis statistic of 7.436. Casewise Diagnostics were also inspected which indicated that one particular case in the data set had a z-score beyond the value of ± 3 indicating a potential outlier. Studentized deleted residuals were inspected to determine if there were any residuals greater than 3 standard deviations. This same case (z-score, -4.69) had a studentized deleted residual of -5.88. This case had been removed in previous regression analyses and

was again removed as it had been determined that this case did not represent the population. Leverage values were inspected to determine if there were any cases that exhibited high leverage, using 0.5 and above as dangerous values. Values in the data set were below 0.17, so there were no problematic leverage values. Cook's Distance values to inspect for influential cases were sufficient at .101 and below, with the exception of one value at 0.348, which was a case with a -2.23 z-score. The assumption of normality of residuals was met with the inspection of a P-P Plot, which was slightly peaked.

The overall regression was statistically significant, $R = 0.417$, $R^2 = 0.174$, adjusted $R^2 = 0.135$, $F(2, 42) = 4.423$, $p = .018$. That is, student reading outcome scores were predicted from in-service teachers' culturally responsive teaching self-efficacy beliefs and culturally responsive teaching outcome expectancy beliefs. The overall model was significant with 17.4% of the variance in the student reading outcome scores being accounted for by culturally responsive teaching efficacy and outcome expectancy beliefs of the in-service teachers in this sample.

The t ratios for the individual regression slopes were examined to assess the contributions of individual predictors. As in earlier regression models presented in Chapter Four, only one predictor was considered statistically significant, in-service teachers' culturally responsive teaching outcome expectancy beliefs with $t(42) = 2.686$, $p = .010$. This indicates that in-service teachers' outcome expectancy beliefs—beliefs that particular culturally responsive teaching strategies are beneficial to positive outcomes for students—have some value in predicting the reading achievement of their students in this sample. The t ratio for culturally responsive teaching self-efficacy was $t(42) = -0.491$, $p = .626$. The nature of the predictive relations in teachers' self-efficacy was not in the expected direction. The

negative sign for the t value indicates that as in-service teachers' efficacy decreased student outcome scores increased. Yet, the nature of the predictive relationship between CRTOE and student reading outcomes was expected; as in-service teachers' outcome expectancies increased, so did student reading outcomes. The proportion of variance explained by each of the predictors was as follows: $sr^2_{\text{unique}} = .069$ for CRTSE and $sr^2_{\text{unique}} = .377$ for CRTOE.

The general equation to predict student reading outcome scores from culturally responsive teaching self-efficacy strength index scores and culturally responsive teaching outcome expectancy strength index scores:

Raw score version:

$$\text{Reading Z-score}' = -4.614 + (-0.017 \times \text{CRTSE}) + (0.058 \times \text{CRTOE})$$

Standard score version:

$$\text{Reading Z-score}' = (-0.167 \times Z_{\text{CRTSE}}) + (.0467 \times Z_{\text{CRTOE}})$$

The effect of $b_1 = -0.006$ for CRTSE strength index scores in this sample is interpreted as: every one point increase in teachers' culturally responsive self-efficacy is associated with a decrease of -0.006 in student reading scores, after controlling for culturally responsive teaching outcome expectancy beliefs. The effect of $b_2 = 0.043$ for CRTOE strength index scores is interpreted as: every one point increase in CRTOE strength index scores is associated with an increase of $.043$ in the reading z-scores of students, after controlling for culturally responsive teaching self-efficacy. The only statistically significant increase in students' reading z-scores is evident by b_2 , culturally responsive teaching outcome expectancies.

Overall, the results from the regression to predict student reading outcome scores from culturally responsive teaching self-efficacy and culturally responsive teaching outcome

expectancy beliefs indicated a statistically significant model. The significant model was however based almost entirely on culturally responsive teaching outcome expectancy beliefs. Further, the results did indicate the potential for culturally responsive teaching outcome expectancy beliefs to have a positive association with student reading outcomes scores of in-service teachers' in this sample. Table 25 displays the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), R, R^2 , and adjusted R^2 .

Table 25

Standard Multiple Regression of In-service Teachers' Culturally Responsive Teaching Self-Efficacy Belief Scores (CRTSE) (X_1) and Culturally Responsive Teaching Outcome Expectancy Belief Scores (CRTOE) (X_2) on Student Reading Outcome z-scores (Y) (N=45)

Variable	B (SE)	β
(Constant)	-4.449*(1.412)	
CRTSE	-.005 (.013)	-.069
CRTOE	.044*(.016)	.468
R	.437	
R^2	.191	
Adjusted R^2	.130	
F (df ₁ , df ₂)	(3, 40)	

Note: * $p < .05$

Predicting student math outcome scores from CRTSE and CRTOE. The second multiple regression was performed between student math achievement (math z-scores) as the

dependent variable, and teachers' culturally responsive efficacy belief strength index scores (CRTSE) and culturally responsive teaching outcome expectancy belief index scores (CRTOE) as the predictor variables. The analysis was performed using SPSS REGRESSION. The data set was filtered by the math student z-scores prior to entering the predictors and outcome variable into the regression model.

Prior to the analysis, CRTSE strength index scores, CRTOE strength index scores, and student math z-scores were examined through various SPSS programs for fit between their distribution and the assumptions of multivariate analysis. These variables were examined for the 45 in-service teachers who had classroom data represented by student reading outcome scores in the sample.

Independence of errors was assessed using the Durbin-Watson statistic, 1.669. This value allows us to assume independence of errors. Studentized residuals were plotted against the predicted values, which yielded a scatter plot for inspecting the collective linearity between predictor variables and the outcome variable. The scatterplot indicated an approximate linear relationship. Pairwise linearity was checked using within-group scatterplots. Partial regression scatterplots depicted an approximate linear relationship between each predictor variable and the student reading outcome variable, respectively. Homoscedasticity of residuals (equal error variances) was evident by inspecting scatterplots. Multicollinearity was assessed by inspecting the correlations matrix for values greater than 0.7 and using Tolerance and variance inflation factor (VIF) values, looking for Tolerance values less than 0.1 or a VIF value greater than 10 to detect a collinearity problem. In this sample, all Tolerance values were .678 for each variable, and VIF statistics were both 1.474. As such, the assumption for multicollinearity was met.

Prior to the inspection for outliers, one case had been omitted as it had been determined to be an outlier in previous regression analyses. Multivariate outliers were then assessed using Mahalanobis distance at $p < .001$ as $\chi^2(2) = 13.816$ (Tabachnick & Fidel, 2007, Appendix C, Table C.4, p. 949). Cases did not exceed the Mahalanobis statistic of 7.661, and as such, there were no multivariate outliers detected. Casewise Diagnostics were also inspected which indicated that one particular case in the data set had a z-score beyond the value of ± 3 indicating a potential outlier. Studentized deleted residuals were inspected to determine if there were any residuals greater than 3 standard deviations. Leverage values were inspected to determine if there were any cases that exhibited high leverage, using 0.5 and above as dangerous values. Values in the data set were below 0.17, so there were no problematic leverage values. Cook's Distance values to inspect for influential cases were sufficient at .288 and below. The assumption of normality of residuals was met with the inspection of a P-P Plot, which was slightly peaked.

The overall regression was not statistically significant, $R = 0.196$, $R^2 = 0.038$, adjusted $R^2 = -0.007$, $F(2, 42) = .837$, $p = .440$. That is, student math outcome scores were not predicted from in-service teachers' culturally responsive teaching self-efficacy beliefs and culturally responsive teaching outcome expectancy beliefs. Table 26 displays the unstandardized regression coefficients (b) and intercept, the standardized regression coefficients (β), R , R^2 , and adjusted R^2 after entry of all independent variables.

Table 26

Standard Multiple Regression to Predict Student Math Outcome z-scores (Y) From In-service Teachers' Culturally Responsive Teaching Self-Efficacy Belief Scores (CRTSE) (X₁) and Culturally Responsive Teaching Outcome Expectancy Belief Scores (CRTOE) (X₂) (N=45)

Variable	<i>B</i> (<i>SE</i>)	β
(Constant)	-2.202	
CRTSE	-.003 (.015)	-.034
CRTOE	.022 (.019)	.213
<i>R</i>	.196	
<i>R</i> ²	.039	
Adjusted <i>R</i> ²	-.007	
<i>F</i> (<i>df</i> ₁ , <i>df</i> ₂)	(2,42)	

Supplementary Analysis

Of particular interest in this study was the relationship between beginning in-service teachers' culturally responsive teaching self-efficacy and culturally responsive teaching outcome expectancies, which was described in the previous section as having a strong, linear relationship in this sample. This indicates an interpretation that as self-efficacy about one's capabilities to enact culturally responsive teaching practices increases, then expectations that such practices have positive outcomes for classrooms and students also increases. In addition, the predictive nature of culturally responsive teaching efficacy and outcome expectancies was explored on student reading and math outcome scores, in which efficacy and outcome expectancies varied in their predictive nature, while controlling for other variables. The supplementary analyses will further explore the relationship between culturally responsive teaching self-efficacy and culturally responsive outcome expectancy beliefs of in-service teachers in this sample by looking at the four distinct patterns that Bandura (1982; 1986)

posited can form between efficacy and outcome expectancy beliefs: high/high, high/low, low/high, and low/low.

In order to explore the differential patterns of efficacy and outcome expectancies item-specific means were divided into quartiles. The lower quartile of culturally responsive teaching self-efficacy beliefs included items that ranged from 60.43 to 78.17. The lower quartile represents items in which the in-service teachers in this sample felt least able to accomplish. The upper quartile of self-efficacy beliefs included items that ranged from 90.55 to 95.94, which reflects the items the in-service teachers in this sample were most efficacious about enacting in their classrooms. The lower quartile of culturally responsive teaching outcome expectancy beliefs included items that ranged from 79.84 to 88.04. The lower quartile represented items in which the in-service teachers in this sample felt were least certain would make a positive difference in classroom and student outcomes. The upper quartile of outcome expectancy beliefs included items that ranged from 95.53 to 97.06, which reflected the items the in-service teachers in this sample were most certain contributed to positive classroom and student outcomes. Figure 4.1 depicts the in-service teachers' (n=68) culturally responsive self-efficacy beliefs and outcome expectancy beliefs by the upper and lower quartiles.

Culturally Responsive Teaching Self-Efficacy	<p>High CRTSE</p> <ul style="list-style-type: none"> • ...develop a personal relationship with my students. • ...build a sense of trust in my students. • ...determine whether my student like to work alone or in a group. • ...help students feel like important members of the classroom. • ...obtain information regarding my students' academic interests. • ...structure parent-teacher conferences so that the meeting is not intimidating for parents. • ...use the interests of my students to make learning meaningful. • ...explain new concepts using examples that are taken from my students' everyday lives. • ...establish positive home-school relations. • ...help students to develop positive relationships with their classmates. 	<p>High CRTOE</p> <ul style="list-style-type: none"> • A positive teacher-student relationship can be established by building a sense of trust in my students. • Using my students' interests when designing instruction will increase their motivation to learn. • Connecting my students' prior knowledge with new incoming information will lead to deeper learning. • Providing English Language Learners with visual aids will enhance their understanding of assignments. • Assessing student learning using a variety of assessment procedures will provide a better picture of what they have learned. • Students' self-esteem can be enhanced when their cultural background is valued by the teacher.
	<p>Low CRTSE</p> <ul style="list-style-type: none"> • ...design a lesson that shows how other cultural groups have made use of mathematics. • ...teach students about their cultures' contributions to science. • ...praise English Language Learners for their accomplishments using a phrase in their native language. • ...greet English Language Learners with a phrase in their native language. • ...communicate with the parents of English Language Learners regarding their child's achievement. • ...design a classroom environment using displays that reflects a variety of cultures • ...model classroom tasks to enhance English Language Leaners' understandings. • ...teach students about their cultures' contributions to society • ...critically examine the curriculum to determine whether it reinforces negative cultural stereotypes. • ...revise instructional material to include a better representation of cultural groups. 	<p>Low CRTOE</p> <ul style="list-style-type: none"> • Changing the structure of the classroom so that it is compatible to my students' home culture will increase their motivation to come to class. • The frequency that students' abilities are misdiagnosed will decrease when their standardized test scores are interpreted with caution. • Acknowledging the ways that school culture is different from my students' home culture will minimize the likelihood of discipline problems. • Simplifying the language used during the presentation will enhance English Language Learners comprehension of the lesson. • Encouraging students to use their native language will help them to maintain their cultural identity. • Student attendance will increase when a personal relationship between the teacher and students has been developed.
Culturally Responsive Teaching Outcome Expectancies		

Figure 3. Differential Patterns of In-service Teachers' (N=68) Culturally Responsive Teaching Self-Efficacy and Outcome Expectancy Beliefs

Conclusion

Chapter Four has presented the descriptive, correlational and regression analyses to answer the research questions. Preliminary analysis indicated that in-service teachers' culturally responsive teaching self-efficacy beliefs varied across levels of years in teaching. The results indicated that there was a statistically significant relationship between culturally responsive teaching self-efficacy beliefs, culturally responsive teaching outcome expectancy beliefs, instructional practices, as measured by CLASS, and student reading outcome scores but not on student math outcome scores. There was a strong correlation between culturally responsive teaching self-efficacy beliefs and culturally responsive teaching outcome expectancy beliefs. In addition, supplementary analyses were explored that demonstrated differential patterns of in-service teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs. Chapter Five will provide discussion of the study results, limitations of this study, and recommendations for future research.

CHAPTER 5

DISCUSSION

Chapter Four presented the results to the research questions of this exploratory study, as well as results to a supplementary analyses. Chapter Five includes the discussion of these results within four sections: conclusions, discussion, limitations and suggestions for future research based on these results.

Educators have reported a continued concern over the cultural mismatch between the majority population of teachers who are representative of mono-lingual, White, Euro-American backgrounds and the majority of children who represent backgrounds that are considered culturally, ethnically, economically, linguistically and religiously diverse. This mismatch has been viewed as a barrier to the school and classroom level teacher-student interactions necessary for children's optimal development. While teacher education is becoming more accountable for the learning outcomes of PK-12 grade students, it is a field that remains criticized for the lack of consensus on the most appropriate content and best delivery of teacher development programming. Some teacher preparation programs are taking steps towards creating curricula experiences to prepare a future teaching force capable of meeting the needs of all students. The combination of these issues has resulted in promoting Culturally Responsive Teaching beliefs and pedagogy as critical to the success of students in urban schools. This study explored how in-service teachers' scores on the Culturally Responsive Teaching Self-Efficacy Belief Scale (CRTSE), the Culturally Responsive Outcome Expectancy Beliefs Scale (CRTOE), and their observed classroom practices as measured by the Classroom Assessment Scoring System (CLASS) contributed to

the scores on reading and math assessments of K-6th grade students in one large urban area of the Midwest.

Conclusions

Preliminary tests (t-tests and One Way ANOVAs) were conducted to determine potential differences between independent and dependent variables and other demographic characteristics of interest. Grouping variables with two levels included: teacher self-reported race (non-White or White), grade level (primary or upper elementary) and CLASS observation time period (morning or afternoon observations). Grouping variables with three levels included: years in teaching (first year, second year, third through fifth year); school groups (school group 1, school group 2 and school group 3), and assessment type (no assessment, assessment type 1 and assessment type 2). These examinations were to determine potential covariates for the regression models. Because it would have required a larger sample size to add any of the variables with significant findings into the regression models, it was determined to report differences but exclude potential covariates from the regression analyses. However, some interesting patterns within the data were uncovered.

CRTSE and CRTOE

Assessment of differences on the grouping variables of interest did not lead to any statistically significant results involving scores on the CRTOE scale, however, there were statistically significant differences in participants' mean strength index scores as measured by the CRTSE based on years in teaching. This was the only grouping variable of interest where a statistically significant difference in CRTSE scores was detected.

The group of in-service teachers who had been teaching for three to five years were the most efficacious regarding culturally responsive teaching beliefs (n=68). At the time of

recruitment, most of the study sample had been involved in the larger Project CAUSE mentorship program affiliated with their undergraduate program (first and second year teachers) or involved at one time (third through fifth year teachers). Participants may have self-reported higher scores on the Culturally Responsive Teaching Self-Efficacy and Outcome Expectancy Scales and had higher ratings on the CLASS measurement as an artifact of the weekly Project CAUSE mentorship experiences, which were extensions of their teacher education programming. In particular, Project CAUSE mentors frequently used culturally responsive teaching practices and CLASS strategies as tools for coaching and support.

Participants were also volunteers in the study. The sample of in-service teachers may self-report higher ratings on the CRTSE and CRTOE scales due to their willingness to participate and their knowledge of the topic. Wheatley (2005) reported teacher efficacy beliefs are representations of teachers' complex interpretations of themselves. It is interesting to note that this interpretation may vary from pre-service to in-service teaching years. The pre-service teacher sample in Siwatu's (2007) introductory study of CRTSE and CRTOE scales had a higher mean on CRTSE than the in-service teachers in this sample. This is a comparable occurrence as reported by Woolfolk Hoy and Spero (2005) who identified a rise and fall of teacher efficacy (as measured by Bandura Scale, 1997; Gibson-Dembo Scale, 1984) between the student teaching experience and first year in teaching. de la Torre Cruz and Arias (2007), with yet a different efficacy scale measuring four types of teaching efficacy, reported that in-service teachers' with one to five years of experience reported a higher teacher efficacy than the group of in-service teachers' with five to fifteen years of experience. These examples confirm that teacher efficacy development is a process overtime.

Variations in contextual factors and sources of efficacy teachers experience at different stages of their development are worthy of further investigation.

CLASS

There were statistically significant differences in participants' mean scores ($n=68$) as measured by CLASS between school group 2 and school group 3, and between assessment type 1 and assessment type 2. Through investigation the researcher inferred that these two grouping variables may be confounding as each one of these school groups was also completely represented by a different assessment type. Further, there were no statistically significant differences in CLASS scores based on years in teaching, in particular, or any of the other grouping variables of interest. These combined results lead to the conclusion that children were receiving different levels of emotional, organizational and instructional support based on the school group their teacher was in rather than due to the number of years their teacher had been in the teaching profession. Further investigation would be warranted to determine what school group factors contributed to such differences. District, school building and classroom level curricula policies, practices and supports in place may be contributing to the higher means on CLASS scores. Also, the school group with the higher means on CLASS scores was the only accredited school group. This implies contextual factors may be responsible for influencing actual teaching practices, such as collective efficacy (Bandura, 1997). For example, Guo, Justice, Sawyer and Tompkins (2011) found that higher levels of children's engagement (a score derived from CLASS mean scores) was associated with a higher levels of preschool teachers' self-efficacy when mediated by teachers' sense of collaboration.

Research Questions

Due to the similarities in the results of the multiple regressions of question one and two, conclusions on both will be shared within the following section.

Research question 1 and question 2—part 2. 1) *What is the relationship between in-service teachers' culturally responsive teaching self-efficacy beliefs (CRTSE scores), culturally responsive outcome expectancy beliefs (CRTOE scores), instructional practices (CLASS scores) and student outcome scores (reading and math z-scores)?* 2) Part 1: How are in-service teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs related to one another; and Part 2: *how do these beliefs impact student achievement?*

To examine the relationship between scores on the CRTSE, CRTOE, CLASS, and student outcome reading and math z-scores (question one), two standard multiple regressions were performed. The independent variables of interest—CRTSE, CRTOE and CLASS did explain statistically significant variance in students' z-scores on standardized reading assessments, but not math. The fact that these variables did not account for variance in both students' reading and math scores was somewhat surprising.

Previous research suggests that teacher self-efficacy shares a relationship with student achievement in that teachers' instructional efficacy predicted students' language and math achievement (Ashton & Webb, 1986) and students' cognitive assessment (Ross, 1992). This study was the first to explore a relationship between CRTSE, CRTOE and CLASS scores and student outcome scores in a sample of urban elementary in-service teachers. It was not known if CRTSE or CRTOE strength index scores as measured by the Culturally Responsive Teaching Self-Efficacy Scale and the Culturally Responsive Teaching Outcome Expectancy Scale would explain variance in student reading or math outcome scores. A second

exploration in this study examined the association between CRTSE and CRTOE strength index scores and reading and math student outcome scores by conducting a multiple regression analyses. The model that included student reading outcome scores as the dependent variable was statistically significant, which indicated a positive association between CRTSE, CRTOE and student reading outcomes. (The model was not significant for student math outcome scores). Taking both regression models with reading student outcomes as the dependent variable into account, it can be concluded that CRTSE, CRTOE and CLASS provided 19.1 % of the variance (a small effect) in student outcome scores, controlling for CRTSE scores.

Approximately 80 % of variance in the student outcome scores of this study's sample is unexplained. Particularly as schools situated in urban communities suffer from historical challenges (Weiner, 2006), examination of school groups' collective efficacy may shed light on the unexplained variance in this study's results. Goddard and Goddard (2001) studied the effects of collective efficacy in 47 urban elementary schools in the Mid-West. Controlling for school contextual factors such as prior student achievement, student race and socio-economics, collective efficacy explained teacher efficacy above and beyond the contextual factors. Goddard, Hoy and Wolfolk Hoy (2004) explained perceived collective efficacy could have indirect effects on student achievement. A study conducted by Capara, Barbaranelli, Steca and Malone (2006) found that students' previous academic achievement predicted subsequent student achievement as well as the teachers' efficacy appraisals. The results from Capara et al., 2006, suggested other variables that might account for the variance in teacher self-efficacy and student outcome scores. These studies imply that in the current study, collective efficacy and other contextual factors, such as student's prior achievement, may be

effecting the outcomes related to teacher efficacy. It is also imperative to uncover the contributions to students' math development in urban elementary schools, as this study had no significant findings related to the student math outcomes, only reading. However, both significant findings should be carefully interpreted as the analyses are limited by the small sample size.

Further investigations regarding the strength and nature of the relationship between CLASS, CRTSE and CRTOE are warranted. For example, based on Friedman and Wall (2005), CRTSE may be acting as a suppressor. This is suspected because CRTSE, as a predictor variable, is positively correlated with the outcome variable and has a negative beta coefficient in the regression model. If a mediation effect is found, it can add to the understanding of what is happening between the constructs these variables represent.

Teacher-student interactions as measured by CLASS have been well established as being positively associated with child outcomes across preschool and elementary school students (Howes et al., 2008; Pianta et al., 2008a; Pianta, Belsky, et al., 2008). Research has provided evidence that the three CLASS domains predict later student academic and social-emotional functioning (NICHD ECCRN, 2002). Allen et al., (2013) used the CLASS-S (secondary), which is the CLASS tool most similar to the CLASS UE used in the current study. This team of researchers found that each CLASS domain predicted year-end student academic outcomes on a state mandated test (2013). The sample of 643 secondary school students in that study represented racially and economically diverse backgrounds, and teachers had broad ranges of backgrounds and experience. A large difference however between the current study and the Allen et al. (2013) study is that the current study is limited because of a small sample size. It is almost a certainty that a sample of 45 in-service teachers

in the present study lowered the power to be able to detect an effect. Also, Allen et al. (2013) utilized a hierarchical linear modeling as the statistical analyses test. A replication of the current study using a multilevel model or hierarchical linear model may provide evidence of nested and non-nested effects, while requiring fewer assumptions than multiple regression (Woltman, Feldstain, MacKay, & Rocchi, 2012).

Research question 2, part 1. *How are in-service teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs related to one another and how do these beliefs impact student outcome scores?* In-service teachers' beliefs as scores on the CRTSE and CRTOE scale were moderately correlated $r(68) = .562$. This indicates a strong, positive relationship between CRTSE and CRTOE Scores. Bandura (1997) described a causal relationship between efficacy and outcomes. Thus, the results suggest that if in-service teachers perceive themselves as efficacious about their ability to enact culturally responsive teaching practices, they tend to also believe that culturally responsive teaching has positive outcomes for students and classrooms.

The correlational analyses results were as expected based on prior research (Bandura, 1977; 1997; Siwatu, 2007). This correlation is lower than the correlation in Siwatu's (2007) study of pre-serviced teachers, $r = .70$, which can be explained by the differences in mean strength index scores between the two groups. The difference between pre-service and in-service teachers' efficacy and outcome expectancy beliefs may be related to several factors discussed in the literature (i.e. changes in efficacy during formative years of teaching or early in learning; differences in sources of efficacy and varying differences of classroom responsibilities between pre-service and in-service teaching roles) (Bandura, 1977; de la Torre Cruz and Arias, 2007; Woolfolk Hoy & Spero, 2005). This finding does indicate that

the in-service teachers in this sample may make more of an effort to put CRT practices into action their classrooms.

Supplementary Analyses

The supplementary analyses provided an initial exploration of the differential patterns between in-service teachers' perceptions of self-efficacy and the benefits of culturally responsive teaching practices for students. Bandura's (1982; 1986) hypothesized patterns of efficacy appraisals and outcome expectancies (high/high, high/low, low/high, and low/low) gave insight into how the item specific means were distributed in this sample. Gibson and Dembo (1984) stressed these differential patterns have important implications for teachers' classroom behaviors.

As in Siwatu (2011a) high levels of CRTSE and CRTOE reflected items that were more closely related to general constructivist practices (i. e. "I am able to develop a personal relationship with my students"; "Using my students' interests when designing instruction will increase their motivation to learn"). Only two of the sixteen statements in the high/high pattern had a term referencing a specific culturally responsive teaching practice (i. e. "Students' self-esteem can be enhanced when their cultural background is valued by the teacher" and "Providing English Language Learners with visual aids will enhance their understanding of assignments"). The low/low CRTSE/CRTOE pattern of items revealed that all but one of the statements involved some strategy reflective of CRT (i. e. "...greet English Language Learner with a phrase in their native language", "design a lesson that shows how other cultural groups have made use of mathematics"). The statement "The frequency that students' abilities are misdiagnosed will decrease when their standardized test scores are interpreted with caution" was the item without a specific statement with the word culture,

English Language Learner, etc. But this statement is highly representative of the care that should be taken when understanding culturally responsive teaching pedagogy. The conclusion can be made that, based on the non-specific nature of the items that map onto the high/high quadrant, it is plausible that measurement of efficacy by the CRTSE and CRTOE scales is a measure related to general socio-constructivist beliefs and practices as well as culturally responsive teaching practices. With more specific items, the measure could have more usefulness for teacher education reform.

Discussion

This study began with a researcher's curiosity about the early teaching experiences of teacher-graduates from one school of education who were prepared to teach in urban schools. This curiosity was nested in the growing accountability in student outcome scores being assigned to schools of education across the nation (Allen et al., 2014). Further, the researcher had an interest in uncovering characteristics of the specific socio-constructivist practices known as culturally responsive teaching. Culturally responsive teaching pedagogical knowledge, skills and beliefs had been promoted and cultivated in the students'-now-teachers' university experiences.

Implications of both the statistically non-significant and significant findings of this study are important to consider. However, cautionary interpretation of any findings in the regression models must precede any discussion point due to the limitations. Sample size was a limitation in this study. While multiple regression is robust to aspects of skewed normality for instance (Tabachnick & Fidell, 2007), as with the CRTOE scores in this study. But when a sample size in a regression with three and even two predictors is 45, the power to detect an effect is limited.

Key to the study of self-efficacy in the current exploration was Bandura's (1997) social cognitive theory. His theory works to explain human functioning in terms of reciprocal relationships between three factors—behavior, cognitive and other personal factors, and environmental factors, which “operate as interacting determinants of each other” (1997, p. 18). As described in the other theoretical underpinnings of the present study's inquiry, Vygotsky (1978), Bronfenbrenner (1997; 2005), and Pianta & Walsh (1996) posited relationships as central to their respective model of human development. Each model shares an understanding that relationships both impact and shape human development through a reciprocal transactional process across and among various systems. As one navigates between systems, there can be a breakdown in system communication and reciprocity that hinders the optimal interactions of individuals and most importantly for an educational system, the students' development and learning (Pianta and Walsh, 1996).

In a similar manner, Geneva Gay (2000) and Gloria Ladson-Billings (1995), along with other multicultural teacher educators, have emphasized in many of their works that relationships between child and teacher, teacher and parent, parent and school, and school and community are critical to the development of children. Particularly, the relationships that are cultivated by using culturally responsive teaching are believed to assist in overcoming the long history of inequities experienced in urban schools; particularly for underserved student of color, and of culturally, economically, and linguistically diverse backgrounds.

Teacher-Student Relationships

Quality in teaching and learning is increasingly being defined through the levels of emotional support, classroom organization, and instructional support within the teacher-student interactions of classrooms. It was evident from the mean scores on all teacher

measures in this study, that teacher-student relationships were valued across the three school groups. For example, in-service teachers' means scores in this study indicated: 1) that these teachers believe they can build strong relationships with students (CRTSE); 2) that teachers believe these relationships are important to their students' success (CRTOE); and 3) that as observed in actual classroom practices (CLASS), teachers in all school groups provided mid to high levels of support to foster teacher-student relationships that have been known to influence student learning outcomes. In fact, in-service teachers' CLASS scores proved to be higher in general for this sample when compared to national means. As previously discussed, this may be an artifact of the in-service teachers' pre-service preparation and ongoing in-service support. It can also be due to other response set issues that will be discussed in detail in limitations section below.

Knowledge of CLASS research and the use of CLASS in this teacher population indicates two additional points of interest. Analysis of CLASS scores overtime of the larger Project CAUSE cohort may indicate significant findings that can contribute to practice-based teacher education programming and PK-12 grade classroom transformation. It should also be noted that although CLASS did not contribute to an overall effect on student outcome scores in this sample, there were still levels of support that may be contributing to another variation of student outcomes not measured in this study, such as student motivation, student engagement, social-emotional behavior, or students' self-efficacy.

Differential Patterns and Sources of Efficacy and Outcome Expectancy Beliefs

CRTSE and CRTOE scores had similar differential patterns of high/high, high/low, low/high, and low/low when compared with Siwatu's (2007) sample, yet lower overall efficacy and outcome expectancy beliefs. This researcher believed that this current sample

may reflect a more realistic culturally responsive teaching self-efficacy as compared to the pre-service teacher sample, which has been demonstrated in past teacher efficacy research (Woolfolk Hoy & Spero, 2005; Tschannen-Moran & Hoy, 2007). Bandura (1997) asserted that self-efficacy beliefs are most tender early in learning and will become stable with time. It has been reported in the conclusions that other studies have indicated, a rise, fall and stabilization of teacher efficacy based on years of teaching experience (de la Torre Cruz & Arias, 2007). The in-service teachers with the most teaching experience had the highest efficacy in this study. It should be reviewed that the current sample topped out at five years in teaching whereas, de la Torre Cruz and Arias' (2007) sample of in-service teachers leveled out in efficacy beliefs at five to fifteen years of experience.

The differential patterns in CRTSE and CRTOE scores between the pre-service teacher sample (Siwatu, 2007) and the current study's in-service teacher sample can also be explained by sources of efficacy. Bandura (1997) suggested four sources of efficacy contributing to efficacy belief formation: mastery experiences, vicarious experiences, verbal persuasion and social influences, and physiological and affective states. These sources have implications for the differences between pre-service, novice and in-service teachers' perceptions of self-efficacy. Mastery experiences are considered the most influential. For example, pre-service teachers have not yet experienced as authentic of mastery experiences in teaching as independent classroom teachers. Pre-service teachers are under the guide of supervisors and cooperating teachers. Even in the most authentically designed student teaching situation, the cooperating teacher is still a factor contributing to the efficacy-forming experiences of the developing teacher.

Mastery experiences that may have impacted the sample in this study are students' prior school performance (classroom grades, prior standardized assessment performance, etc.) and feelings of success in prior years of teaching. Teacher efficacy beliefs will increase or decrease based on how teachers perceive the perception of their teaching performance or their students'. Verbal persuasion is another critical factor that could have impacted the self-efficacy development across years in teaching. The majority of this sample had received two to three hours of weekly mentoring for one or two years during their induction years. Descriptive feedback and encouragement from their university mentor coach could have assisted the growing self-efficacy of the sample from first through fifth year of teaching. Overtime, the mentor coaches had also fostered the importance of many of the culturally responsive teaching outcome expectancies. Examining professional development feedback loops between mentor and mentees can provide further insights into how teachers grow from collaborative experiences, especially as research indicates teachers may co-construct their efficacy beliefs within shared communities of practice (Takahashi, 2011).

Similar to collaborative experiences, another source or influence on teacher self-efficacy to consider is collective efficacy. The conclusions of this study indicated that a large amount of variance in student outcome scores remained unexplained. Collective efficacy was suggested as a possible explanation of so much unexplained variance in student outcomes. Collective school efficacy has been used to describe the shared beliefs teachers and school personnel hold about the school's capabilities to reach desired goals (Bandura, 1997; Goddard, Hoy & Hoy, 2004). Goodard and Goodard (2001) defined collective efficacy as "the perceptions of teachers in a school that the faculty as a whole can organize and execute the courses of action required to have a positive effect on students" (p. 809). Sources for

efficacy development would also apply to the development of collective efficacy (Goddard, Hoy & Wolkfolk Hoy, 2004). In theory, a model of regressing teacher efficacy on student outcome scores would most likely benefit from the inclusion of collective efficacy, particularly because of collective efficacy's strong relationship with student achievement (Bandura, 1993; Goodard, 2001).

This sample had three distinct school groups. Two of the school groups were either unaccredited or provisionally accredited, which could be a variation due to collective efficacy. Teachers in those two groups had the lowest mean scores on the scale measuring observed classroom practices (CLASS). CRTSE and CRTOE scores did not vary significantly between the school groups, however. Dropout rates were 62%, 85% and 65% across the school groups, respectively. The percentage of students eligible for free and reduced lunch or reduced-price lunch was 90%, 85%, and 90% respectively. Although the researcher desires to provide a counternarrative of urban school characteristics in this work, these statistics reflect challenges that are common to urban schools (Hollins, 2011), and give a sense that both collective and self-efficacy are necessary for overcoming obstacles. The CRTSE and CRTOE scores reveal the in-service teaching force of this sample have perceptions of self-efficacy and outcome expectancies that may influence perseverance in teaching and improve student success in each urban elementary setting.

Explaining Variance in Student Outcome Scores

One positive association was found in the multiple regression between the scores measured by the Culturally Responsive Teaching Outcome Expectancy Belief Scale and student reading outcome scores. Scores measured on the Culturally Responsive Teaching Self-Efficacy Scale however, shared a negative association with reading scores. Scores

measured by both scales predicted an overall and small amount of variance in student reading outcomes. It may be that teachers believed in the outcomes of practices but lacked the confidence in believing that they were truly capable of enacting them, which does not share the causal nature of Bandura's theory of efficacy and outcomes. Further, the negative relationship between student outcomes and teachers' perceived self-efficacy could be an artifact from the timing of survey completion, when most schools had either started or were about to start standardized testing in their buildings. This also represents systemic factors such as district mandates that might also be contributing to teacher and collective efficacy.

Another important discussion is the measurement of student outcomes. Student performance in this study was measured by standardized assessment tests commonly used throughout the United States. These assessments are used by the school groups to gain state level accreditation, report student progress to parents, and to inform instruction. In addition, some schools "track" student progress over a period of years based on the selection of tests where scores can be compared across grade levels. Student performance is annually reported in state and school district report cards. As the researcher, who was the primary observer of classroom observations reflects, some schools in this study had visible displays of student data walls or charts outside classrooms which indicated the percentage of students in that class who were deemed "below basic", "basic", "proficient" or "advanced" on regular of standardized assessment testing.

Milner (2012) asserted "standardization, in many ways, is antithetical to diversity because it suggests that all students live and operate in homogenous environments with equality of opportunity afforded to them. In this way, standardization is opposite of diversity" (p. 3). Even though the United States has a growing population of children who are

not reflected in curriculum, texts and assessments which predominate classrooms, business-as-usual continues. First, the overemphasis in standardized testing in the nation that has risen out of No Child Left Behind and continues forward as a bad habit. What this continues to do is create a situation where the individual strengths of children are undervalued in comparison to normed assessments that provide often quick numerical and categorical information on selected skills and knowledge. Further, with such an emphasis on certain skills, teachers may use more didactic teaching methods to “prepare” students for test taking, which is also antithetic to culturally responsive teaching pedagogy.

The student outcome scores in this study, as z-score classroom averages, depicted a group of students in each school group whose performance is below the national norms. This factor could contribute to the negative relationship reading and math scores shared with teachers’ CRTSE scores. The method of assessment available provided a repeated picture of the historical landscape of standardized testing in our nation, “designed to maintain the status quo and sustain depressingly complicated disparities in education” (Milner, 2012, p. 8). This is one reason why culturally responsive teaching has been posited as a vehicle to propel both educational practices and students’ success forward.

Just as the response item on the CRTOE indicates, “The frequency that students’ abilities are misdiagnosed will decrease when their standardized test scores are interpreted with caution” (Siwatu, 2007), the student scores reported in this study must be interpreted with caution. Knowledge of the performance from the entire sample of students from each school group would help in the interpretation of scores. Knowledge of the performance of students on other measures of assessment would help capture the full picture of student growth and learning. Despite advantages to these additional sources of information,

standardized tests still represent test content that has historically been disconnected to experiences of students of color. Based on the combined discussion of student performance on assessments and descriptive statistics of students in this sample, alternative and authentic measures of student learning are warranted.

Measuring Culturally Responsive Teaching Self-Efficacy and Outcome Expectancy Beliefs

Teacher efficacy has had a long history of inquiry around how best it should be measured. It has often worn the identifying characteristic of elusive. Like the multidimensional features of teacher efficacy (Gibson and Dembo, 1984), culturally responsive teaching is a complex and multifaceted construct as well. In fact, volumes of interpretations cover a wide-range of approaches to multicultural education, including culturally responsive teaching (Banks & Banks, 2004). The many complex characteristics defining culturally responsive pedagogy provide challenges in conceptualizing a succinct yet comprehensive tool, yet alone about what type of items best measure true culturally responsive teaching beliefs. Gay (2013) reemphasized that culturally responsive teaching is a pedagogical framework comprised of knowledge, skills, beliefs and values which are explicit expressions of the critical value culture, ethnicity and race have in learning. Highlights of culturally responsive teaching involve:

- a high level of cultural integrity and understanding related to seeing students' and communities' cultures as assets (Gay, 2013; Hollins, 2012; Ladson-Billings, 1995; Milner, 2008; Moll, Amanti, Gonzalez, 1992)
- the infusion of students' cultural knowledge within instructional processes as means to raise students' school success (Gay 2002, 2013; Ladson-Billings, 1994)

- the development of teachers' critical consciousness in order to challenge stereotypes, injustices, and being able to negotiate power imbalances in the classroom (Gay, 2013; Milner, 2008).

These characteristics are essential components at the heart of culturally responsive teaching beliefs and practices. Each of these indicators describe broad aims of culturally responsive teaching. Upon reflection of the differential patterns in two samples of teachers (pre-service, Siwatu, 2007; in-service, the current study), it is interesting that the low efficacy and outcome expectancy indicators map onto items written with language indicative of culturally responsive pedagogy; while the high efficacy and outcome expectancy indicators map onto items written with language of general teaching practices that can be interpreted as culturally responsive pedagogy as well. These general items reflect a common problem in efficacy measurement--specificity.

Bandura (1997) described that "the adequacy of self-efficacy measures can be evaluated independently...by evidence that they are measuring what they are purporting to measure and by their level of specificity and the range of task demands they include" (p.45). Wheatley (2005) indicated that when creating scale items "ambiguous wording is a problem" (p. 752). Subject matter content is recommended for scale items (Wheatley, 2005), which was included in the original CRSTE and CRTOE scales, however the only items that specify students' backgrounds were items directly mentioning "culture" or "English Language Learner".

Another issue with item specificity involving the student dynamic is that culturally responsive teaching in large part encompasses a multitude of races, ethnicities, religious affiliations, sexual orientations, and gender differences. Including all of these potential

backgrounds of students, who may be well served by culturally responsive teaching pedagogy, might seem to overwhelm the already complex nature of measuring CRTSE and CRTOE, but it is something to consider.

Wheatley (2005) recommended that knowing teachers' political and social contexts aids in the interpretations of their self-reported efficacy (Wheatley, 2005). Siwatu (2007) reported that the CRTSE and CRTOE scales did not intend to capture the socio-constructivist transformation process. Yet many scholars have acknowledged this process is essential for becoming a culturally responsive practitioner. Researchers have noted that as teachers move from pre-service to in-service teacher, "a reciprocally informing, transactional relationship... evolves over time that is characterized by growing levels of awareness and knowledge of self" (Caudle and Moran, 2012, p. 48). This transformation of self is what Howard (2006) considered highly influential when establishing transformative pedagogy. While the CRTSE and CRTOE have glimpses of this type of pedagogy, the items need to be more specific to capture an even sharper picture of teachers' perceptions. This could come by adding one item similar to that in the Multicultural Efficacy Scale (Guyton & Wesche, 2005) that forces a selection to an item that best describes the respondents' multicultural education beliefs. Each item corresponds to a different conception of multicultural education. Another alternative would be to include a response item to measure transformation-of-self based the stages of racial identity development. In *We Can't Teach What We Don't Know*, Howard (2006) describes stages of White identity development that may have particular implications for a designing such items.

The scales have been revised since Siwatu's scale introduction (2007). Siwatu (2011a) reduced the number of items from 41 to 31 on the CRTSE scale. Chu (2011) reduced

the number of items on both scales, CRTSE to 20 and CRTOE to 12, included a five point Likert-type scale and revised items to reflect wording that incorporated special education practices. These revisions did not include adding negatively worded items. Inclusion of such items would improve the scale as they would add some protection against self-report pitfalls like acquiescence bias.

Limitations

Research conducted within the context of the real-world is certain to have limitations. This study had several anticipated limitations reported in Chapter One. These included issues related to participants, sample size, data collection, and measurement tools. The limitations for this study will be discussed according to these same issues along with statistical testing.

Participants

Although the sample of in-service teachers was a sample of interest, it is considered a convenience sample. A random sample from the population is more desirable for purposes of interpreting and generalizing results (Gall, Gall & Borg, 2007). Comparisons of the current sample to the national population of teachers were included in the descriptive analysis. While the distribution of teachers based on racial backgrounds was fairly consistent with the national population of teachers if not slightly higher for teachers of color, it still must be considered that the majority of these teachers were from the Midwest, were in their first years of teaching, and were teaching in one type of school setting. In addition, regardless of their individual interpretations of their teacher preparation program experiences—this sample of in-service teacher-participants were prepared at the same institution to be teachers in urban schools. Most of the participants were involved in the Project CAUSE program (first and second year teachers) or involved at one time (third through fifth year teachers). Participants

may have self-reported higher scores on the Culturally Responsive Teaching Self-Efficacy and Outcome Expectancy Scales and had higher ratings on the CLASS measurement as an artifact of the weekly Project CAUSE mentorship experiences, which were extensions of their teacher education programming. In particular, Project CAUSE mentors frequently used culturally responsive teaching practices and CLASS strategies as tools for coaching and support. Finally, participants were volunteers in the study. The sample of in-service teachers may self-report higher ratings on the CRTSE and CRTOE scales due to their willingness to participate and their knowledge of the research topic.

Within the context of real-world investigations, such as the elementary classroom, it is difficult to ascertain random and large samples sizes (Gall, Gall and Borg, 2007). This study was no exception to that challenge. The small sample size limits the results of the study. In particular, the statistically significant findings must be interpreted with caution due to the small sample size and potential increase of Type I error. The small sample size limits the power and effect sizes of the findings that were significant. Also, the small sample size limits the opportunity to have a sample in which differences are detected.

The potential sample size for this study was 84. Prior to the study the researcher conducted a power analysis for the purposes of exploring the variables of interest within a regression analysis with three predictors. A sample size of 74 would have been adequate for providing power of .80, a medium effect size of $f^2 = 0.15$, alpha level of $\alpha = .05$. Every step was taken to recruit the maximum number of participants. The overall sample of 69 was sufficient for the correlation analyses. However, the sample was reduced for the regression model to 45 participants, due to the student classroom data obtained. This lessens any

possibilities that the results were truly representative of the greater population of beginning in-service teachers.

Data and Data collection

Missing data was problematic for including the full 69 participants in the multiple regression analyses because of the lower number of obtained student data, as previously mentioned. There were a few participants who did not have complete data on the beliefs measures and the classroom observation measure. As such, even when their child data was collected, they were excluded from the main regression analyses.

Missing data on the CRTSE and CRTOE surveys themselves was not as problematic, as only eight missing ratings were adjusted by adding the mean score on that item to the data set. However, the correction of missing data could influence the results. Substituting the mean for a skipped (handwritten “NA”) or response left blank will increase the overall total scores. It should be noted this happened on very few occasions, and on items where the researcher believed the survey item was misinterpreted or misapplied to the participant’s practice. Thus, the researcher selected to insert the group mean to address missing responses (Gall et al., 2007).

Much attention was given to potential influential cases in the preliminary analyses to protect against univariate and multivariate outliers. There were several suspicious cases deemed as univariate outliers and removed to perform initial t-tests and ANOVA tests for differences. One case did appear to be influential when examining the residuals for the regression models. Because the population mean scores of each school group was unknown, it was an estimate as to whether suspicious cases within the given sample of participants were truly a part of the normal distribution or outliers. For instance, the student z-scores had

a mean that was a negative value; the scores were below the average. If the scores in the entire school group population were similar to this sample of classroom averages, then there would be more information to draw conclusions about whether or not the scores were outliers. Given the multiple examinations employed, removal of the one case was warranted.

Distributions of the variables of interest were both normal and skewed, and sometimes highly skewed. Because all of the scores were considered by the researcher to be reflective of real classroom practices or treated as true perceptions of teachers or student average test performance, transformations on skewed distributions were not made for coaxing relationships.

Measures

The Culturally Responsive Teaching Self-Efficacy Scale and the Culturally Responsive Teaching Outcome Expectancy Scale are self-report measures. In addition to the factors reviewed in the participant section above regarding participants' characteristics and experiences, other aspects of a self-report measure limit the results in this study. Response set issues may have been present due to social desirability set or acquiescence bias.

Measurement error can arise due to the conditions under which in-service teachers completed the self-report measures. Because the majority of participants received survey packets that were delivered to their school mailboxes, the researcher was not able to control the conditions under which all participants completed the surveys. This means that positive or stressful personal-level, school-level, and school-group level conditions (i.e., how the participants' felt the day of survey completion) could have influenced the completion of surveys over the eight week period of data collection. Measurement error is also possible due to this time period.

The Classroom Assessment Scoring System Observation is a scale to measure classroom observations, requiring the observer to take qualitative notes and assign global quantitative ratings. Every effort was taken to ensure that observers had met the rigorous reliability training and testing requirements, and the inter-rater reliability was reported. Inter-rating strategically occurred throughout the observation time period in order to protect from observer drift. Yet, various types of observer effects and bias are limitations in this study.

Observers in the classroom can effect teachers and students alike. For example, the presence of an observer may cause children or the adults to act differently in a manner that produces a nonrepresentative observation. Observers may have had personal bias related to school settings and/or the participants, as observers were teacher educators within the participants' practice-based teacher education preparation program. As such, personal bias could have influenced the observers to leave out information on the observation impacting the final rating. Observers may produce other rating errors: assigning too high of ratings (error of leniency); or in lieu of making difficult conclusions, assigning mid-range ratings (error of central tendency); or assign ratings based on early impressions of the teacher-participant (halo effect).

Measurement reliability and validity should also be considered as limitations. The CLASS K-3 has ample published evidence of sufficient reliability coefficients, indicating the CLASS K-3 is a reliable measure. The CLASS UE on the other hand is a newer tool and has limited published evidence regarding reliability. Further, the validity may be limited in this study because some of the sample was observed with the K-3 tool and other classrooms were measured with the UE tool. These ratings, once averaged, were combined to yield a CLASS total variable. It is arguable that although the measure is constructed to yield scores on the

same three domains in order to compare levels of teacher support across ages of children, the instructional practices that account for the behavioral indicators and markers of the individual dimension scores may vary enough to indicate differences in the observed teacher-student interactions.

It is also important to mention the reliability of the CLASS domains. Although the Emotional Support and Instructional Support Domains had acceptable reliability coefficients (.82 and .82, .89 and .81) in this study, Classroom Organization had lower reliability coefficients (.73 and .74). This is similar to published CLASS reliability and validity data. There are two things to consider—the breadth of interactions being measured by Classroom Organization as well as the observations across this study. Classroom Organization does measure broad types of teacher behaviors—from how children’s behavior is managed, how time is managed and how the teacher facilitates learning and guides children toward learning goals through use of interesting materials. These varying behaviors may be effecting the reliability measure. In the case of this study, observers noticed that often the Instructional Learning Format Dimension, which makes up a third of the Classroom Organization Domain when averaged, was considerably low across participants. Observation notes indicated that teachers often did not summarize learning goals or orient students toward learning targets. Modalities were observed to be limited—meaning modalities were two dimensional, such as worksheets rather than interactive, varied manipulatives. These issues combined most likely contributed to the lower reliability coefficients, and are important for educators to consider for improving teacher-student interactions.

Another measurement limitation involves evidence of construct validity for the CRTSE and CRTOE scales. The researcher noticed the CRTSE ratings in particular were

higher on items that did not include specific references to “culture”. Therefore, these items may be measuring something other than efficacy related to culturally responsive teaching, such as general teacher efficacy.

Statistical Testing

The last limitation of this study involves statistical testing and the unit of statistical analyses. This study took place primarily in the organizational structure of an urban school setting—teacher and students classrooms, within schools, within school groups, within communities. The unit of statistical analyses for the dependent variable selected for the study was classrooms and not individual students. This selection impacts not only the sample size but can also impact the mean and standard deviations of scores (Gall, Gall and Borg, 2007). The researcher’s knowledge and skills of statistics was part of the determining factor in using the multiple regression model. The unit of analysis, however, may be better suited to look at individual students and how they are nested within classrooms, within school groups.

Strengths

Research within the complex nature of elementary classrooms also lends itself to strengths. One of the strengths of this study was the fact that a specific group of in-service teachers were followed into their classrooms within targeted labor markets. As several researchers asserted, in order to learn more about teacher education practices, following graduates will assist in learning about teacher education’s relationship with PK-12 education, as well as help teacher education learn about their own programming. Another strength of this study was the high inter-rater reliability on the CLASS measures. This study benefited by having highly trained observers conduct CLASS observations. The final noteworthy strength of this study was the interweaving of theoretical ideals—social constructivism and

culturally responsive teaching—and the testing of these constructs in a statistical manner, which demonstrated potential for understanding key contributions to children’s learning and development.

Suggestions for Future Research

Collective Efficacy and the Urban School

Hollins (2011) promoted that urban school teaching and learning are contextualized phenomena. Many scholars have contributed to understanding both the contextualized nature and complex development of urban schools (Weiner, 2000; Milner, 2008). Although the historical challenges are evident, urban schools remain a system among and within many systems that overtime impact both the development of teachers, families and children (Bronfenbrenner, 2005). Bandura (1997) posited perceived self-efficacy as a determinant to overcome challenges and aid individuals in controlling their destiny. Collective efficacy is an extension of perceived self-efficacy and has been established as an important factor in determining the outcomes related to teaching and learning. The results of this study indicated that school groups had evidence of positive classroom outcomes in classroom quality ratings, within schools that had similar challenges described in the urban school literature. A potential research question forms out of this knowledge: Does collective efficacy relate to teacher self-efficacy and student outcomes in urban school settings? And if so how? Due to the large amount of unexplained variance in this study and the potential of collective efficacy to assist in learning what impacts teachers and students, it is recommended that future studies measuring teacher culturally responsive teaching self-efficacy and outcome expectancy beliefs involve a measure or item set that measures collective efficacy.

It is clear that teachers and students, even though separated within individual classroom units do not operate in isolation of one another, or of the child's home environment. The child represents a system that is nested within two worlds—home and school. Teachers represent a system nested within classrooms. Classrooms represent a system that is nested within schools. Schools represent a system that is nested within school groups and communities, and communities are nested within the larger socio-political world, and so on. Therefore, a statistical strategy reflecting the nature of nested units to test the research question involving collective efficacy would need to be employed. A multilevel modeling test for example, would allow for the entry of additional predictors into a model to explain variance in school outcomes and at the same time better represent the nested nature of schooling.

Measurement of Teacher and Student Outcomes

CRTSE and CRTOE. A long history of research has been devoted to discussing the problems associated with instrumentation where efficacy is concerned. It was discussed that the measurement scales used in this study need further exploration and development. Bandura (2006) wrote extensively on scale construction and specifically that the validation of efficacy scales is an ongoing process. It is important to note that the CRTSE and CRTOE had a strong foundation due to the comprehensive review that preceded their development (Siwatu, unpublished manuscript). Further investigation into the scales will benefit teasing out general culturally responsive teaching aspects from more specific strategies. Future studies should retest the CRTSE and CRTOE scales after both scales are carefully inspected and revised. Recent studies (Chu, 2011; Siwatu, 2009) have already employed variations on the original scale. CRTSE and CRTOE items should be specific with terminology that is

clearly associated with culturally responsive teaching pedagogy. Negatively worded items should be included to protect against participant bias. Items could be reviewed by an assembled group of experts in the field of culturally responsive teaching. Careful testing should be employed in a large and diverse sample of in-service teachers to understand more clearly the potential of such a tool.

Development across the lifespan involves a progression through many stages and changes in moral, cognitive and psychological development. Research should focus on the longitudinal study of the development culturally responsive teaching alongside the development of racial identity across the pre-service and in-service years. To fully capture the transformational processes involved in becoming a culturally responsive teacher, the instrumentation should include an item to capture racial identity development. Finally, a scale that can observe actual cultural teaching practices should be created so that it can be truly discovered that self-efficacy and outcome expectancies reflective of culturally responsive teaching lead to action.

It is anticipated that due to the high regard for qualitative nature of culturally responsive scholarship, mixed methods approaches would be helpful in exploring culturally responsive teaching self-efficacy and outcome expectancy belief development. Differential patterns were evident in the research involving CRTSE and CRTOE thus far, as theorized by Bandura (1997). Adding qualitative components such as focus groups interviews would help illuminate the efficacy sources contributing to these differential patterns.

Student Outcome Measures. As long as standardized tests are looming in the background of schools everywhere, they and their implications may impact the development of student and teacher efficacy alike. It may be difficult for teachers, parents and school

personnel to advocate for the complete dismissal of such assessments in a large bureaucratic system. As Darling-Hammond stated, the current kinds of tests that focus on isolated skills will, “win out” (2004, p. 624). However, future research should highlight school leaders and teachers who are able to demonstrate high levels of learning in urban schools apart from “the test”. Research should be targeted to particularly highlight how urban schools are successful in assessing student learning through authentic and alternative means. This research may also be able to highlight testing policies that minimize how tests are interpreted and used, so that the greatest impact is on student learning; rather than for tracking and grouping students.

Teacher education accountability. Teacher education program and PK-12 student outcomes will be more closely related in the months and years to come, based on new standards emerging in the field of teacher education and state teacher performance assessment. This study provided insights into the challenges and benefits of following teacher-graduates into their respective classrooms. It serves as a pilot of what schools of education may need to consider in order to tease out the nuances related to the relationship between teacher education, in-service teacher practices and student outcome scores. It also serves as a reminder of the complexities involved in educational research. Undoubtedly, the long partnership established between the Project CAUSE program and the school groups served as a benefit in school and classroom data access for this project. However, more pathways needed to be opened for accessing all the available teacher and child data need to make a strong conclusion about the relationship between teaching and learning.

Future research replicating this study’s purpose and processes should consider the incorporation of collective efficacy and outcome expectancy beliefs, teacher efficacy and outcome expectancy beliefs, observed classroom practices and more authentic measures of

student achievement. Researchers will want to consider additional contextual factors that may need to be controlled for in a multi-level model to determine variance in student outcomes.

The final recommendation for future research in the area of culturally responsive self-efficacy development concerns this split between pre-service teacher efficacy development and in-service teacher efficacy development in which differential patterns of efficacy have been observed. Within a model to explain this development, it would be recommended to include a collective efficacy measure at different time points along the teachers' development that represents teacher educators' efficacy, cooperating teachers' efficacy, the collective efficacy of the school, and elementary students' efficacy. A research question to explore for such a study would ask: What are the differential patterns in an individual teachers' development over time? How do the nested efficacies of the teacher educator, cooperating teacher, student teacher, in-service teacher, and children in the classroom relate to one another?

Educational Significance

The educational significance of this study is to supplement the literature in the field of teacher education and urban education. In particular, this study provides novel information involving measures of culturally responsive teaching self-efficacy beliefs, culturally responsive teaching outcome expectancy beliefs, observed classroom practices that produce a global quality rating reflective of teacher-student interactions and the reading and math assessment outcomes of elementary students in one urban area. This study sought to explore the relationship between these measures, and in particular was able to shed light on how teacher outcomes may vary by years of experience and how, when interpreted with caution,

some variance in student outcomes can be explained by culturally responsive teaching outcome expectancy beliefs. Further, within this population, scores representing culturally responsive teaching self-efficacy beliefs and outcome expectancy beliefs were moderately correlated, and demonstrated differential patterns as in previous studies (Siwatu, 2007).

APPENDIX A
PRINCIPAL LETTER

Today's date

University of Missouri-Kansas City
School of Education
Project CAUSE
615 E 52nd Street
Kansas City, Missouri 64110

Dear School Principal,

Thank you for your continued support of the Project CAUSE partnership created as a result of a grant from the Department of Education for the purpose of the development of both pre-service and in-service teachers. As you know, we have collected both student achievement and teacher survey data from our partner districts for the previous four years of the grant and are continuing our data collection in this 5th and final year.

Ms. Karrie Snider has joined the Project CAUSE faculty this semester to conduct some of the CLASS observations and assist with data analysis. She will also facilitate a survey regarding teacher beliefs about culturally responsive teaching and instructional practices that will inform her dissertation through the university. This data may also be used in the final analyses of the Project CAUSE program in addition to other research projects being conducted by faculty of the School of Education.

Karrie has worked with both the elementary and early childhood programs at UMKC and is currently also serving as a supervisor with our interns in Hickman Mills. As with our previous data collection, per research protocols, all information gathered for this study will remain confidential. Individual participants completed a consent form at the beginning of the year allowing UMKC to gather CLASS data. An additional consent form that includes this survey will be given to all participants for their consent and signature.

This survey will only be administered to UMKC graduates who are beginning teachers in your school and have been participants in the Project CAUSE evaluation from the beginning of the grant. Should you have any questions, please feel free to contact Karrie Snider at 816-235-6681 (sniderk@umkc.edu).

Thank you again for your continued support and cooperation.

Jennifer Waddell, Ph. D.
Principal Investigator, Project CAUSE
UMKC School of Education

Karrie Snider
Assistant Teaching Professor
UMKC School of Education

APPENDIX B
RECRUITMENT LETTER

Today's Date

University of Missouri-Kansas City
School of Education
615 E 52nd Street
Kansas City, Missouri 64110

Dear UMKC Early Childhood or Elementary Graduate,

As a UMKC graduate participating in the Project CAUSE program, you are aware of UMKC's ongoing commitment to teacher development. Project CAUSE is a partnership between UMKC and three partner school districts that has dramatically changed the way in which UMKC prepares its candidates for teaching. As you know, we have collected data from our graduates for the previous four years of the grant and are continuing our data collection in this 5th and final year.

You have already been observed by UMKC faculty using the CLASS protocol. This spring, along with follow-up CLASS observations, Ms. Karrie Snider will be surveying Project CAUSE graduates to identify culturally responsive teaching beliefs and various instructional practices. This data will be used to inform her dissertation and may be used in the final analyses of the Project CAUSE program in addition to other research projects being conducted by faculty of the School of Education.

The survey collection will occur prior to CLASS observations this spring. Ms. Snider has joined the Project CAUSE faculty this semester to facilitate these surveys as well as many of the CLASS observations that have been part of our program. Karrie has worked with both the elementary and early childhood programs at UMKC and is currently also serving as a supervisor with our interns in Hickman Mills. As with our previous data collection, per research protocols, all information gathered for this study will remain confidential. All participants completed a consent form at the beginning of the year allowing UMKC to gather CLASS data. An additional consent form that includes this survey will be given to all participants for their consent and signature.

Graduates will be contacted by Ms. Snider by school and/or district (see below). The presentation meeting and survey completion will last approximately one hour. Participants will be provided a free workshop related to effective instruction and culturally responsive teaching practices in the late spring/early summer.

Your informational meeting is scheduled for _____ at _____. Should you not be able to make the scheduled meeting, please let Karrie know so she can coordinate an alternative time to complete this information. The agreement that UMKC holds with partnership districts and teacher-graduates affirms the confidentiality of the data. Any questions regarding the study can be forwarded to sniderk@umkc.edu to 816-235-6681. Thank you again for your continued cooperation as we work to develop and support effective teachers.

Jennifer Waddell, Ph. D.
Principal Investigator, Project CAUSE
UMKC School of Education

Karrie Snider
Assistant Teaching Professor
UMKC School of Education

APPENDIX C
CONSENT FORM

Consent for Participation in a Research Study In-service Teachers' Beliefs and Practices Study

Project Investigators

You are invited to participate in a dissertation research study conducted by Mrs. Karrie Snider, researcher and supervised by Dr. Sue Vartuli both of the University of Missouri-Kansas City.

Request to Participate

You are being asked to take part in this research study because you have previously consented to participate in Project CAUSE, which has focused on pre-service and beginning teachers from the University of Missouri-Kansas City Early Childhood and Elementary Teacher Education Programs. Teacher-participants in this study will consist of the beginning teachers working in the partnership schools in the Greater Kansas City area. This study would like to utilize classroom observation and student classroom data that you have already provided to the Project CAUSE study. Along with classroom observations, you are invited to complete one survey regarding teacher beliefs.

This document is called a consent form. Please read this consent form carefully. The researcher will go over this consent form with you. This consent form explains what to expect: the risks, discomforts, and benefits, if any, if you consent to be in the study.

Background

UMKC School of Education has been dedicated to investigating the effectiveness of the teacher preparation reform. You have been participating in the Project CAUSE study as a graduate of the UMKC Early Childhood and/or Elementary Teacher Education program. The classroom observations and classroom student data that have been collected for that study are being requested to use in this study. Along with that, you have been invited to participate in completing the teacher survey for this study. The survey data will enhance the understanding and investigation of the effectiveness of the teacher education program in preparing teachers to become effective teachers in an urban community.

Purpose

The purpose of this research study is to investigate the effectiveness of the teacher education preparation program reform at UMKC for preparing teachers to become effective educators in the urban community. This study seeks to investigate the relationship between teacher beliefs, teacher practices and student outcomes and seeks to answer the questions: What is the relationship between teachers' culturally responsive pedagogical teaching beliefs, instructional practices and student achievement? And how are culturally responsive pedagogical teaching beliefs related to one another and how do these beliefs impact student achievement?

Teacher education accountability is requiring an investigation into the linkage between the graduates of teacher preparation programming and how successful beginning teachers are in positively impacting student outcomes. This study will add to the investigation regarding the effectiveness of their teacher graduates-now-educators in the urban community.

Procedures

You will be presented an overview of this study at the scheduled meeting for your school area. By participating in this study, you will be asked to complete a survey of your instructional beliefs and practices and brief teacher demographic information. This will take approximately thirty minutes. The survey

UMKC SS IRB # 14-113

The University of Missouri-Kansas City appreciates people who help it carry out its function of developing knowledge through research. If you have any questions about the study that you are participating in you are encouraged to call Dr. Sue Vartuli, Principal Investigator at 816-235-2470.

Although it is not the University's policy to compensate or provide medical treatment for persons who participate in studies, if you think you have been injured as a result of participating in this study, please call the IRB Administrator of UMKC's Social Sciences Institutional Review Board at 816-235-5927.

Contacts for Questions about the Study

You should contact the Office of UMKC's Social Sciences Institutional Review Board at 816-235-5927 if you have any questions, concerns or complaints about your rights as a research subject.

You have had the chance to ask questions, and you may ask questions at any time in the future by calling the researcher, **Mrs. Karrie Snider** located at the University of Missouri-Kansas City, School of Education, 615 E 52nd Street, Kansas City, Missouri, 64110, at **816-235-6681** or sniderk@umkc.edu Or you may contact her Dissertation Advisor, Dr. Sue Vartuli at vartulis@umkc.edu if you have any questions about this study.

Voluntary Participation

Taking part in this research study is voluntary. If you choose to be in the study, you are free to stop participating at any time and for any reason. If you choose not to be in the study or decide to stop participating, your decision will not affect any care or benefits you are entitled to. The researchers, doctors or sponsors may stop the study or take you out of the study at any time if they decide that it is in your best interest to do so. They may do this for medical or administrative reasons or if you no longer meet the study criteria. You will be told of any important findings developed during the course of this research.

You have read this Consent Form or it has been read to you. You have been told why this research is being done and what will happen if you take part in the study, including the risks and benefits. You have had the chance to ask questions, and you may ask questions at any time in the future by calling **Karrie Snider** at **816-235-6681**. By signing this consent form, you volunteer and consent to take part in this research study. Study staff will give you a copy of this consent form.

Printed Name of Participant

Signature of Participant

Date

Mrs. Karrie Snider

Printed Name of Researcher

Karrie Snider

Signature of Researcher

3/17/14

Date

Dr. Sue Vartuli

Printed Name of Principal Investigator

Sue Vartuli

Signature of Principal Investigator

3/17/2014

Date

Consent Form *CAUSE Consent Form-Beliefs Survey*
Page 3 of 3
Version Date: 5/22/2012

UMKC Social Sciences IRB
Approved
from: 03/10/2014 to: 03/09/2015

APPENDIX D
STUDY PRESENTATION SCIRPT

Presentation Script for CRT Survey Data Collection by: Karrie Snider

For: Participants who will complete the Consent form for survey completion, the Culturally Responsive Teaching Self-Efficacy and Outcome Expectancy Scales and Teacher Demographic Survey

Greeting: Thank you for attending this meeting to inform you of the data collection update in the Project CAUSE study that you, as a graduate of UMKC early childhood and elementary program have been participating in.

Background information: As you know, Project CAUSE has allowed UMKC staff to learn about how we can better prepare teachers during their pre-service years and learn from our graduates while supporting them in the field—for example many of you have received coaching during your first years of teaching from a Mentor Coach.

Goals: This dissertation study seeks to understand how UMKC early childhood and elementary graduates are doing in their first years of teaching. In particular, this study involves an inquiry related to teacher beliefs---what teachers think about teaching and students, and instructional practices-- what teachers' practices are in their classrooms, and then finally how those beliefs and practices impact student learning.

Classroom observation: The classroom observation that is a component of this study is already something that you (Project CAUSE participant) are familiar with. The two-hour follow-up CLASS observation that is already scheduled for this spring will serve as the classroom observation for this dissertation study—therefore there is no additional observation. The only additional request being made is to complete two surveys regarding beliefs and practices, and the teacher demographic survey. During April and May the follow-up observation will be scheduled and an observer will come to observe in the regular classroom, as has been done before.

Surveys: Completion of the surveys is voluntary. The consent form is the first item in the survey packet. Please read the consent form prior to signing. It is an identical consent form to an earlier form you have completed. It has the addition of this dissertation study's measurement tools—the three surveys. It should take no longer than thirty minutes to complete these surveys.

Study Participation: Study participation is voluntary. You may choose to participate or withdraw your participation at any time. There is no monetary gain from participation. Although I will be offering a free seminar regarding instructional practices (culturally responsive teaching and highly effective teaching) this coming summer for participants to attend and they may receive a workshop certificate towards professional development hours. There are no known risks associated with this study. Confidentiality will be maintained for all information gathered. All surveys, data, observations, and other materials will be securely stored. This data will be used in this dissertation study.

Other risks and participation information is detailed on the consent form.

APPENDIX E

AMENDED FORMS:

RECRUITMENT LETTER, CONSENT FORM, and DIRECTIONS FOR SURVEY
PACKET

March 30, 2014

University of Missouri-Kansas City
School of Education
615 E 52nd Street
Kansas City, Missouri 64110

Dear UMKC Early Childhood or Elementary Graduate Teaching in KCK Schools,

As a UMKC graduate participating in the Project CAUSE program, you are aware of UMKC's ongoing commitment to teacher development. Project CAUSE is a partnership between UMKC and three partner school districts that has dramatically changed the way in which UMKC prepares its candidates for teaching. As you know, we have collected data from our graduates for the previous four years of the grant and are continuing our data collection in this 5th and final year.

You have already been observed by UMKC faculty using the CLASS protocol. This spring, along with follow-up CLASS observations, Ms. Karrie Snider will be surveying Project CAUSE graduates to identify culturally responsive teaching beliefs and various instructional practices. This data will be used to inform her dissertation and may be used in the final analyses of the Project CAUSE program in addition to other research projects being conducted by faculty of the School of Education.

The survey collection will occur this spring. Ms. Snider has joined the Project CAUSE faculty this semester to facilitate these surveys as well as many of the CLASS observations that have been part of our program. Karrie has worked with both the elementary and early childhood programs at UMKC and is currently also serving as a supervisor with our interns in Hickman Mills. As with our previous data collection, per research protocols, all information gathered for this study will remain confidential. All participants completed a consent form at the beginning of the year allowing UMKC to gather CLASS data. An additional consent form that includes this survey will be given to all participants for their consent and signature.

Graduates will be contacted by Ms. Snider by email to participate. Background information about the study is attached in this email. Please review it prior to completing the survey. It takes approximately 15 to 20 minutes to complete the survey. If you have any questions please contact Karrie Snider at any time.

In order to be responsive to the responsibilities and time constraints teachers have in the springtime, **Karrie will be delivering the survey to you at your school in an envelope.** Directions for completing the signed, sealed survey will be attached. Karrie will be emailing you to coordinate a date for delivery and pick up. If you have a Mentor-Coach, they will be able to pick up your survey the week it was delivered to you and return it to Karrie at UMKC.

The agreement that UMKC holds with partnership districts and teacher-graduates affirms the confidentiality of the data. Again, any questions regarding the study can be forwarded to sniderk@umkc.edu to 816-235-6681.

Participants will be provided a free workshop related to effective instruction and culturally responsive teaching practices in the summer.

Thank you again for your continued cooperation as we work to develop and support effective teachers.

Jennifer Waddell, Ph. D.
Principal Investigator,
UMKC School of Education

Karrie Snider
Project CAUSE Assistant Teaching Professor
UMKC School of Education

**Consent for Participation in a
Research Study
In-service Teachers' Beliefs and
Practices Study**

Project Investigators

You are invited to participate in a dissertation research study conducted by Mrs. Karrie Snider, researcher and supervised by Dr. Sue Vartuli both of the University of Missouri-Kansas City.

Request to Participate

You are being asked to take part in this research study because you have previously consented to participate in Project CAUSE, which has focused on pre-service and beginning teachers from the University of Missouri-Kansas City Early Childhood and Elementary Teacher Education Programs. Teacher-participants in this study will consist of the beginning teachers working in the partnership schools in the Greater Kansas City area. This study would like to utilize classroom observation and student classroom data that you have already provided to the Project CAUSE study. Along with classroom observations, you are invited to complete one survey regarding teacher beliefs.

This document is called a consent form. Please read this consent form carefully. The researcher will go over this consent form with you. This consent form explains what to expect: the risks, discomforts, and benefits, if any, if you consent to be in the study.

Background

UMKC School of Education has been dedicated to investigating the effectiveness of the teacher preparation reform. You have been participating in the Project CAUSE study as a graduate of the UMKC Early Childhood and/or Elementary Teacher Education program. The classroom observations and classroom student data that have been collected for that study are being requested to use in this study. Along with that, you have been invited to participate in completing the teacher survey for this study. The survey data will enhance the understanding and investigation of the effectiveness of the teacher education program in preparing teachers to become effective teachers in an urban community.

Purpose

The purpose of this research study is to investigate the effectiveness of the teacher education preparation program reform at UMKC for preparing teachers to become effective educators in the urban community. This study seeks to investigate the relationship between teacher beliefs, teacher practices and student outcomes and seeks to answer the questions: What is the relationship between teachers' culturally responsive pedagogical teaching beliefs, instructional practices and student achievement? And how are culturally responsive

pedagogical teaching beliefs related to one another and how do these beliefs impact student achievement?

Teacher education accountability is requiring an investigation into the linkage between the graduates of teacher preparation programming and how successful beginning teachers are in positively impacting student outcomes. This study will add to the investigation regarding the effectiveness of their teacher graduates-now- educators in the urban community.

Procedures

Option 1: You will be presented an overview of this study at the scheduled meeting for your school area.

By participating in this study, you will be asked to complete a survey of your instructional beliefs and practices and brief teacher demographic information. This will take approximately thirty minutes. The survey completion occurs at a school district site or your school site. Option 2: If you are unable to attend a school district/site meeting, you will receive an email with background information in order to participate in the study. A survey will be delivered to you at your school site by the student researcher. It takes approximately 15 to 20 minutes to complete the survey. Instructions will indicate to complete the consent form and survey, then seal and sign across the envelope seal to protect confidentiality. If you have a UMKC mentor coach, you may submit the envelope to the coach. If not the student researcher will make arrangements for pick-up. There are no additional follow-up visits required of this survey data collection.

Participation in the study is voluntary. You may choose to participate or to withdraw your participation at any time. Deciding not to participate or choosing to discontinue participation in the study will not result in any penalty or loss of benefits to which you are entitled.

Risks and Inconveniences

There are no known risks associated with your participation in this study. Should you feel uncomfortable in participating at any time, you may discontinue your participation. Data collected prior to discontinuation will be included in the research. While every effort will be made to keep confidential all of the information you complete and share, confidentiality cannot be absolutely guaranteed.

Benefits

There are many anticipated benefits to this project. This study seeks to increase an understanding of the relationship between teacher education, teachers in the field and K-6th grade student success. Insights will be gained as to the effectiveness of programming on actual practices of teachers in the field, and how teachers' practices impact student achievement. This study benefits the program evaluation of a teacher preparation program aimed at developing effective educators for urban school environments.

Other people, such as pre-service and in-teachers, school districts, and teacher educators may benefit in the future from the information gathered in this study, specifically as it pertains to the preparation of teachers for enacting culturally responsive teaching practices to meet the demands of a growing population of diverse learners.

Fees and Expenses

There are no fees or expenses to the participant.

Compensation

There is no monetary compensation for study participation.

Alternatives to Study Participation

The alternative is to not participate

Confidentiality

All information gathered for this study will remain confidential. All surveys, interviews, observations, and other materials will be securely stored in a locked cabinet located at UMKC's School of Education, Room 365. Although the information gathered during this study will be used in a dissertation, may be utilized during professional presentations or may be published in professional journals, the identity of the participants will remain confidential.

While every effort will be made to keep confidential all of the information you complete and share, confidentiality cannot be absolutely guaranteed. Individuals from the University of Missouri-Kansas City Institutional Review Board (a committee that reviews and approves research studies), Research Protections Program, and Federal regulatory agencies may look at records related to this study for quality improvement and regulatory functions.

In Case of Injury

The University of Missouri-Kansas City appreciates people who help it carry out its function of developing knowledge through research. If you have any questions about the study that you are participating in you are encouraged to call Dr. Sue Vartuli, Principal Investigator at 816-235-2470.

Although it is not the University's policy to compensate or provide medical treatment for persons who participate in studies, if you think you have been injured as a result of participating in this study, please call the IRB Administrator of UMKC's Social Sciences Institutional Review Board at 816-235-5927.

Contacts for Questions about the Study

You should contact the Office of UMKC's Social Sciences Institutional Review Board at 816-235-5927 if you have any questions, concerns or complaints about your rights as a research subject.

You have had the chance to ask questions, and you may ask questions at any time in the future by calling the researcher, *Mrs. Karrie Snider* located at the University of Missouri-Kansas City, School of Education, 615

E 52nd Street, Kansas City, Missouri, 64110, at 816-235-6681 or sniderk@umkc.edu Or you may contact her Dissertation Advisor, Dr. Sue Vartuli at vartulis@umkc.edu if you have any questions about this study.

Voluntary Participation

Taking part in this research study is voluntary. If you choose to be in the study, you are free to stop participating at any time and for any reason. If you choose not to be in the study or decide to stop participating, your decision will not affect any care or benefits you are entitled to. The researchers, doctors or sponsors may stop the study or take you out of the study at any time if they decide that it is in your best interest to do so. They may do this for medical or administrative reasons or if you no longer meet the study criteria. You will be told of any important findings developed during the course of this research.

You have read this Consent Form or it has been read to you. You have been informed why this research is being done and what will happen if you take part in the study, including the risks and benefits. You have had the chance to ask questions, and you may ask questions at any time in the future by calling **Karrie Snider** at **816-235-6681**. By signing this consent form, you volunteer and consent to take part in this research study. Study staff will email you a scanned of this consent form.

Printed Name of Participant

Signature of Participant

Date

Mrs. Karrie Snider
Printed Name of Researcher

Karrie Snider
Signature of Researcher

4/2/14
Date

Dr. Sue Vartuli
Printed Name of Principal Investigator

Sue Vartuli
Signature of Principal Investigator

4/2/2014
Date

Directions for Completing the Teacher Beliefs Survey

1. Please read the consent form and sign/date it with today's date. (Karrie Snider will email you a scanned copy of your consent form for your records.)
2. After completing the survey, check to make sure you have completed each survey page
3. Please write your name on the front page of the survey. This will be removed once information is entered into a data base.
4. Place the consent form and the survey in the envelope. In order to take caution for confidentiality, **please seal the envelope completely and sign your name across the seal.**
5. Please give the sealed envelope to your Mentor coach during the same week of completing the survey or if you do not have a coach Karrie Snider will be contacting you for a pick up time.
6. Please email, text or phone Karrie if you have questions. sniderk@umkc.edu or 816-305-0781

Thank you for participating by completing this survey. Your input into the work of preparing and supporting teachers is very helpful!

APPENDIX F
TEACHER DEMOGRAPHICS SURVEY

Demographic information

1) What is the highest educational level you have completed?

- | | |
|---------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> H.S. or GED | <input type="checkbox"/> MA/MS in early childhood |
| <input type="checkbox"/> Some early childhood college courses | <input type="checkbox"/> MA/MS other |
| <input type="checkbox"/> Some college courses | <input type="checkbox"/> Ed. Sp. in early childhood |
| <input type="checkbox"/> CDA | <input type="checkbox"/> Ed. Sp. other |
| <input type="checkbox"/> BA/BS in early childhood | <input type="checkbox"/> Ph.D./Ed.D. in early childhood |
| <input type="checkbox"/> BA/BS other | <input type="checkbox"/> Ph.D./Ed.D. other |
| | <input type="checkbox"/> Other: (please specify) _____ |

2) Do you currently hold certification? ☐ Yes ☐ No

2a) If yes, please mark all certifications that are held

- | | |
|-------------------------------------------------------|-------------------------------------|
| <input type="checkbox"/> Early Childhood | <input type="checkbox"/> Elementary |
| <input type="checkbox"/> Early Childhood/Elem. | <input type="checkbox"/> Secondary |
| <input type="checkbox"/> Other (please specify) _____ | |

3) How long have you been a teacher? _____years _____months

4) Your Age

- | | | |
|--------------------------------|--------------------------------|--------------------------------|
| <input type="checkbox"/> 18-23 | <input type="checkbox"/> 36-41 | <input type="checkbox"/> 54-59 |
| <input type="checkbox"/> 24-29 | <input type="checkbox"/> 42-47 | <input type="checkbox"/> 60+ |
| <input type="checkbox"/> 30-35 | <input type="checkbox"/> 48-53 | |

5) Gender ☐ Male ☐ Female

6) Race

- | | |
|-----------------------------------|------------------------------------------|
| <input type="checkbox"/> Asian | <input type="checkbox"/> Native American |
| <input type="checkbox"/> Black | <input type="checkbox"/> White |
| <input type="checkbox"/> Hispanic | <input type="checkbox"/> Other: _____ |

APPENDIX G
TEACHER BELIEF AND PRACTICE MEASURES



TEXAS TECH UNIVERSITY
College of Education™

Permission to use the
Culturally Responsive Teaching Self-Efficacy and the
Culturally Responsive Teaching Outcome Expectancy Scales

Dear Researcher:

You have my permission to use the Culturally Responsive Teaching Self-Efficacy Scale and/or the Culturally Responsive Teaching Outcome Expectations Scale in your research. A copy of the instruments are included. Request for any changes or alterations to the instrument should be sent via email to kamau.siwatu@ttu.edu. When using the instrument please use the following reference:

Siwatu, K. O. (2007). Preservice teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs. *Teaching and Teacher Education*, 23, 1086-1101.

Best wishes with your work.

Sincerely,

Kamau Oginga Siwatu, Ph.D.
Associate Professor of Educational Psychology

Box 41071 | Lubbock, Texas | 79409-1071 | T 806-742-1997 x431 | F 806-742-2179

Appraisal Inventory

Rate how confident you are in your ability to successfully accomplish each of the tasks listed below. Each task is related to teaching. Please rate your degree of confidence by recording a number from 0 (no confidence at all) to 100 (completely confident). Remember that you may use any number between 0 and 100.

0	10	20	30	40	50	60	70	80	90	100
No					Moderately					Completely
Confidence					Confident					Confident
At All										

I am able to:

- _____ 1. adapt instruction to meet the needs of my students.
- _____ 2. obtain information about my students' academic strengths.
- _____ 3. determine whether my students like to work alone or in a group.
- _____ 4. determine whether my students feel comfortable competing with other students.
- _____ 5. identify ways that the school culture (e.g., values, norms, and practices) is different from my students' home culture.
- _____ 6. implement strategies to minimize the effects of the mismatch between my students' home culture and the school culture.
- _____ 7. assess student learning using various types of assessments.
- _____ 8. obtain information about my students' home life.
- _____ 9. build a sense of trust in my students.
- _____ 10. establish positive home-school relations.
- _____ 11. use a variety of teaching methods.
- _____ 12. develop a community of learners when my class consists of students from diverse backgrounds.
- _____ 13. use my students' cultural background to help make learning meaningful.
- _____ 14. use my students' prior knowledge to help them make sense of new information.
- _____ 15. identify ways how students communicate at home may differ from the school norms.
- _____ 16. obtain information about my students' cultural background.
- _____ 17. teach students about their cultures' contributions to science.
- _____ 18. greet English Language Learners with a phrase in their native language.
- _____ 19. design a classroom environment using displays that reflects a variety of cultures.

0	10	20	30	40	50	60	70	80	90	100
No					Moderately					Completely
Confidence					Confident					Confident
At All										

I am able to:

- _____ 20. develop a personal relationship with my students.
- _____ 21. obtain information about my students' academic weaknesses.
- _____ 22. praise English Language Learners for their accomplishments using a phrase in their native language.
- _____ 23. identify ways that standardized tests may be biased towards linguistically diverse students.
- _____ 24. communicate with parents regarding their child's educational progress.
- _____ 25. structure parent-teacher conferences so that the meeting is not intimidating for parents.
- _____ 26. help students to develop positive relationships with their classmates.
- _____ 27. revise instructional material to include a better representation of cultural groups.
- _____ 28. critically examine the curriculum to determine whether it reinforces negative cultural stereotypes.
- _____ 29. design a lesson that shows how other cultural groups have made use of mathematics.
- _____ 30. model classroom tasks to enhance English Language Learner's understanding.
- _____ 31. communicate with the parents of English Language Learners regarding their child's achievement.
- _____ 32. help students feel like important members of the classroom.
- _____ 33. identify ways that standardized tests may be biased towards culturally diverse students.
- _____ 34. use a learning preference inventory to gather data about how my students like to learn.
- _____ 35. use examples that are familiar to students from diverse cultural backgrounds.
- _____ 36. explain new concepts using examples that are taken from my students' everyday lives.
- _____ 37. obtain information regarding my students' academic interests.
- _____ 38. use the interests of my students to make learning meaningful for them.
- _____ 39. implement cooperative learning activities for those students who like to work in groups.
- _____ 40. design instruction that matches my students' developmental needs.
- _____ 41. teach students about their cultures' contributions to society.

Expectancy Inventory

Read each statement below and rate your degree of certainty that the behavior will lead to the specified outcome. You may indicate your certainty by rating each statement on a scale of 0 (entirely uncertain) to 100 (completely certain). The scale below is for reference only; you do not need to use only the given values. You may assign ANY number between 0 and 100 as your degree of certainty.

0	10	20	30	40	50	60	70	80	90	100
Entirely Uncertain	Very Uncertain		Somewhat Uncertain		Not Too Certain	Somewhat Certain		Very Certain		Completely Certain

- _____ 1. A positive teacher-student relationship can be established by building a sense of trust in my students.
- _____ 2. Incorporating a variety of teaching methods will help my students to be successful.
- _____ 3. Students will be successful when instruction is adapted to meet their needs.
- _____ 4. Developing a community of learners when my class consists of students from diverse cultural backgrounds will promote positive interactions between students.
- _____ 5. Acknowledging the ways that the school culture is different from my students' home culture will minimize the likelihood of discipline problems.
- _____ 6. Understanding the communication preferences (e.g., the value of eye-contact; protocol for participating in a conversation) of my students will decrease the likelihood of student-teacher communication problems.
- _____ 7. Connecting my students' prior knowledge with new incoming information will lead to deeper learning.
- _____ 8. Matching instruction to the students' learning preferences will enhance their learning.
- _____ 9. Revising instructional material to include a better representation of the students' cultural group will foster positive self-images.
- _____ 10. Providing English Language Learners with visual aids will enhance their understanding of assignments.
- _____ 11. Students will develop an appreciation for their culture when they are taught about the contributions their culture has made over time.
- _____ 12. Conveying the message that parents are an important part of the classroom will increase parent participation.
- _____ 13. The likelihood of student-teacher misunderstandings decreases when my students' cultural background is understood.

0	10	20	30	40	50	60	70	80	90	100
Entirely Uncertain	Very Uncertain		Somewhat Uncertain		Not Too Certain	Somewhat Certain		Very Certain		Completely Certain

- _____ 14. Changing the structure of the classroom so that it is compatible with my students' home culture will increase their motivation to come to class.
- _____ 15. Establishing positive home-school relations will increase parental involvement.
- _____ 16. Student attendance will increase when a personal relationship between the teacher and students has been developed.
- _____ 17. Assessing student learning using a variety of assessment procedures will provide a better picture of what they have learned.
- _____ 18. Using my students' interests when designing instruction will increase their motivation to learn.
- _____ 19. Simplifying the language used during the presentation will enhance English Language Learners comprehension of the lesson.
- _____ 20. The frequency that students' abilities are misdiagnosed will decrease when their standardized test scores are interpreted with caution.
- _____ 21. Encouraging students to use their native language will help them to maintain their cultural identity.
- _____ 22. Students' self-esteem can be enhanced when their cultural background is valued by the teacher.
- _____ 23. Helping students from diverse cultural backgrounds succeed in school will increase their confidence in their academic ability.
- _____ 24. Students' academic achievement will increase when they are provided with unbiased access to the necessary learning resources.
- _____ 25. Using culturally familiar examples will make learning new concepts easier.
- _____ 26. When students see themselves in the pictures (e.g., posters of notable African Americans, etc) that are displayed in the classroom they develop a positive self-identity.



OBSERVATION SHEET

Teacher: _____ Observer: _____
 Start time: _____ End time: _____
 Number of adults: _____ Number of children: _____

CONTENT (circle all; check majority): Lit/Lang Arts Math Science Social Studies Art Other: _____			FORMAT (circle all; check majority): Routine Whole group Individual time Meals/snacks Small group Free choice/centers		
-----------------------------------------------------------------------------------------------------------------------------------	--	--	--------------------------------------------------------------------------------------------------------------------------------------------------------	--	--

Circle appropriate score.

Positive Climate (PC) • Relationships • Positive Affect • Positive Communication • Respect	Notes	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td> <td style="width: 12.5%;">2</td> <td style="width: 12.5%;">3</td> <td style="width: 12.5%;">4</td> <td style="width: 12.5%;">5</td> <td style="width: 12.5%;">6</td> <td style="width: 12.5%;">7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
Negative Climate (NC) • Negative Affect • Punitive Control • Sarcasm/Disrespect • Severe Negativity	Notes	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td> <td style="width: 12.5%;">2</td> <td style="width: 12.5%;">3</td> <td style="width: 12.5%;">4</td> <td style="width: 12.5%;">5</td> <td style="width: 12.5%;">6</td> <td style="width: 12.5%;">7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
Teacher Sensitivity (TS) • Awareness • Responsiveness • Addresses Problems • Student Comfort	Notes	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td> <td style="width: 12.5%;">2</td> <td style="width: 12.5%;">3</td> <td style="width: 12.5%;">4</td> <td style="width: 12.5%;">5</td> <td style="width: 12.5%;">6</td> <td style="width: 12.5%;">7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
Regard for Student Perspectives (RSP) • Flexibility and Student Focus • Support for Autonomy and Leadership • Student Expression • Restriction of Movement	Notes	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td> <td style="width: 12.5%;">2</td> <td style="width: 12.5%;">3</td> <td style="width: 12.5%;">4</td> <td style="width: 12.5%;">5</td> <td style="width: 12.5%;">6</td> <td style="width: 12.5%;">7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
Behavior Management (BM) • Clear Behavior Expectations • Proactive • Redirection of Misbehavior • Student Behavior	Notes	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td> <td style="width: 12.5%;">2</td> <td style="width: 12.5%;">3</td> <td style="width: 12.5%;">4</td> <td style="width: 12.5%;">5</td> <td style="width: 12.5%;">6</td> <td style="width: 12.5%;">7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
Productivity (PD) • Maximizing Learning Time • Routines • Transitions • Preparation	Notes	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td> <td style="width: 12.5%;">2</td> <td style="width: 12.5%;">3</td> <td style="width: 12.5%;">4</td> <td style="width: 12.5%;">5</td> <td style="width: 12.5%;">6</td> <td style="width: 12.5%;">7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
Instructional Learning Formats (ILF) • Effective Facilitation • Variety of Modalities and Materials • Student Interest • Clarity of Learning Objectives	Notes	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td> <td style="width: 12.5%;">2</td> <td style="width: 12.5%;">3</td> <td style="width: 12.5%;">4</td> <td style="width: 12.5%;">5</td> <td style="width: 12.5%;">6</td> <td style="width: 12.5%;">7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
Concept Development (CD) • Analysis and Reasoning • Creating • Integration • Connections to the Real World	Notes	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td> <td style="width: 12.5%;">2</td> <td style="width: 12.5%;">3</td> <td style="width: 12.5%;">4</td> <td style="width: 12.5%;">5</td> <td style="width: 12.5%;">6</td> <td style="width: 12.5%;">7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
Quality of Feedback (QF) • Scaffolding • Feedback Loops • Prompting Thought Processes • Providing Information • Encouragement and Affirmation	Notes	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td> <td style="width: 12.5%;">2</td> <td style="width: 12.5%;">3</td> <td style="width: 12.5%;">4</td> <td style="width: 12.5%;">5</td> <td style="width: 12.5%;">6</td> <td style="width: 12.5%;">7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
Language Modeling (LM) • Frequent Conversation • Open-Ended Questions • Repetition and Extension • Self- and Parallel Talk • Advanced Language	Notes	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td> <td style="width: 12.5%;">2</td> <td style="width: 12.5%;">3</td> <td style="width: 12.5%;">4</td> <td style="width: 12.5%;">5</td> <td style="width: 12.5%;">6</td> <td style="width: 12.5%;">7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			

Classroom Assessment Scoring System® (CLASS®) by Robert C. Pianta, Karen M. La Paro, & Bridget K. Hamre. Copyright © 2008 by Paul H. Brookes Publishing Co., Inc. All rights reserved. Do not reproduce without permission of Brookes Publishing Co., 1-800-638-3775, www.brookespublishing.com

CLASS UE

Positive Climate Relationships Positive affect Positive communication Respect	1 2 3 4 5 6 7
Negative Climate Negative Affect Punitive Control Disrespect	1 2 3 4 5 6 7
Teacher Sensitivity Awareness Responsiveness to academic and social/emotional needs and cues Effectiveness in addressing problems Student comfort	1 2 3 4 5 6 7
Regard for Student Perspective Flexibility and student focus Connections to current life Support for autonomy and leadership Meaningful peer interactions	1 2 3 4 5 6 7
Behavior Management Clear expectations Proactive Effective redirection of misbehavior Student behavior	1 2 3 4 5 6 7
Productivity Maximizing learning time Routines Transitions Preparation	1 2 3 4 5 6 7
Instructional Learning Formats Learning Targets/Organization Variety of modalities, strategies, materials Active Facilitation Effective engagement	1 2 3 4 5 6 7
Content Understanding Depth of Understanding Communication of concepts and procedures Background knowledge and misconceptions Transmission of content knowledge and Procedures Opportunity for practice of procedures and skills	1 2 3 4 5 6 7
Analysis and Inquiry Facilitation of higher-order thinking Opportunities for novel application Metacognition	1 2 3 4 5 6 7
Quality of Feedback Feedback loops Scaffolding Building on Student Responses Encouragement and Affirmation	1 2 3 4 5 6 7
Instructional Dialogue Cumulative content-driven exchanges Distributed talk Facilitation strategies	1 2 3 4 5 6 7
Student Engagement Active Engagement	1 2 3 4 5 6 7

REFERENCE LIST

- Allen, L. Q. (2002). Teachers' pedagogical beliefs and the standards for foreign language learning. *Foreign Language Annals*, 35(5), 518-529.
- Allen, M., Coble, C., & Crowe, E. (2014). Building an evidence-based system for teacher preparation. Report for the Council for the Accreditation of Educator Preparation by Teacher Preparation Analytics. Retrieved November 1, 2014 from https://caepnet.files.wordpress.com/2014/09/building_an_evidence_based_system_for_teacher_preparation_201409151.pdf.
- Allen, J., Gregory, A., Mikami, A., Lun, J., Hamre, B., & Pianta, R. (2013). Observations of effective teacher-student interactions in secondary school classrooms: Predicting student achievement with the classroom assessment scoring system-secondary. *School Psychology Review*, 42(1), 76-98.
- Armor, D., Conroy-Oseguera, P., Cox, M., King, N., McDonnell, L., Pascal, A., Pauly, E., & Zellman, G. (1976). Analysis of the school preferred reading programs in selected Los Angeles minority schools, REPORT NO. R-2007-LAUDS. Santa Monica, CA: Rand Corporation (ERIC Document Reproduction Service No. 130 243).
- Ashton, P.T., & Webb, R. B. (1986). *Making a difference: Teachers' sense of efficacy and student achievement*. New York, NY: Longman.
- Ashton, P., Buhr, D., & Crocker, L. (1984). Teachers' sense of efficacy: A self- or norm-reference construct? *Florida Journal of Educational Research*, 26(1), 29-41.
- Ball, A. (2013). Learning to teach in a complex interconnected world. *Theory Into Practice*, 52(1), 31-41. doi: 10.1080/00405841.2013.795439
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.

- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44(9), 1175-1184.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122-147.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman and Co.
- Bandura, A. (2006). Guide to constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (pp. 307-337). Greenwich, CT: Information Age Publishing.
- Banks, J. A. (2004). Multicultural education: Historical development, dimensions, and practice. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp. 1-29). San Francisco, CA: Jossey-Bass.
- Banks, J. A., & Banks, C. A. (Eds.). (2004). *Handbook of research on multicultural education*. San Francisco, CA: Jossey-Bass.
- Barnyak, N. C., & Paquette, K. R. (2010). An investigation of elementary preservice teachers' reading instructional beliefs. *Reading Improvement*, 47(1), 7-17.
- Barry, N., & Lechner, J. (1995). Preservice teachers' attitudes and awareness of multicultural teaching and learning. *Teaching and Teacher Education*, 11(2), 149-161.
- Bean, J. P., & Eaton, S. B. (2000). A psychological model of college student retention. In J. M. Braxton, (Ed.), *Reworking the student departure puzzle* (pp. 48-61). Nashville, TN: Vanderbilt University Press.
- Berlak, A. (2008). Challenging the hegemony of whiteness by addressing the adaptive

- unconscious. In V. Lea and E.J. Sims (Eds.), *Undoing whiteness in the classroom: Critical educultural teaching approaches for social justice activism (counterpoints, studies in the postmodern theory of education)* (pp. 47-66). New York, NY: Peter Lang.
- Berthelsen, D., & Brownlee, J. (2007). Working with toddlers in child care: Practitioners' beliefs about their role. *Early Childhood Research Quarterly*, 22(3), 347-362.
- Bird, T. (1992). *Pedagogical balancing acts: A teacher educator encounters problems in an attempt to influence prospective teachers' beliefs*. National Center on Teacher Learning. Retrieved November 30, 2014 from <http://ncrtl.msu.edu/http/rreports/html/pdf/rr928.pdf>.
- Blackwell, C. K., Lauricella, A. R., Wartella, E., Robb, M., & Schomburg, R. (2013). Adoption and use of technology in early education: The interplay of extrinsic barriers and teacher attitudes. *Computers & Education*, 69, 310-319. doi: 10.1016/j.compedu.2013.07.024
- Blanchett, W. J., & Wynne, J. (2007). Reframing urban education discourse: A conversation with and for teacher educators. *Theory Into Practice*, 46(3), 187-193.
- Blanchett, W. J., Mumford, V., & Beachum, F. (2005). Urban school failure and disproportionality in a post-Brown era benign neglect of the constitutional rights of students of color. *Remedial and Special Education*, 26(2), 70-81.
- Blay, J. A., & Ireson, J. (2009). Pedagogical beliefs, activity choice and structure, and adult-child interaction in nursery classrooms. *Teaching and Teacher Education*, 25(8), 1105-1116.
- Bredenkamp, C., & Copple, C. (1997). *Developmentally appropriate practice in early childhood programs*. Washington, DC: National Association for the Education of

Young Children.

- Bodrova, E., & Leong, D. J. (2007). *Tools of the mind: The Vygotskian approach to early childhood education* (2nd Ed). Upper Saddle River, NJ: Pearson.
- Bogardus, E. S. (1933). A social distance scale. *Sociology & Social Research*, 17, 265-271.
- Borg, S. (2011). The impact of in-service teacher education on language teachers' beliefs. *System*, 39(3), 370-380.
- Boutte, G. S. (2012). Urban schools: Challenges and possibilities for early childhood and elementary education. *Urban Education*, 47(2), 515-550.
- Boutte, G. S., Lopez-Robertson, J., & Powers-Costello, E. (2011). Moving beyond colorblindness in early childhood classrooms. *Early Childhood Education Journal* (39)5, 335-342. doi: 10.1007/s10643-011-0457-x
- Boyd, D., Grossman, P. L., Hammerness, K., Lankford, R. H., Loeb, S., McDonald, M., ... & Wyckoff, J. (2008). Surveying the landscape of teacher education in New York City: Constrained variation and the challenge of innovation. *Educational Evaluation and Policy Analysis*, 30(4), 319-343.
- Boyd, D., Lankford, H., Loeb, S., Rockoff, J., & Wyckoff, J. (2008). The narrowing gap in New York City teacher qualifications and its implications for student achievement in high-poverty schools. *Journal of Policy Analysis and Management*, 27(4), 793-818.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32(7), 513-531.
- Bronfenbrenner, U. (1994). Ecological models of human development. In M. Gauvin & M. Cole, (Eds.), *International encyclopedia of education* (volume 3, 2nd Ed.) (pp. 1643-1647). New York, NY: Freeman. Retrieved from <http://www.psy.cmu.edu/~siegler/35bronfenbrenner94.pdf>

- Bronfenbrenner, U. (Ed.) (2005). *Making human beings human: Bioecological perspectives on human development*. Thousand Oaks, CA: Sage.
- Brookhart, S. M., & Freeman, D. J. (1992) Characteristics of entering teacher candidates. *Review of Educational Research*, 62 (1), 37-60.
- Brown, J. L., Jones, S. M., Larusso, M. D, & Aber, J. L. (2010). Improving classroom quality: Teacher influences and experimental impacts of the 4Rs program. *Journal of Educational Psychology*, 102(1), 153-167.
- Buchanan, T. K., Burts, D. C., Bidner, J., White, V. F., & Charlesworth, R. (1998). Predictors of the developmental appropriateness of the beliefs and practices of first, second, and third grade teachers. *Early Childhood Research Quarterly*, 13(3), 459-483.
- Buell, M. J., Hallam, R., Gamel-McCormick, M., & Scheer, S. (1999). A survey of general and special education teachers' perceptions and inservice needs concerning inclusion. *International Journal of Disability, Development and Education*, 46(2), 143-156.
- Buendía, E. (2011). Reconsidering the urban in urban education: Interdisciplinary conversations. *The Urban Review*, 43(1), 1-21.
- Center for Advanced Study of Teaching and Learning. (n.d.) Measuring and improving teacher-student interactions in PK-12 settings to enhance students' learning. Curry School of Education University of Virginia. Retrieved from www.curry.virginia.edu/castl.
- Calderhead, J. (1996). Teachers: Beliefs and knowledge. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of educational psychology*, (pp. 709-725). New York, NY: Simon & Schuster Macmillan.

- Calderhead, J., & Shorrock, S. B. (1997). *Understanding teacher education: Case studies in the professional development of beginning teachers*. Bristol, PA: The Falmer Press.
- Cappella, E., Hamre, B. K., Kim, H. Y., Henry, D. B., Frazier, S. L., Atkins, M. S., & Schoenwald, S. K. (2012). Teacher consultation and coaching within mental health practice: classroom and child effects in urban elementary schools. *Journal of Consulting and Clinical psychology*, 80(4), 597.
- Caprara, G. V., Barbaranelli, C., Steca, P., & Malone, P. S. (2006). Teachers' self-efficacy beliefs as determinants of job satisfaction and students' academic achievement: A study at the school level. *Journal of School Psychology*, 44(6), 473-490.
- Carey, R. L. (2013). A cultural analysis of the achievement gap discourse: Challenging the language and labels used in the work of school reform. *Urban Education*, 49(4), 440-468. doi: 10.1177/0042085913507459
- Carnoy, M., & Rothstein, R. (2013). What do international tests really show about U. S. student performance? (Economic Policy Institute Report). Retrieved from Economic Policy Instituted, Washington D. C. website:
<http://www.epi.org/publications/page/13/>
- Caudle, L. A., & Moran, M. J. (2012). Changes in understandings of three teachers' beliefs and practices across time: Moving from teacher preparation to in-service teaching. *Journal of Early Childhood Teacher Education*, 33(1), 38-53. doi: 10/1080/109011027.2011.650784
- Chaiklin, S. (2003). The zone of proximal development in Vygotsky's analysis of learning And instruction. In A. Kozlin, B. Gindis, V. Ageyev & S. M. Miller (Eds.), *Vygotsky's educational theory in cultural context*, (pp. 39-64). New York, NY: Cambridge University Press.

- Charlesworth, R., Hart, C. H., Burts, D. C., & Hernandez, S. (1990). *Kindergarten teachers' beliefs and practices*. Paper presented at the annual meeting of the American Educational Research Association.
- Charlesworth, R., Hart, C. H., Burts, D. C., & Hernandez, S. (1991). Kindergarten teachers' beliefs and practices. *Early Child Development and Care*, 70(1), 17-35.
- Charlesworth, R., Hart, C. H., Burts, D. C., Thomasson, R. H., Mosley, J., & Fleege, P. O. (1993). Measuring the developmental appropriateness of kindergarten teachers' beliefs and practices. *Early Childhood Research Quarterly*, 8(3), 255-276.
- Chartrand, J. M., Camp, C. C., & McFadden, K. L. (1992). Predicting academic adjustment and career indecision: A comparison of self-efficacy, interest congruence, and commitment. *Journal of College Student Development*, 33, 293-300.
- Cheng, M. M. H., Chan, K-W., Tang, S. Y. F., & Cheng, A. Y. N. (2009). Pre-service teacher education students' epistemological beliefs and their conceptions of teaching. *Teaching and Teacher Education*, 25(2), 319-327.
- Chen, J., Brown, G. T., Hattie, J. A., & Millward, P. (2012). Teachers' conceptions of excellent teaching and its relationships to self-reported teaching practices. *Teaching and Teacher Education*, 28(7), 936-947.
- Chizhik, E. W. (2003). Reflecting on the challenges of preparing suburban teachers for urban schools. *Education and Urban Society*, 35(4), 443-461.
- Chong, W. H., Klassen, R. M., Huan, V. S., Wong, I., & Kates, A. D. (2010). The relationships among school types, teacher efficacy beliefs, and academic climate: Perspective from Asian middle schools. *The Journal of Educational Research*, 103(3), 183-190.
- Chu, S. (2011). Teacher efficacy beliefs toward serving culturally and linguistically diverse students in special education: Implications of a pilot study. *Education and Urban Society*, 45(3), 385-410.

- Clandinin, D. J., Huber, J., Huber, M., Murphy, M. S., Orr, A. M., Pearce, M., & Steeves, P. (2006). *Composing diverse identities: Narrative inquiries into the interwoven lives of children and teachers*. Abingdon, Oxon: Routledge.
- Clark, C. P., & Peterson, B. P. (1986). *Teachers' thought processes*. In M. C. Wittrock, (Ed.), *Handbook of Research on Teaching* (pp. 255-296). New York, NY: Macmillan.
- Clift, R. T., & Brady, P. (2005). Research on methods courses and field experiences. *Studying teacher education: The report of the AERA panel on research and teacher education*, 309-424.
- Cochran-Smith, M., Cannady, M., McEachern, K., Mitchell, K., Piazza, P., Power, C., & Ryan, A. (2012). Teachers' education and outcomes: Mapping the research terrain. *Teachers College Record*, 114(10), 1-49.
- Cochran-Smith, M., Davis, D., & Fries, K. (2004). Multicultural teacher education: Research, policy and practice. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp. 931-975). San Francisco, CA: Jossey-Bass.
- Cochran-Smith, M., Feiman-Nemser, S., McIntyre, D. J., & Demers, K. E. (Eds.). (2008). *Handbook of research on teacher education: Enduring questions in changing contexts*. New York, NY: Routledge.
- Cochran-Smith, M., & Fries, K. (2005). Researching teacher education in changing times: Politics and paradigms. In M. Cochran-Smith & K. M. Zeichner, (Eds.), *Studying teacher education: The report of the AERA panel on research and teacher education* (pp. 69-109). Washington, DC: American Educational Research Association.
- Cochran-Smith, M., & Zeichner, K. (2005). *Studying teacher education: The report of the AERA panel on research and teacher education*. Washington, DC: American Educational Research Association.
- Coladarci, T., & Breton, W. (1997). Teacher efficacy, supervision, and the special education resource-room teacher. *Journal of Educational Research*, 90, 230-239.

- Coleman, B., & Dymont, J. E. (2013). Factors that limit and enable preschool-aged children's physical activity on child care centre playgrounds. *Journal of Early Childhood Research, 11*(3), 203-221.
- Conner, S. L., Daughtery, D. A., & Gilmore, M. N. (2012). Student retention and persistence to graduation: Effects of an introductory life calling course. *Journal of College Student Retention, 14*(2), 251-263.
- Cooley, C. H. (1902). *Human nature and the social order*. New York, NY: Scribner's.
- Copple, C., & Bredekamp, S. (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8*. NAEYC: Washington, DC.
- Darling-Hammond, L. (2004). What happens to a dream deferred? The continuing question for equal educational opportunity. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp. 607-630). San Francisco, CA: Jossey-Bass.
- Darling-Hammond, L. (2010). Teacher education and the American future. *Journal of Teacher Education, 61*(1-2), 35-47.
- Debreli, E. (2012). Change in beliefs of pre-service teachers about teaching and learning English as a foreign language throughout an undergraduate pre-service teacher training program. *Procedia: Social and Behavioral Sciences, 46*, 367-373.
- de la Torre Cruz, M. J., & Casanova Arias, P. F. (2007). Comparative analysis of expectancies of efficacy in in-service and prospective teachers. *Teaching and Teacher Education, 23*, 641-652. doi: 10.1016/j.tate.2007.02.005
- Delpit, L. (2006). *Other people's children: Cultural conflict in the classroom*. New York, NY: The New Press.

- Delpit, L. (2012). *"Multiplication is for white people": Raising expectations for other people's children*. New York, NY: The New Press.
- Dembo, M. H., & Gibson, S. (1985). Teachers' sense of efficacy: An important factor in school improvement. *The Elementary School Journal*, 86(2), 173-184.
- Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process*. Chicago, IL: Henry Regnery Company.
- Dewey, J. (1938). *Experience and education*. New York, NY: Simon and Schuster.
- Diez, M. E. (2010). It is complicated: Unpacking the flow of teacher education's impact on student learning. *Journal of Teacher Education*, 61(5), 441-450.
- Durant, S., & Dahlin, M. (2011). The state of proficiency: How student proficiency rates vary across states, subjects, and grades between 2002 and 2010. Kingsbury Center at NWEA. Retrieved on January 3, 2014 from <http://www.kingsburycenter.org/our-research/about-our-research>
- Early, D., Barbarin, O., Bryant, D., Burchinal, M., Change, F., Clifford, R., et al. (2005). *Prekindergarten in eleven states: NCEDL's multi-state study of prekindergarten and study of state-wide early education programs*. Retrieved November 1, 2013, from http://fpg.unc.edu/sites/fpg.unc.edu/files/resources/reports-and-policy-briefs/NCEDL_PreK-in-Eleven-States_Working-Paper_2005.pdf
- Edmonds, R. (1979). Effective schools for the urban poor. *Educational Leadership*, 37(1), 15-24.
- Education Trust. (2011). *Statement from The Education Trust on the 2011 NAEP reading and mathematics results*. Retrieved October 25, 2013 from <http://www.edtrust.org/print/2796>.
- Eisenbach, B. B. (2012). Teacher belief and practice in a scripted curriculum. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 85(4), 153-156.

- Emmer, E. (1990). *A scale for measuring teacher efficacy in classroom management and discipline*. Paper presented at the annual meeting of the American Educational Research Association, Boston, MA.
- Enochs, L. G., & Riggs, I. M. (1990). Further development of an elementary science teaching efficacy belief instrument: A preservice elementary scale. *School Science and Mathematics*, 90(8), 694-706.
- Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., & Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers & Education*, 59(2), 423-435.
- Fang, Z. (1996). A review of research on teacher beliefs and practices. *Educational research*, 38(1), 47-65.
- Fani, T., & Ghaemi, F. (2011). Implications of Vygotsky's zone of proximal development (ZPD) in teacher education: ZPTD and self-scaffolding. *Procedia-Social and Behavioral Sciences*, 29, 1549-1554. doi:10.1016/j.sbspro.2011.11.396
- Fey, W. F. (1955). Acceptance by others and its relation to acceptance of self and others: a revaluation. *The Journal of Abnormal and Social Psychology*, 50(2), 274.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd Ed). Thousand Oaks, CA: Sage Publications, Inc.
- File, N., & Gullo, D. F. (2002). A comparison of early childhood and elementary education students' beliefs about primary classroom teaching practices. *Early Childhood Research Quarterly*, 17(1), 126-137.
- Fittchett, P. G., Starker, T. V., & Salyers, B. (2012). Examining culturally responsive teaching self-efficacy in a preservice social studies education course. *Urban Education*, 47(3), 585-611. doi: 10.1177/0042085912436568
- Fives, H., & Buehl, M. M. (2008). What do teachers believe? Developing a framework for examining beliefs about teachers' knowledge and ability. *Contemporary Educational Psychology*, 33(2), 134-176.

- Friedman, L., & Wall, M. (2005). Graphical views of suppression and multicollinearity in multiple linear regression. *The American Statistician*, 59(2), 127-136.
- Furman, M., Barton, A. C., & Muir, B. (2012). Learning to teach science in urban schools by becoming a researcher of one's own beginning practice. *Cultural Studies of Science Education*, 7(1), 153-174.
- Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational research: An introduction*, (8th Ed.) Boston, MA: Pearson Education, Inc.
- Garcia, E. E. (2004). Educating Mexican American students. Past treatment and recent developments in theory, research policy, and practice. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp. 491-514). San Francisco, CA: Jossey-Bass.
- Garrett, H. J., & Segall, A. (2013). (Re)Considerations of ignorance and resistance in teacher education. *Journal of Teacher Education*, 64(4), 294-304.
- Garvis, S. (2011). An exploratory investigation on the influence of practical experience towards shaping future early childhood teachers' practice in the arts. *Australasian Journal of Early Childhood*, 36(3), 117-121.
- Gay, G. (2000). *Culturally responsive teaching: Theory, research and practice*. New York, NY: Teachers College Press.
- Gay, G. (2002). Preparing for culturally responsive teaching. *Journal of Teacher Education*, 53(2), 106-116.
- Gay, G. (2010). Acting on beliefs in teacher education for cultural diversity. *Journal of Teacher Education*, 61(1-2), 143-152.
- Gay, G. (2013). Teaching to and through cultural inquiry. *Curriculum Inquiry*, 43(1), 49-70.
- Gay, G., & Howard, T. C. (2000). Multicultural education for the 21st century. *The Teacher Educator*, 36(1), 1-16. doi:10.1080/088787300009555246

- Gibson, S., & Dembo, M. H. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology*, 76(4), 569.
- Gioia, K. D. (2013). Cultural negotiation: Moving beyond a cycle of misunderstanding in early childhood settings. *Journal of Early Childhood Research*, 11(2), 108-122.
- Goddard, R. D. (2001). Collective efficacy: A neglected construct in the study of schools and student achievement. *Journal of Educational Psychology*, 93(3), 467-476.
- Goddard, R. D., & Goddard, Y. L. (2001). A multilevel analysis of the relationship between teacher and collective efficacy in urban schools. *Teaching and Teacher Education*, 17(7), 807-818.
- Goddard, R. D., Hoy, W. A., & Hoy, A.W. (2004). Collective efficacy belief: Theoretical developments, empirical evidence, and future directions. *Educational Researcher*, 33(3), 3-13.
- Goddard, R. D., Hoy, W. K., & Hoy, A.W. (2000). Collective teacher efficacy: Its meaning, measure, and effect on student achievement. *American Education Research Journal*, 37(2), 479-507.
- Goldenberg, B. M. (2013). White teachers in urban classrooms: Embracing non-white students' cultural capital for better teaching and learning. *Urban Education*, 49(1), 111-144. doi: 10.1177/0042085912472510
- Grace, D. J., & Brandt, M. E. (2006). Ready for success in kindergarten a comparative analysis of teacher, parent, and administrator beliefs in Hawaii. *Journal of Early Childhood Research*, 4(3), 223-258.
- Grossman, P. (2010). *Learning to practice: The design of clinical experience in teacher*

- preparation*. Policy Brief for the American Association of Colleges for Teacher Education and the National Education Association. Retrived from https://www.nea.org/assets/docs/Clinical_Experience_-_Pam_Grossman.pdf.
- Grossman, P., Hammerness, K., McDonald, M. (2009). Redefining teacher: Re-imagining teacher education. *Teachers and Teaching: Theory and Practice*, 15(2), 273-290. doi: 10.1080/13540600902875340
- Grossman, P., & Loeb, S. (2010). Learning from multiple routes. *Educational leadership*, 67(8), 22-27.
- Guo, Y., Piasta, S. B., Justice, L. M., & Kaderavek, J. (2010). Relations among preschool teachers' self-efficacy, classroom quality and children's language and literacy gains. *Teaching and Teacher Education*, 26(4), 1094-1103. doi:10.1016/j.tate.2009.11.005
- Guo, Y., Justice, L. M., Sawyer, B., & Tompkins, V. (2011). Exploring factors related to preschool teachers' self-efficacy. *Teaching and Teacher Education*, 27(5), 961-968. doi: 10.1016/j.tate.2011.03.008
- Guskey, T. R. (1981). Measurement of the responsibility teachers assume for academic successes and failures in the classroom. *Journal of Teacher Education*, 32(3), 44-51.
- Guyton, E. M., & Wesche, M. V. (2005). The multicultural efficacy scale: Development, item selection, and reliability. *Multicultural Perspectives*, 7(4), 21-29.
- Haberman, M. (1995). *Star teachers of children in poverty*. West Lafayette, IN: Kappa Delta Pi.
- Haberman, M. (2005). *Star teachers: The ideology and best practice of effective teachers of diverse children and youth in poverty*. The Haberman Educational Foundation.
- Hachfeld, A., Hahn, A., Schroeder, S., Anders, Y., Stanat, P., & Kunter, M. (2011).

- Assessing teachers' multicultural and egalitarian beliefs: The Teacher Cultural Beliefs Scale. *Teaching and Teacher Education*, 27, 986-996.
- Hagelskamp, C., Brackett, M. A., Rivers, S. E., & Salovey, P. (2013). Improving classroom quality with the ruler approach to social and emotional learning: Proximal and distal outcomes. *American Journal of Community Psychology*, 51(3-4), 530-543.
- Hallett, F. (2010). Do we practice what we preach? An examination of the pedagogical beliefs of teacher educators. *Teaching in Higher Education*, 15(4), 435-448.
- Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development*, 76(5), 949-967.
- Hamre, B. K., & Pianta, R. C. (2006). Student-teacher relationships. In G. C. Bear & K. M. Minke (Eds.), *Children's needs III: Development, prevention, and intervention* (pp. 59-71). Washington, DC: National Association of School Psychologists.
- Hamre, B. K., Pianta, R. C., Downer, J. T., DeCoster, J., Mashburn, A. J., Jones, S. M., Brown, J. L., Cappella, E., Atkins, M., Rivers, S. E. (2013). Teaching through interactions: Testing a developmental framework of teacher effectiveness. *The Elementary School Journal*, 113(4), 461-487.
- Hansen, D. (2008a). Introduction: Why educate teachers? In M. Cochran-Smith, S. Feiman-Nemser, D. J. McIntyre & K. E. Demers, (Eds.), *Handbook of research on teacher education: Enduring questions in changing contexts* (3rd Ed.) (pp. 5-9). New York, NY: Routledge.
- Hansen, D. (2008b). Values and purpose in teacher education. In M. Cochran-Smith, S. Feiman-Nemser, D. J. McIntyre & K. E. Demers, (Eds.), *Handbook of research on*

- teacher education: Enduring questions in changing contexts* (3rd Ed.) (pp. 10-26).
New York, NY: Routledge.
- Hattie, J. (1992). *Self-concept*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- He, Y., & Levin, B. B. (2008). Match or mismatch? How congruent are the beliefs of teacher candidates, cooperating teachers, and university-based teacher educators. *Teacher Education Quarterly*, 35(4), 37-55.
- Heath, S. B. (1983). *Ways with words: Language, life and work in communities and classrooms*. New York, NY: Cambridge University Press.
- Heisner, M. J., & Lederberg, A. R. (2011). The impact of Child Development Associate training on the beliefs and practices of preschool teachers. *Early Childhood Research Quarterly*, 26(2), 227-236.
- Henry, G. (1985). *Cultural Diversity Awareness Inventory*. Hampton, VA: Hampton University.
- Henry, G. T., Campbell, S. L., Thompson, C. L., Patriarca, L. A., Luterbach, K. J., Lys, D. B., & Covington, V. M. (2013). The predictive validity of measures of teacher candidate programs and performance: Toward an evidence-based approach to teacher preparation. *Journal of Teacher Education*, 64(5), 439-453.
- Hernandez, D. J. (2004). Children and youth immigrant families: Demographic, social and educational issues. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp. 404-419). San Francisco, CA: Jossey-Bass.
- Hidalgo, N. M., Siu, S., & Epstein, J. L. (2004). Research on families, schools and communities: A multicultural perspective. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp. 631-655). San Francisco, CA: Jossey-Bass.

- Hill, H. C., & Grossman, P. (2013). Learning from teacher observations: Challenges and opportunities posed by new teacher education systems. *Harvard Educational Review*, 83(2), 371-384.
- Hindman, A. H., & Wasik, B. A. (2008). Head Start teachers' beliefs about language and literacy instruction. *Early Childhood Research Quarterly*, 23(4), 479-492.
- Hollins, E. (2011). Teacher preparation for quality teaching. *Journal of Teacher Education*, 62(4), 395-407.
- Hollins, E. (2012). *Learning to teach in urban schools: The transition from preparation to practice*. New York, NY: Routledge.
- Hollins, E. R., & Guzman, M. T. (2005). Research on preparing teachers for diverse populations. In M. Cochran-Smith & K. M. Zeichner, (Eds.), *Studying teacher education: The report of the AERA panel on research and teacher education*, (pp.477-548). Washington, DC: American Education Research Association.
- Howard, G. (2006). *We can't teach what we don't know: White teachers, multiracial schools*. New York, NY: Teachers College Press.
- Howard, T. C. (2003). Culturally relevant pedagogy: Ingredients for critical teacher reflection. *Theory into Practice*, 42(3), 195-202.
- Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. *Early Childhood Research Quarterly*, 23(1), 27-50.
- Hoy, A. W. (2000). *Changes in teacher efficacy during the early years of teaching*. In Annual meeting of the American Educational Research Association, New Orleans, LA.
- Hoy, W. K., & Woolfolk, A. E. (1990). Socialization of student teachers. *American Educational Research Journal*, 27(2), 279-300.
- Hsueh, Y., & Tobin, J. (2003). Chinese early childhood educators' perspectives on dealing

- with a crying child. *Journal of Early Childhood Education*, 1(1), 73-94.
- Hyson, M. C., Hirsh-Pasek, K., & Rescorla, L. (1990). The classroom practices inventory: An observational instrument based on NAEYC's guidelines for developmentally appropriate practices for 4-and 5-year-old children. *Early Childhood Research Quarterly*, 5(4), 475-494.
- Jackson, J. W. (2002). Enhancing self-efficacy and learning performance. *The Journal of Experimental Education*, 70(3), 243-254.
- James, W. (1890). *The principles of psychology, Vol. 1*. New York, NY: Holt.
- Joram, E., & Gabriele, A. J. (1998). Preservice teachers' prior beliefs: Transforming obstacles into opportunities. *Teaching and Teacher Education*, 14(2), 175-191.
- K-12 Education. (2013). Retrieved November 4, 2013, from <http://www.whitehouse.gov/issues/education/k-12>.
- Karaata, C. (2011). Assumptions and pedagogical knowledge: Teaching and learning according to teachers of English. *H. U. Journal of Education*, 41, 244-254.
- Kagan, D. M. (1992). Implications of research on teacher belief. *Educational Psychologist*, 27(1), 65-90.
- Kagan, D. M., & Tippins, D. J. (1991). How teachers' classroom cases express their Pedagogical beliefs. *Journal of Teacher Education*, 42(4), 281-291.
- Kim, J. (2013). Confronting invisibility: Early childhood pre-service teachers' beliefs toward homeless children. *Early Childhood Education Journal*, 41(2), 161-169.
- King, J. E. (2004). Cultured-centered knowledge: Black studies, curriculum transformation and social action. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp. 349-378). San Francisco, CA: Jossey-Bass.
- Knapp, M. S., & Woolverton, S. (2004). Social class and schooling. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp.656-681). San Francisco, CA: Jossey-Bass.
- Knoblauch, D., & Woolfolk Hoy, A. (2008). "Maybe I can teach those kids." The

- influence of contextual factors on student teachers' efficacy beliefs. *Teaching and Teacher Education*, 24(1), 166-179.
- Kornhaber, M. (2004). Assessment, standards and equity. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education*, (pp. 91-109). San Francisco, CA: Jossey-Bass
- Kozulin, A. (2003). Psychological tools and mediated learning. In A. Kozlin, B. Gindis, V. Ageyev & S. M. Miller (Eds.), *Vygotsky's educational theory in cultural context*, (pp. 15-38). New York, NY: Cambridge University Press.
- Kozol, J. (2005). *The shame of the nation: The restoration of apartheid schooling in America*. New York, NY: Three Rivers Press.
- Kumar, R., & Hamer, L. (2012). Preservice teachers' attitudes and beliefs toward student diversity and proposed instructional practices: A sequential design study. *Journal of Teacher Education*, 64(2), 162-177. doi: 10.1177/0022487112466899
- Labone, E. (2004). Teacher efficacy: Maturing the construct through research in alternative paradigms. *Teaching and Teacher Education*, 20(4), 341-359.
- Ladson-Billings, G. (1994). *The dreamkeepers: Successful teachers of African American children*. San Francisco, CA: Jossey-Bass.
- Ladson-Billings, G. (1995). But that's just good teaching! The case for culturally relevant pedagogy. *Theory into Practice*, 34(3), 159-165.
- Ladson-Billings, G. (1999). Preparing teachers for diversity. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 86-123). San Francisco, CA: Jossey-Bass.
- Ladson-Billings, G. (2000). Fighting for our lives: Preparing to teach African American students. *Journal of Teacher Education*, 51(3), 206-213.
- Ladson-Billings, G. (2001). *Crossing over to Canaan: The journey of new teachers in diverse classrooms*. San Francisco, CA: Jossey-Bass.

- Learning Curve: Lessons in Country Performance in Education. (2012). Pearson. Retrieved 11/4/2013 from <http://thelearningcurve.pearson.com/the-report>.
- Lee, J. S., & Ginsburg, H. P. (2007). What is appropriate mathematics education for four-year-olds?: Pre-kindergarten teachers' beliefs. *Journal of Early Childhood Education*, 5(2), 2-31.
- Lee, K., & Walsh, D. J. (2004). Teaching children at-risk: An American preschool teacher's folk psychology and folk pedagogy. *Journal of Early Childhood Research*, 2(3), 229-246.
- Leonard, J., Barnes-Johnson, J., Dantley, S. J., & Kimber, C. (2011). Teaching science inquiry in urban contexts: The role of elementary preservice teachers' beliefs. *The Urban Review*, 43(1), 124-150.
- Lev, S., & Koslowsky, M. (2008). Moderating the collective and self-efficacy relationship. *Journal of Educational Administration*, 47(4), 452-462. doi: 10.1108/09578230910967437
- Levin, B. B., He, Y., & Allen, H. A. (2013). Teacher beliefs in action: A cross-sectional, longitudinal follow-up study of teachers' personal practical theories. *The Teacher Educator*, 48(3), 201-217.
- Levine, A. (2006). *Educating school teachers*. Washington, DC: Education Schools Project.
- Lewis, C. W., James, M., Hancock, S., & Hill-Jackson, V. (2008). Framing African American students' success and failure in urban settings: A typology for change. *Urban Education*, 43(2), 127-153. doi: 10.1177/0042085907312315
- Little, J. W., & Bartlett, L. (2010). The teacher workforce and problems of educational equity. *Review of Research in Education*, 34(1), 285-328.
- Liu, S. H. (2011). Factors related to pedagogical beliefs of teachers and technology integration. *Computers & Education*, 56(4), 1012-1022.
- Löfström, E., & Poom-Valickis, K. (2013). Beliefs about teaching: Persistent or malleable? A

- longitudinal study of prospective student teachers' beliefs. *Teaching and Teacher Education*, 35, 104-113.
- Lomawaima, K. T. (2004). Educating Native Americans. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education*, (pp. 441-461). San Francisco, CA: Jossey-Bass.
- Lortie, D. (1975). *Schoolteacher: A sociological inquiry*. Chicago, IL: The University of Chicago Press.
- Lynn, M., Bacon, J., Totten, T. L., Bridges, T., & Jennings, M. E. (2010). Examining teachers' beliefs about African American male students in a low-performing high school in an African American school district. *Teachers College Record*, 112(1), 289-330.
- Maier, M., Greenfield, D. B., & Bulotsky-Shearer, R. J. (2013). Development and validation of a preschooler teachers' attitudes and beliefs toward science teaching questionnaire. *Early Childhood Research Quarterly*, 28(2), 366-378.
- Mansfield, C. F., & Volet, S. E. (2010). Developing beliefs about classroom motivation: Journeys of preservice teachers. *Teaching and Teacher Education*, 26(7), 1404-1415.
- Marcon, R. A. (1999). Differential impact of preschool models on development and early learning of inner-city children: A three-cohort study. *Developmental Psychology*, 35(2), 358-375.
- Marcon, R. A. (2002). Moving up the grades: Relationship between preschool model and later school success. *Early Childhood Research & Practice*, 4(1), 1-26.
- Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., ... & Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development*, 79(3), 732-749.
- Maxwell, K. L., McWilliam, R. A., Louise Hemmeter, M., Ault, M. J., & Schuster, J. W. (2002). Predictors of developmentally appropriate classroom practices in kindergarten

- through third grade. *Early Childhood Research Quarterly*, 16(4), 431-452.
- McMullen, M. B. (1999). Characteristics of teachers who talk the DAP talk and walk the DAP walk. *Journal of Research in Childhood Education*, 13(2), 16-230.
- McMullen, M. B., Elicker, J., Goetze, G., Huang, H. H., Lee, S. M., Mathers, C., Wen, X. & Yang, H. (2006). Using collaborative assessment to examine the relationship between self-reported beliefs and the documentable practices of preschool teachers. *Early Childhood Education Journal*, 34(1), 81-91.
- McMullen, M., Elicker, J., Wang, J., Erdiller, Z., Lee, S. M., Lin, C. H., & Sun, P. Y. (2005). Comparing beliefs about appropriate practice among early childhood education and care professionals from the US, China, Taiwan, Korea and Turkey. *Early Childhood Research Quarterly*, 20(4), 451-464.
- Midgley, C., Fedlauffer, H., & Eccles, J. S. (1989). Change in teacher efficacy and student self- and task-related beliefs in mathematics during the transition to junior high school. *Journal of Educational Psychology*, 81(2), 247-258
- Milner, H. R. (2006). Preservice teachers' learning about cultural and racial diversity: Implications for urban education. *Urban Education*, 41(4), 343-375.
- Milner, H. R. (2008). Disrupting deficit notions of difference: Counter-narratives of teachers and community in urban education. *Teaching and Teacher Education*, 24(6), 1573-1598.
- Milner, H. R. (2010a). What does teacher education have to do with teaching? Implications for diversity studies. *Journal of Teacher Education*, 61(1-2), 118-131.
- Milner, H. R. (2010b). *Start where you are, but don't stay there: Understanding diversity, opportunity gaps, and teaching in today's classrooms*. Cambridge, MA: Harvard Education Press.
- Milner, H. R. (2012). Beyond a test score: Explaining opportunity gaps in educational

- practice. *Journal of Black Studies*, 43(6), 693-718.
- Minami, M., & Ovando, C. J. (2004). Language issues in multicultural contexts. In J. A. Banks & C. E. Banks (Eds.) *Handbook of research on multicultural education* (pp. 699-715). San Francisco, CA: Jossey-Bass.
- Mirra, N., & Morrell, E. (2011). Teachers as civic agents: Toward a critical democratic theory of urban teacher development. *Journal of Teacher Education*, 62(4), 408-420.
- Moll, L. C., Amanti, C., Neff, D., & Gonzalez, N. (1992). Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. *Theory Into Practice*, 31(2), 132-141.
- Mulholland, J., & Wallace, J. (2001). Teacher induction and elementary science teaching: Enhancing self-efficacy. *Teaching and Teacher Education*, 17(2), 243-261.
- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, 38(1), 30.
- Murphy, P. K., Delli, L. A. M., & Edwards, M. N. (2004). The good teacher and good teaching: Comparing beliefs of second-grade students, preservice teachers, and inservice teachers. *The Journal of Experimental Education*, 72(2), 69-92.
- National Center for Educational Statistics, Institute of Education Sciences. (2012). *Digest of Education Statistics: 2012* (NCES Publication No. 2014-015). Retrieved from National Center for Education Statistics website:
<http://nces.ed.gov/programs/digest/d12/index.asp>
- National Institute of Child Health and Human Development Early Child Care Research Network. (2002). The relation of global first-grade classroom environment to structural classroom features and teacher and student behaviors. *Elementary School Journal*, 102(5), 367-387.

- Nespor, J. (1987). The role of beliefs in the practice of teaching. *Journal of Curriculum Studies*, 19(4), 317-328.
- Ng, J. C. (2006). Understanding the impact of accountability on preservice teachers' decisions about where to teach. *The Urban Review*, 38 (5), 353-372. doi: 10.1007/s11256-006-0038-2
- Ng, W., Nicholas, H., & Williams, A. (2010). School experience influences on pre-service teachers' evolving beliefs about effective teaching. *Teaching and Teacher Education*, 26(2), 278-289.
- Nieto, S. (2010). *Language, culture, and teaching: Critical perspectives* (2nd Ed.). New York, NY: New Press.
- Nieto, S. (2009). From surviving to thriving. *Educational Leadership*, 66(5), 8-13.
- Nisbett, R., & Ross, L. (1980). Human inference: Strategies and shortcomings of social judgment. Englewood Cliffs, NJ: Prentice-Hall.
- Northwest Evaluation Association (2012). RIT scale school norms study for use with Measures of Academic Progress (MAP[®]) and MAP[®] for primary grades: An executive summary. Portland, Oregon: Northwest Evaluation. Retrieved on August 1, 2014 from <http://www.avon-schools.org/cms/lib02/IN01001885/Centricity/Domain/4290/2012%20RIT%20Scale%20SCHOOL%20Norms.pdf>
- O'Connor, E., & McCartney, K. (2007). Examining teacher–child relationships and achievement as part of an ecological model of development. *American Educational Research Journal*, 44(2), 340-369.
- Ooka Pang, V., Kiang, P. N., & Pak, Y. K. (2004). Asian Pacific American students: Challenging a biased educational system. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp. 542-563). San Francisco, CA: Jossey-Bass.
- Obidah, J., & Teel, K. (2008). *Building racial and cultural competence in the classroom:*

- Strategies from urban educators*. New York, NY: Teachers College Press.
- Osher, D., & Fleischman, S. (2005). Positive culture in urban schools. *Educational Leadership*, 62(6), 84-85.
- Ottenbreit-Leftwich, A. T., Glazewski, K. D., Newby, T. J., & Ertmer, P. A. (2010). Teacher value beliefs associated with using technology: Addressing professional and student needs. *Computers & Education*, 55(3), 1321-1335.
- Pajares, M. F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, 62(3), 307-332.
- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, 66(4), 543-578.
- Pajares, F. (2002). *Overview of social cognitive theory and of self-efficacy*. Retrieved December 1, 2013 from <http://www.uky.edu/~eushe2/Pajares/eff.html>.
- Payne, K. B., Cheng, C. M., Govorun, O., & Steward, B. D. (2005). An inkblot for attitudes: Affect misattribution as implicit measurement. *Journal of Personality and Social Psychology*, 89(3), 277-293. doi: 10.1037/0022-3514.89.3.277
- Petersen, S. (1993). Career decision-making self-efficacy and social and academic integration of underprepared college students: Variations on background characteristics. *Journal of Vocational Education Research*, 18(1), 77-115.
- Pianta, R. C., Belsky, J., Vandergrift, N., Houts, R., & Morrison, F. J. (2008). Classroom effects on children's achievement trajectories in elementary school. *American Educational Research Journal*, 45(2), 365-397.
- Pianta, R. C., Hamre, B. K., & Berlin, R. (2014). Personal Communication.
- Pianta, R. C., Hamre, B. K., & Mintz, S. (2010). *Classroom assessment scoring system: Elementary 4-6 Manual*. Baltimore, MD: Paul H. Brookes.
- Pianta, R. C., Hamre, B., Stuhlman, M. (2003). Relationships between teachers and children. In W. M. Reynolds, G. E. Miller, & I. B. Weiner, (Eds.), *Handbook of psychology* (Vol. 7) (pp. 199-234). Hoboken, NJ: John Wiley & Sons, Inc.

- Pianta, R. C., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2005). Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions? *Applied Developmental Science, 9*(3), 144-159.
- Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008a). *Classroom assessment scoring system: Manual PRE-K*. Baltimore, MD: Paul H. Brookes.
- Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008b). *Classroom assessment scoring system: Manual K-3*. Baltimore, MD: Paul H. Brookes.
- Pianta, R., & Walsh, D. J. (1996). *High risk children in schools: Constructing sustaining relationships*. New York, NY: Routledge.
- Pilitsis, V., & Duncan, R. G. (2012). Changes in belief orientations of preservice teachers and their relation to inquiry activities. *Journal of Science Teacher Education, 23*(8), 909-936.
- Ponterotto, J. G., Baluch, S., Greig, T., & Rivera, L. (1998). Development and initial score validation of the Teacher Multicultural Attitude Survey. *Educational and Psychological Measurement, 58*(6), 1002-1016.
- Polat, N. (2011). Pedagogical treatment and change in preservice teacher beliefs: An experimental study. *International Journal of Educational Research, 49*(6), 195-209.
- Reflective Practitioner. (2010). Teacher quality partnership grant: Project CAUSE. University of Missouri-Kansas City: School of Education.
- Reiff, J. C., & Cannella, G. S. (1992). *Multicultural beliefs and conceptual level of early childhood preservice teachers*. Paper presented at the Annual Meeting of the Association of Teacher Educators (72nd, Orlando, FL, February 15-19, 1992).
- Rimm-Kaufman, S. E., & Sawyer, B. E. (2004). Primary-grade teachers' self-efficacy beliefs, attitudes toward teaching, and discipline and teaching practice priorities in relation to

- the "responsive classroom" approach. *The Elementary School Journal*, 104(4), 321-341.
- Rimm-Kauffman, S. E., Storm, M. D., Sawyer, B. E., Pianta, R. C., & LaParo, K. M. (2006). The teacher belief q-sort: A measure of teachers' priorities in relation to disciplinary practices, teaching practices, and beliefs about children. *Journal of School Psychology*, 44(2), 141-165.
- Roberts, J. K., & Henson, R. K. (2000). *Self-efficacy teaching and knowledge instrument for science teachers (SETAKIST): A proposal for a new efficacy instrument*. Paper presented at the Annual Meeting of the Mid-South Educational Research Association.
- Robertson, E. (2008). Teacher education in a democratic society: learning and teaching the practices of democratic participation. In M. Cochran-Smith, S. Feiman-Nemser, D. J. McIntyre & K. E. Demers, (Eds.), *Handbook of research on teacher education: Enduring questions in changing contexts* (3rd Ed.) (pp. 27-44). New York, NY: Routledge.
- Rogers, C. R. (1959). *A Theory of therapy, personality, and interpersonal relationships: As developed in the client-centered framework*. Retrieved from <http://bibliotecaparalapersona-epimeleia.com/greenstone/collect/ecritos2/archives/HASH0171/74dad6ff.dir/doc.pdf>
- Rokeach, M. (1968). *Beliefs, attitudes, and values: A theory of organization and change* (1st Ed.). San Francisco, CA: Jossey-Bass.
- Root, M. P. P. (2004). Multiracial families and children: Implications for educational research and practice. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp. 110-124). San Francisco, CA: Jossey-Bass.
- Rose, J. S., & Medway, F. J. (1981). Measurement of teachers' beliefs in their control over student outcome. *The Journal of Educational Research*, 74(3), 185-190.
- Ross, J. (1992). Teacher efficacy and the effects of coaching on student achievement.

- Canadian Journal of Education/Revue canadienne de l'education*, 17(1), 51-65.
- Ross, J. A. (1994). The impact of an in-service to promote cooperative learning on the stability of teacher efficacy. *Teaching and Teacher Education*, 10(4), 381-394.
- Ross, J. (1995). Strategies for enhancing teachers' beliefs in their effectiveness: Research on a school improvement hypothesis. *Teachers College Record*, 97(2), 227-251.
- Rotter, J. B. (1960). Some implications of a social learning theory from the prediction of goal directed behavior from testing procedures. *Psychological Review*, 67(5), 301-316
- Rozelle, J. J., & Wilson, S. M. (2012). Opening the black box of field experiences: How cooperating teachers' beliefs and practices shape student teachers' beliefs and practices. *Teaching and Teacher Education*, 28(8), 1196-1205.
doi:10.1016/j.tate.2012.07.008
- Rubie-Davies, C. M., Flint, A., & McDonald, L. G. (2012). Teacher beliefs, teacher characteristics, and school contextual factors: What are the relationships?. *British Journal of Educational Psychology*, 82(2), 270-288.
- Rushton, S. P. (2003). Two preservice teachers' growth in self-efficacy while teaching in an inner-city school. *The Urban Review*, 35(3), 167-189.
- Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York, NY: Basic Books, Inc.
- Schunk, D. H., & Pajares, F. (2010). Self-efficacy beliefs. *International Encyclopedia of Education* (3rd Ed.), 668-672. doi: 10.1016/B978-0-08-044894.7.00620-5
- Screening data for multiple regression and multivariate statistics. (n.d.). Retrieved from <http://www.education.umd.edu/.../EDMS651/Resources/Data-Screening.pdf>.
- Simmons, P. E., Emory, A., Carter, T., Coker, T., Finnegan, B., Crockett, D., ... & Labuda, K. (1999). Beginning teachers: Beliefs and classroom actions. *Journal of Research in Science Teaching*, 36(8), 930-954.
- Sirin, S., Rogers, S., Sirin, L., & Collins, B. A. (2010). A measure of cultural competence as an

- ethical responsibility: Quick-racial and ethnical sensitivity test. *The Journal of Moral Education*, 39(1), 49-64.
- Siwatu, K. O. (2007). Preservice teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs. *Teaching and Teacher Education*, 23(7), 1086-1101.
- Siwatu, K. O. (2011a). Preservice teachers' sense of preparedness and self-efficacy to teach in America's urban and suburban schools: Does context matter? *Teaching and Teacher Education*, 21(2), 357-365.
- Siwatu, K. O. (2011b). Preservice teachers' culturally responsive teaching self-efficacy-forming experiences: A mixed methods study. *The Journal of Educational Research*, 104(5), 360-369.
- Siwatu, K. O. (2009). Student teachers' self-efficacy beliefs regarding culturally responsive teaching and their professed classroom practices. *Teacher Education and Practice*, 22(3), 323-333.
- Siwatu, K. O. (unpublished manuscript). The culturally responsive teaching competencies: Implications for teacher education.
- Siwatu, K. O., & Starker, T. V. (2010). Predicting preservice teachers' self-efficacy to resolve a cultural conflict involving an African American student. *Multicultural Perspectives*, 12(1), 10-17.
- Siwatu, K. O., Frazier, P., Osaghae, O. J., & Starker, T. V. (2011). From maybe I can to yes I can: Developing preservice teachers' self-efficacy to teach African American students, *The Journal of Negro Education*, 80(3), 209-222.
- Sleeter, C. E. (2001). Preparing teachers for culturally diverse schools research and the overwhelming presence of whiteness. *Journal of Teacher Education*, 52(2), 94-106.
- Sleeter, C. & Delgado Bernal, D. (2004). Critical pedagogy, critical race theory, and antiracist education: Implications for multicultural education. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp. 240-258). San Francisco, CA: Jossey-Bass.

- Sleeter, C., Torres, M. N., & Laughlin, P. (2004). Scaffolding conscientization through inquiry in teacher education. *Teacher Education Quarterly*, 31(1), 81-96.
- Smith, K. E. (1997). Student teachers' beliefs about developmentally appropriate practice: Pattern, stability, and the influence of locus of control. *Early Childhood Research Quarterly*, 12(2), 221-243.
- Smith, P. A., & Hoy, A.W. (2007). Academic optimism and student achievement in urban elementary schools. *Journal of Educational Administration* (45)5, 556-568. doi: 10.1108/09578230710778196
- Smith, L. K., & Southerland, S. A. (2007). Reforming practice or modifying reforms?: Elementary teachers' response to the tools of reform. *Journal of Research in Science Teaching*, 44(3), 396-423.
- Snider, V. E., & Roehl, R. (2007). Teachers' beliefs about pedagogy and related issues. *Psychology in the Schools*, 44(8), 873-886.
- Snow, R. E., Corno, L., & Jackson III, D. (1996). Conative and affective functions in educational psychology. In Berliner DC, Calfee R. C. (Eds), *Handbook of educational psychology*, (pp. 243-310). New York, NY: Macmillan.
- Solomon, D., Battistich, V., & Hom, A. (1996). Teacher beliefs and practices in schools Serving communities that differ in socioeconomic level. *The Journal of Experimental Education*, 64(4), 327-347.
- Soodak, L. C., & Podell, D. M. (1996). Teacher efficacy: Toward the understanding of a multi-faceted construct. *Teaching and Teacher Education*, 12(4), 401-411.
- Sosa, T., & Gomez, K. (2012). Connecting teacher efficacy beliefs in promoting resilience to support of Latino students. *Urban Education*, 47(5), 876-909.
- Stage, F. K., & Hossler, D. (2000). Where is the student?: Linking student behaviors, college choice, and college persistence, In J. M. Braxton, (Ed.), *Reworking the student departure puzzle* (pp. 48-61). Nashville, TN: Vanderbilt University Press.

- STAR Math™ Technical Manual (2014). Wisconsin Rapids, Wisconsin: Renaissance Learning. Retrieved July 1, 2014 from <http://doc.renlearn.com/KMNet/R0054119FEC4F604.pdf>
- STAR Reading™ Technical Manual (2014). Wisconsin Rapids, Wisconsin: Renaissance Learning. Retrieved July 1, 2014 from <https://resources.renlearnrp.com/us/manuals/sr/srrptechnicalmanual.pdf>
- Steele, C., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology*, 69(5), 797.
- Stipek, D. (2004). Teaching practices in kindergarten and first grade: Different strokes for different folks. *Early Childhood Research Quarterly*, 19(4), 548-568.
- Stipek, D. J., & Byler, P. (1997). Early childhood education teachers: Do they practice what they preach?. *Early Childhood Research Quarterly*, 12(3), 305-325.
- Suárez-Orozco, C., Suárez-Orozco, M. M., & Doucet, F. (2004). The academic engagement and achievement of Latino youth. In J. A. Banks & C. A. McGee Banks (Eds.), *Handbook of research on multicultural education* (pp. 420-437). San Francisco, CA: Jossey-Bass.
- Swars, S., Hart, L. C., Smith, S. Z., Smith, M. E., & Tolar, T. (2007). A longitudinal study of elementary pre-service teachers' mathematics beliefs and content knowledge. *School Science and Mathematics*, 107(8), 325-335.
- Tabachnick, B. G. & Fidell, L. S. (2007). *Using multivariate statistics* (5th Ed.). Boston, MA: Pearson Education.
- Tabachnick, B. R., & Zeichner, K. M. (1984). The impact of the student teaching experience on the development of teacher perspectives. *Journal of Teacher Education*, 35(6), 28-36.
- Takahashi, S. (2011). Co-constructing efficacy: A “communities of practice” perspective on teachers’ efficacy beliefs. *Teaching and Teacher Education*, 27(4), 732-741.
- Teel, K. M., & Obidah, J. (2008). *Building racial and cultural competence in the classroom:*

- Strategies from urban educators*. New York, NY: Teachers College Press.
- Tobin, J. (2005). Quality in early childhood education: An anthropologist's perspective. *Early Education and Development*, 16(4), 421-434.
- Torff, B., & Warburton, E. C. (2005). Assessment of teachers' beliefs about classroom use of critical-thinking activities. *Educational and Psychological Measurement*, (65)1, 155-179. doi: 10.1177/0013164404267281
- Torres, M. N. (1996). Teacher-researchers in the "zone of proximal development": Insights for teacher education. Paper presented at the International Conference: A Cultural-Historical Approach to the Study of Education: Centenary of Lev S. Vygotsky, Moscow, Russia. Retrieved from <http://files.eric.ed.gov/fulltext/ED410189.pdf>
- Tschannen-Moran, M., Woolfolk Hoy, A., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research*, 68(2), 202-248.
- Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17(7), 783-805.
- Tschannen-Moran, M., & Woolfolk Hoy, A. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education*, 23(6), 944-956.
- U. S. Department of Education, National Center for Educational Statistics, Institute of Education Sciences, National Assessment of Educational Progress. (2014). *A First Look: 2013 Mathematics and Reading: National Assessment of Educational Progress at Grades 4 and 8* (NCES Publication No. 2014-451). Retrieved from National Center for Educational Statistics website:
<http://nces.ed.gov/nationsreportcard/subject/publications/main2013/pdf/2014451.pdf>
- Usher, E. L., & Pajares, F. (2008). Sources of self-efficacy in school: Critical review of the literature and future directions. *Review of Educational Research*, 78(4), 751-796.
- Valencia, R. R. (Ed.). (1997). *Evolution of deficit thinking: Educational thought and practice*. Bristol, PA: The Falmer Press.

- van Uden, J. M., Ritzen, H., & Pieters, J. M. (2013). I think I can engage my students. Teachers' perceptions of student engagement and their beliefs about being a teacher. *Teaching and Teacher Education*, 32(2), 43-54.
- Vartuli, S. (1999). How early childhood teacher beliefs vary across grade level. *Early Childhood Research Quarterly*, 14(4), 489-514.
- Vartuli, S. (2005). Beliefs: The heart of teaching. *Young Children*, 60(5), 76-86.
- Vartuli, S., Holley, M., & Snider, K. (unpublished manuscript). Making it real: A practice-based teacher education program.
- Vartuli, S., & Rohs, J. (2009). Early childhood prospective teacher pedagogical belief shifts over time. *Journal of Early Childhood Teacher Education*, 30(4), 310-327.
- Villegas, A. M., & Lucas, T. (2002). Preparing culturally responsive teachers rethinking the curriculum. *Journal of Teacher Education*, 53(1), 20-32.
- Villegas, A. M., Strom, K., & Lucas, T. (2012). Closing the racial/ethnic gap between students of color and their teachers: An elusive goal. *Equity & Excellence in Education*, 45(2), 283-301.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Vygotsky, L.S. (n.d.). The problem of the cultural development of the child. Retrieved December 12, 2013 from http://www.stanleyteacherprep.org/uploads/2/3/3/0/23305258/vygotsky._the_problem_of_the_cultural_development_of_the_child.pdf
- Waddell, J. H., & Ukpokodu, O. N. (2012). Recruiting and preparing diverse urban teachers: One urban-focused teacher education program breaks new ground. *Multicultural Education*, 20(1), 15-22.
- Wallace, C. S., & Priestly, M. (2011). Teacher beliefs and the mediation of curriculum innovation in Scotland: A socio-cultural perspective on professional development and

- change. *Journal of Curriculum Studies*, 43(3), 357-381.
- Wang, J., Elicker, J., McMullen, M., & Mao, S. (2008). Chinese and American preschool teachers' beliefs about early childhood curriculum. *Early Child Development and Care*, 178(3), 227-249.
- Wang, J., Lin, E., Spalding, E., Klecka, C. L., & Odell, S. J. (2011). Quality teaching and teacher education: A kaleidoscope of notions. *Journal of Teacher Education*, 62(4), 331-338.
- Ware, F. (2006). Warm demander pedagogy culturally responsive teaching that supports a culture of achievement for African American students. *Urban Education*, 41(4), 427-456.
- Warford, M. K. (2011). The zone of proximal *teacher* development. *Teaching and Teacher Education*, 27(2), 252-258.
- Warner, R. M. (2013). *Applied statistics: From bivariate through multivariate techniques*. Thousand Oaks, CA: Sage.
- Weiner, L. (1993). *Preparing teachers for urban schools: Lessons from thirty years of school reform*. New York, NY: Teachers College Press.
- Weiner, L. (2000). Research in the 90s: Implications for urban teacher preparation. *Review of Educational Research* 70(3), 369-406.
- Weiner, L. (2002). Evidence and inquiry in teacher education: What's needed for urban schools. *Journal of Teacher Education*, 53(3), 254-261.
- Weiner, L. (2006). *Urban Teaching: The essentials, revised edition*. New York, NY: Teachers College Press.
- Wen, X., Elicker, J. G., & McMullen, M. B. (2011). Early childhood teachers' curriculum beliefs: Are they consistent with observed classroom practices?. *Early Education & Development*, 22(6), 945-969.
- Wheatley, K. F. (2005). The case for reconceptualizing teacher efficacy research. *Teaching and Teacher Education*, 21(7), 747-766.

- Wideen, M. F. (Ed.). (2005). Teacher education at the crossroads. In M. F. Wideen & P. P. Grimmert, (Eds.), *Changing times in teacher education* (pp. 1-16).
- Woltman, H., Feldstain, A., MacKay, C., & Rocchi, M. (2012). An introduction to hierarchical linear modeling. *Tutorials in Quantitative Methods for Psychology*, 8(1), 52-69.
- Woolfolk Hoy, A. (2000). *Changes in teacher efficacy during the early years of teaching*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA. Session 43:22, Qualitative and Quantitative Approaches to Examining Efficacy in Teaching and Learning, April 28, 2000.
- Woolfolk Hoy, A., & Spero, R. B. (2005). Changes in teacher efficacy during the early years of teaching: A comparison of four measures. *Teaching and teacher education*, 21(4), 343-356.
- Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college and university-based teacher education. *Journal of Teacher Education*, 61(1-2), 89-99. doi: 10.1177/0022487109347671
- Zeichner, K. (2012). Educating teachers for cultural diversity in the United States. In M. Craft (Ed.), *Teacher education in plural societies: An international review* (pp.141-171). Bristol, PA: The Falmer Press.
- Zeichner, K. M., & Conklin, H. G. (2008). Teacher education programs as sites for teacher preparation. In M. Cochran-Smith, S. Feiman-Nesmer, & j. McIntyre, (Eds.), *Handbook of research on teacher education: Enduring issues in changing contexts* (3rd Ed.) (pp. 269-289). New York, NY: Routledge.
- Zimpher, N. L. (1989). The RATE Project: A profile of teacher education students. *Journal of Teacher Education*, 40(6), 27-30.
- Zull, J. E. (2011). *From brain to mind: Using neuroscience to guide change in education*. Sterling, VA: Stylus Publishing.

VITA

Karrie Anne Snider was born on October 3, 1972, in Kansas City, Missouri. She grew up in the rural area of Excelsior Springs, northeast of Kansas City where she attended elementary and secondary school. She graduated from Northwest Missouri State University in Maryville, Missouri, in 1995 and received degrees in Early Childhood and Elementary Education.

Karrie began her teaching career as a classroom teacher in primarily early childhood classrooms. At a mid-point in her teaching career, she assumed leadership roles as an associate preschool director and then assistant principal of a PK-8th grade parochial school. Karrie completed her MA in Curriculum and Instruction with an Emphasis in Early Childhood Education in 2008 from the University of Missouri-Kansas City. Her culminating action research project was titled, A Lens on Learning: Examining the Effects of a Reflective Professional Development Process on Teacher Motivation and Job Satisfaction. After completion of this degree, Karrie became involved with the UMKC Teacher Education program as a University Supervisor and Adjunct Instructor where she worked with in-service and pre-service teachers in urban school settings.

In 2011, Karrie transitioned fully to working in higher education and began work towards her Ph.D. During this time, she participated in several research projects, became a certified trainer in the CLASS Pre-K and K-3 measures, and served pre-service and in-service teachers through her roles as Early Childhood Instructor, New Teacher Mentor and Project CAUSE Assistant Teaching Professor. Karrie worked alongside Teacher Education faculty and community partners to initiate practice-based teaching in the early childhood teacher education program. During the past months, Karrie has joined the Early Childhood Research team at UMKC's Institute for Human Development where she continues to be

involved with projects and research interests that support the health and growth of children, families and teachers. She looks forward to a long career in Kansas City to make an impact on early childhood education. Karrie serves on a variety of advisory boards for local early childhood agencies. And in addition to her many roles in education, she has also spent a great deal of time with her husband at baseball, basketball, and football games cheering on her two favorite players—her sons.