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Teacher Expectations, Self-Efficacy, and Collective Efficacy in Three Tennessee Literacy
Networks

A dissertation

presented to

the faculty of the Department of Educational Leadership and Policy Analysis

East Tennessee State University

In partial fulfillment of the requirements for the degree

Doctor of Education in Educational Leadership

by

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May 2020

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Keywords: teacher expectations, teacher self-efficacy, collective teacher efficacy, teacher support, literacy, coaching, improvement science, curriculum, leadership

ABSTRACT

Teacher Expectations, Self-Efficacy, and Collective Efficacy in Three Tennessee Literacy Networks

by

Amanda R. Tinker

The purpose of this quantitative study was to determine if there was a significant difference in the dependent variables- teacher expectations, self-efficacy, and collective efficacy among the three levels of the independent variable- membership in one three literacy networks in Tennessee- Leading Innovation for Tennessee (LIFT), Read to Be Ready Coaching Network (RTBR), and Tennessee Early Literacy Network (TELN)- and if significant correlations existed between the dependent variables for each network. The population consisted of 161 K-3 Tennessee teachers who had been involved in the work of one of the three networks. Participants responded to an online survey via Google Forms which combined questions from published surveys found to be valid and reliable in measuring teacher expectations, self-efficacy, and collective efficacy. Quantitative data were analyzed with a series of one-way analysis of variance tests, and Pearson correlation coefficients.

The mean score for the LIFT network was significantly higher in teacher expectations, self-efficacy, and collective efficacy than RTBR or TELN. Strong positive correlations were found between self-efficacy and collective efficacy for each of the three networks, moderate correlations between teacher expectations and collective efficacy were found in LIFT and TELN, and a moderate correlation was found between teacher expectations and self-efficacy in LIFT.

DEDICATION

“I can do all this through him who gives me strength.” Philippians 4:13

I would like to dedicate this body of work first to my Lord whose grace has always been sufficient to sustain me through both trial and joy. I am grateful for the plan you have for my life and for the blessings you have provided.

Secondly I would like to dedicate this work to my husband, Matthew, who has always encouraged me to reach for my goals. Thank you for being a partner to me in all ways and for supporting me and encouraging me to keep going through cancer treatment, work, and family life. You are always willing to do whatever it takes for me to realize my dreams.

To my children- Evan, Chloe, and Caroline- who were patient and understanding all of the times I had to work instead of play. Thank you for your encouraging notes, your hugs, and your kisses. I hope that I have been an example to you to hold high aspirations, work hard to accomplish your goals, and to be a lifelong learner.

To my parents who have always made me believe I could accomplish anything. Thank you for believing in me and supporting me in every dream both physically and spiritually. Your love and guidance have given me the confidence to succeed in each endeavor and your willingness to babysit was critical in the completion of this work.

Finally, I dedicate this work in memory of my grandparents, Ben Edd and Nannie Scandlyn, who always encouraged me to be educated. Your steadfast example of love and devotion has grounded my life and made me strive to be a better person and make a difference in the world.

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CHAPTER 1

INTRODUCTION

Improvement in student reading achievement has been an elusive goal for both the United States of America and for Tennessee. According to the 2017 National Assessment for Education Progress (NAEP) results, 37 percent of fourth graders and 36 percent of eighth graders in the United States were proficient in reading and there were large gaps in achievement for minority, socioeconomically disadvantaged, and English Language Learner subgroups (“NAEP Reading Assessment,” n.d.). These achievement rates have remained largely stagnate for nearly thirty years, leading to waves of education research and reform nationwide with few significant results (“NAEP Reading Assessment,” n.d.). Proficiency rates for Tennessee on the NAEP have historically been lower than the national average (TN Dept of Education, n.d.b).

There have been years of education reform in both academic standards and teacher evaluation in Tennessee. According to the 2013 NAEP results, the education ranking for Tennessee increased from 46th to 37th in fourth grade math and from 41st to 31st in fourth grade reading (Woodson, 2011). Despite this success, elementary reading remained a significant challenge. According to the 2015 NAEP results 33 percent of Tennessee fourth grade students demonstrated proficiency on the reading assessment (“NAEP Reading Assessment, n.d.). Scores on Tennessee Comprehensive Assessment Program (TCAP), the state standardized assessment, had also remained stagnate with third grade reading proficiency rates at 46 percent in both 2010 and 2015 with only slight positive or negative change in the years between (TN Department of Education, n.d.b). A goal was set by the governor for 75 percent of Tennessee third graders to be proficient in reading by 2025, and it was clear that this goal would require dramatic improvement

(TN Department of Education, 2016).

The Tennessee Department of Education (TDOE) (2016) outlined four broad goals to be implemented in an effort to improve both instruction and student outcomes in reading in Tennessee. These steps included supporting deeper literacy instruction, increasing school and teacher expertise, improving supports for struggling students, and exploring different ways to approach improvement (TN Department of Education, 2016). In an effort to support educators in addressing the work required to meet these goals, three networks were developed: the Read to Be Ready Coaching Network (RTBR), the Tennessee Early Literacy Network (TELN), and Leading Innovation for Tennessee (LIFT). RTBR was an initiative designed by the TDOE that provided reading and coaching training to district coaches who directly supported teachers in the classroom to improve instructional practice (TN Department of Education, 2016). TELN was an effort led by the TDOE in partnership with the Carnegie Foundation for the Advancement of Teaching that initiated a series of networked improvement communities that brought districts together to identify and test effective strategies for improving literacy that could eventually be scaled across the state (TN Department of Education, 2016, 2018). LIFT was an independent network of superintendents funded by the nonprofit organization State Collaborative on Reforming Education (SCORE), which contracted with TNTP- a national nonprofit organization that supports educational reform- to develop strategies for leadership of the implementation of an aligned curriculum (“LIFT Education,” n.d..b; TN Department of Education, 2018). Each network was a three-year initiative with partnerships funded by grants or by state funding. All three networks shared the common goal of providing quality professional learning around literacy instruction in the early grades based on the instructional shifts called for by the Tennessee state standards, which closely resemble the Common Core Sate Standards, however

methods for teacher support varied in each network (TN Department of Education, 2016b, 2018). The models for teacher support provided through each specific network included instructional coaching in RTBR, improvement science in networked communities in TELN, and leadership capacity and curriculum implementation in LIFT.

Instructional coaching is a form of job-embedded support for teachers that may include presenting new instructional strategies, modeling instructional methods, co-planning instruction and observing instruction and providing feedback (Devine, Houssemand, & Meyers, 2013). The RTBR model included training for district coaches in instructional practices in literacy and implementing a cognitive coaching cycle with adult learners. Each RTBR district coach was supported by a TDOE regional coach in order to improve the effectiveness of his or her coaching cycles. RTBR district coaches supported classroom teachers by providing professional development around instructional practices and ongoing support during implementation of the practices through reflective cognitive coaching cycles (Gonzalez, 2016).

Improvement science is a practical method for applying research-based strategies to everyday work. It began within the healthcare industry, but the Carnegie Foundation for the Advancement of Teaching has expanded its application to the field of education. The practice of improvement science takes place in collaborative networked improvement communities (NICs) that explore a problem of practice and test practical change ideas through plan-do-study-act (PDSA) cycles (Bryk, Gomez, Grunow, & LeMahieu, 2015). TELN was formed as the first NIC supported by the Carnegie foundation to tackle a state-wide issue in education (Tennessee Early Literacy Network, n.d.a). District leads in TELN learned improvement science methods from the Carnegie foundation and then implemented these methods in order to test change ideas around the problem of literacy achievement in school teams. The teachers who participated in these

school teams developed and tested change ideas within their own classrooms. Learning was consolidated in order to accelerate progress across the state through the sharing of strategies that were proven successful in the local context (Tennessee Early Literacy Network, n.d.a).

Unlike the goals of RTBR, which focused on improving teacher knowledge and practice in order to build capacity to develop and implement higher quality instruction, or TELN, which focused on empowering teachers by making them the experts and researchers in the context of their classroom, LIFT developed a theory of action that centered on developing the capacity of school and district leaders to support teachers in the implementation of aligned curriculum (Bryk et al., 2015; “LIFT Education,” n.d.b; LIFT Education, n.d.a; Tennessee Early Literacy Network, n.d.a; TN Department of Education, n.d.a). The work of LIFT focused on empowering leaders to choose vetted, high quality language arts curriculum aligned to the instructional shifts required by the Tennessee state standards and to develop and implement a strategy for effectively supporting teachers through the change required by the implementation of these materials (LIFT Education, 2017, 2018b, 2018a). This theory of action was adopted in response to survey data that indicated that Tennessee teachers spent a large amount of time sourcing materials to use for instruction coupled with classroom observation data that indicated these materials were often misaligned to the shifts in literacy instruction required by the Tennessee state standards for English Language Arts (LIFT Education, 2017; TN Department of Education, 2016; TN Educator Survey, 2016). The action steps for LIFT included providing professional learning for both leaders and teachers about the shifts required by the Tennessee English language arts standards, ongoing support for school and district leaders in recognizing quality literacy instruction through the use of a classroom observation tool, and support in developing a strategy for change management to ensure successful implementation of new instructional materials

(LIFT Education, 2017, 2018b, 2018a).

The 2018-2019 school year was the last year of funding for these networks of support, and the future for these methods of support was unclear (LIFT Education, 2018a; TN Department of Education, 2018). Classroom observational data has been utilized to identify indicators of change on key instructional levers such as high quality text, carefully sequenced questions, rigorous tasks, and foundational skills instruction in classroom observations across the state, but this change had yet to be observed pervasively or to translate into state-wide gains in student achievement (TN Department of Education, 2018). In the 2016-2017 school year, a redesigned assessment aligned to the rigorous Tennessee Academic Standards was administered in Tennessee. Only about one-third of Tennessee second and third graders scored at a proficient level on the new assessment, which is consistent with 4th grade NAEP scores (“NAEP Reading Assessment”, n.d.; TN Department of Education, n.d.b). There was only slight change in the 2018 scores, with 36.4 percent of third graders achieving proficiency in reading (TN Department of Education, 2018).

Statement of Problem

The systemic change implemented through the literacy networks in Tennessee had yet to demonstrate significant increases in student achievement on state assessment scores. Therefore, this study examined the potential for teacher support methods to affect variables that have been shown to impact student achievement. Researchers have found that teacher expectations, teacher self-efficacy, and collective teacher efficacy (the dependent variables in this study) have significant effects on student achievement, are predictive of teacher commitment, and are indicators of successful change (Donohoo, Hattie, & Eells, 2018; Hattie, 2009; TNTP, 2018c;

Tschannen-Moran & Hoy, 2001). The purpose of this study was to determine if significant differences exist with measures of teacher expectations, self-efficacy, and collective efficacy between members of the RTBR, TELN, and LIFT networks in Tennessee. A secondary purpose was to determine if correlations exist between the dependent variables for each of the three networks.

Research Questions

This quantitative study examined differences between the mean scores of teacher expectations, teacher self-efficacy, and collective teacher efficacy as measured by teacher survey questions among members of the literacy networks in Tennessee that may be attributed to the varying methods of teacher support provided by each network- instructional coaching (RTBR), improvement science (TELN), and leader-led curriculum implementation (LIFT). This study also examined possible correlations between the dependent variables for each of the three networks. The mean scores and where they fall according to established scales for the instruments used for teacher expectations, self-efficacy, and collective efficacy for each network are described.

1. Are there any significant differences in the mean scores for teacher expectations among members of TELN, RTBR, and LIFT networks?
2. Are there any significant differences in the mean scores for teacher self-efficacy among members of TELN, RTBR, and LIFT networks?
3. Are there any significant differences in the mean scores for collective teacher efficacy among members of TELN, RTBR, and LIFT networks?
4. Is there a significant correlation between teacher expectations and teacher self-efficacy for each of the three networks?

5. Is there a significant correlation between teacher expectations and collective teacher efficacy for each of the three networks?
6. Is there a significant correlation between teacher self-efficacy and collective teacher efficacy for each of the three networks?

Significance of Study

This study provides an additional lens to the results of the work of the literacy networks in Tennessee beyond student achievement and classroom instructional practice. As leaders in the TDOE and individual districts consider how to continue this work, how to sustain and accelerate change, and how to best support districts and schools just beginning the work, it may be helpful to consider measures indicative of changing mindsets to determine which method of support or combination of methods may be most likely to support teachers to achieve lasting change in instructional practice. This lens could be used to provide insight into how the work, if sustained, will translate into student achievement in the future. The results of this study could be used to consider which methods of teacher support are associated with the mindset conditions that are most closely associated through research with sustainable change and student achievement. Additionally, the results of this study may assist district or school leaders to more successfully match the method of support to the needs of the school and teachers. Finally, although substantial research has been conducted to establish the relationship between teacher expectations, teacher self-efficacy, and collective teacher efficacy and student achievement as well as how the development of these mindsets affect teacher motivation, effort, and commitment, less research is available regarding the specific structures of teacher support that result in the development of these factors. This study adds to research regarding the relationship

between structures of teacher support and the development of positive mindsets related to instruction and student achievement in teachers throughout change implementation.

Definitions of Terms

Variables and the terms that are associated with them that are unique to this context will be conceptually and operationally defined in this section.

Aligned Curriculum- curriculum that has been reviewed and found to be aligned to the rigor and the shifts called for by the Common Core State Standards (TNTP, 2018a).

Collective Teacher Efficacy- the degree of a faculty's shared belief in its ability to organize and complete the actions necessary to achieve a specific goal (Donohoo, 2017; Goddard et al., 2000).

Improvement Science- a series of principles that are applied in a disciplined and organized method in order to develop and test ideas in a local context and rapid sequence in order to improve a problem of practice (Bryk et al., 2015).

Instructional Coaching- job-embedded ongoing support for classroom teachers with the goal of changing or improving instructional practice(Knight, 2009; TN Department of Education, 2016).

Instructional Practice Guide (IPG)- a tool for leaders to evaluate classroom instruction for alignment to the rigor and shifts called for by the Common Core State Standards (TNTP, 2018a).

Leading Innovation for Tennessee (LIFT)- a network of superintendents from 15 Tennessee school districts who partnered with TNTP (formerly The New Teacher Project) in order to support their districts in developing leader capacity and implementing aligned

curriculum with the goal of improving early literacy (“LIFT Education,” n.d.b).

Leader Capacity- the capacity of a school and/or district leader to both develop necessary content knowledge and enact effective change resulting in improved instructional practice (LIFT Education, 2018b)

Literacy Achievement/Instruction- for the purpose of this study, literacy is interchangeable with reading/language arts or English language arts when referring to achievement or instruction.

Literacy Network- for the purpose of this study, the term literacy network describes a formal structure of educators from multiple school districts in the state of Tennessee who are working together to achieve a common goal around early literacy (i.e. LIFT, RTBR, and TELN) (TN Department of Education, 2018).

Networked Improvement Communities (NICs)- an extension of professional learning communities that are focused on a common aim, guided by understanding of the problem, the system, and a shared working theory, and disciplined by the methods of improvement science (Bryk et al., 2015).

Plan-Do-Study-Act Cycles (PDSA)- a cycle of learning used to test change ideas within NICs through the principles of improvement science (Bryk et al., 2015).

Read to be Ready Coaching Network (RTBR)- a network comprised of instructional coaches from 92 Tennessee school districts who were trained by the department of education to provide professional learning and job-embedded coaching to support classroom teachers in literacy instruction (TN Department of Education, 2016).

Systems Thinking- looking at problems and goals as components of larger structures that affect each other (Senge, 2012)

Teacher Expectations- the degree to which teachers believe all students can be successful with the rigor required by the academic standards (Rubie-Davies, Hattie, & Hamilton, 2006; TNTP, 2018c, 2018b).

Teacher Self-efficacy- the degree to which a teacher believes in his or her ability to accomplish a specific teaching task within a specific context (Bandura, 1977; Tschannen-Moran & Barr, 2004).

Tennessee Early Literacy Network (TELN)- a network of educators from 21 Tennessee school districts with the goal of collaborative learning through improvement science to create solutions to the problem of low early literacy achievement (Tennessee Early Literacy Network, n.d.b).

Limitations

The lack of pretreatment measures of the dependent variables is a limitation of this study. The dependent variables-teacher expectations, teacher self-efficacy, and collective teacher efficacy- can be influenced by a number of factors related to school context, demographics, climate, and culture (Brault et al., 2014; Goddard et al., 2000; Tschannen-Moran & Hoy, 2001, 2007). These factors were not controlled in this study; therefore, it is possible that these mindsets may have existed prior to involvement in the literacy network. This limitation is mediated by an acceptable sample size for each network. Another potential limitation due to lack of pretreatment measures is related to the voluntary nature of participation in the study. It is possible that teachers who chose to participate in the study were more deeply involved in and committed to the work and/or may have higher levels of these mindsets as a result than the general population of teachers. A lack of pretreatment measures of the dependent variables limits the ability to

attribute results solely to the independent variable.

Delimitations

The anonymity of the study prevented the researcher from determining which districts or schools employed respondents and is a delimitation of this study. Although the populations of each network included diverse districts from across the state of Tennessee, the researcher could not verify the districts which had voluntary respondents. This could lead to a biased sample if many respondents were from the same district, region of state, or schools with similar demographics. Finally, this study examines specific structures of support as offered in organized literacy networks in Tennessee, the results should be carefully interpreted to determine applicability to any context to which the results are potentially generalized.

Overview of the Study

Chapter 1 includes the context of the study, the problem the study will address, purpose of study, research questions, significance of study, definition of terms, and limitations and delimitation. Chapter 2 presents the review of relevant research regarding the models of support provided by RTBR, TELN, and LIFT in Tennessee and the dependent variables- teacher expectations, teacher self-efficacy, and collective teacher efficacy as well as how the dependent variables are related to student achievement and may be used as leading measures for reform implementation. Chapter 3 explains the methodology of the study including the research questions and hypotheses, population/sample, instrumentation, and data collection and analysis methods. Chapter 4 presents the findings for the Research Questions. Chapter 5 presents the summary, conclusions, and recommendations for practice and further research derived from the

results of this study.

CHAPTER 2

REVIEW OF LITERATURE

Student achievement in literacy is a challenge for both the United States of America and Tennessee (“NAEP Reading Assessment”, n.d.). In an effort to improve early literacy achievement, three networks were developed in Tennessee to support teachers in making instructional changes that would produce dramatically different student outcomes (TN Department of Education, 2016, 2018). Each network developed a unique theory of action and corresponding model for teacher support (TN Department of Education 2016, 2018). These networks included Read to Be Ready Coaching Network (RTBR), which offered professional development and job-embedded instructional and cognitive coaching around literacy instruction; Tennessee Early Literacy Network, which offered a collaborative problem-solving approach utilizing the principles of improvement science to address the problem of early literacy achievement; and Leading Innovation for Tennessee (LIFT), which developed leader capacity to support teachers through the implementation of quality, aligned literacy curriculum in order to change instructional practices (TN Department of Education, 2018). One of the leading indicators of successful reform may be shifts in teacher mindset (Fullan, 2001, 2012). Teacher expectations, teacher self-efficacy, and collective teacher efficacy have been found to be significantly related to student achievement (Hattie, 2009); therefore, examining these mindsets may offer insight into successful reform, which may be associated with improved student outcomes in the future (Fullan, 2012).

Student Achievement in Literacy

A goal for reading proficiency for the state of Tennessee was to have 75 percent of Tennessee third graders proficient in reading by the year 2025 (TN Department of Education, 2016). Decades-long stagnation in reading achievement has demonstrated that this was both an urgent and daunting challenge. Data from both NAEP and TCAP could be utilized to support the claim that most third graders in Tennessee were below grade level proficiency in reading. Tennessee students had improved in all subjects on TCAP from 2012 to 2015, except in grades 3-6 English language arts (ELA) (“NAEP Reading Assessment,” n.d.; TN Department of Education, , n.d.b). ELA scores in these grades statewide had either remained the same or declined, and ELA was the only TCAP subject where less than half of students demonstrated proficiency with 43 percent of third graders and 45 percent of fourth graders performing on grade level in 2015 (TN Department of Education, n.d.b). According to the 2015 NAEP results 33 percent of Tennessee students demonstrated proficiency on the fourth grade reading assessment (“NAEP Reading Assessment”, n.d.). In addition to the overall reading achievement, there were disparities among Tennessee students resulting in large achievement gaps among student groups. Only 32 percent of economically disadvantaged students scored proficient, while nearly two-thirds of non-economically disadvantaged students did. Thirty percent of minority students, and only 20 percent of students with disabilities scored proficient (TN Department of Education, n.d.b; Gonzalez, 2015; “NAEP Reading Assessment,” n.d.; TN Department of Education, 2016).

Analysts studied trends in Tennessee achievement data and found that historically disadvantaged student groups were far less likely than their peers to perform at grade level and that the students who were most behind by the end of third grade remained behind (TN

Department of Education, 2016). In 2013, almost 6,000 students earned the lowest classification of below basic on the third grade TCAP ELA test (TN Department of Education, n.d.b; TN Department of Education, 2016). Only one-third of the below basic students improved to a basic level (the next lowest classification) by their fifth grade assessment, and less than three percent met grade level expectations and scored proficient by fifth grade (TN Department of Education, 2016).

Third grade reading scores are predictive of many future outcomes for students and the lack of early reading success can have long-term consequences (Hernandez, 2012). Hernandez (2012) found that students who did not read proficiently by third grade were four times more likely to fail to graduate from high school than proficient readers. The worst readers, those who did not master the basic skills by third grade, failed to graduate at nearly six times the rate of more proficient readers. Of the students in the study who did not graduate from high school, 88 percent had low reading skills in third grade. Hernandez (2012) also found that poverty had a powerful influence on graduation rate and that the combined effect of reading poorly and living in poverty resulted in a jump from 16 percent not graduating high school to 35 percent not graduating high school. The rate of failure to graduate was greater for African-American students and Hispanic students with poor reading skills living in poverty than for White students with poor reading skills living in poverty (Hernandez, 2012; Sparks, 2011).

Students who appeared proficient in third grade in Tennessee were not always prepared for future success. In addition to students who were not proficient in third grade reading, another trend was revealed in the state test results (TN Department of Education, 2016). One out of five students who scored proficient in third grade ELA in 2013 dropped to basic by fifth grade and more than half of the third graders who scored advanced no longer received an advanced score in

fifth grade, indicating that although these students appeared prepared in third grade this was not sustained in more rigorous content in later grades (TN Department of Education, 2016).

Students who graduate from high school with insufficient reading achievement may not fulfill their potential and are not prepared to succeed in the modern economy. In Tennessee, only 8 percent of eighth graders performing below grade level in reading met the college-readiness benchmark on the ACT reading test (TN Department of Education, 2016). In the high school class of 2012, those who entered directly into the workforce after graduating without pursuing any postsecondary training or education, earned an average annual salary of \$9,161.00 in their first year, which is far below the federal poverty line (TN Department of Education, 2016).

The findings of the report released by the Tennessee department of education (TDOE) (2016) was used to support a need to improve early literacy instruction. The data were clear that too many students were not reaching third grade proficiency in reading, and even those students who did achieve proficiency were not sustaining that level indicating that early instruction was insufficient to carry them into the rigorous expectations of later grades (TN Department of Education, 2016). To explore the potential causes for student achievement, the TDOE partnered with TNTP, formerly known as The New Teacher Project, which is a non-profit organization with the mission of increasing equity in United States schools, to send literacy experts into more than 100 elementary classrooms across the state to discover trends and patterns in classroom reading instruction. The schools that researchers visited represented a wide range of school sizes, student demographics, and Tennessee regions, as well as a variance in student gains and achievement data (TN Department of Education, 2016).

Literacy Instruction in Tennessee

Researchers from TNTP found that Tennessee district personnel were focused on improving elementary literacy. Early literacy had a focal point in most district improvement plans (TN Department of Education, 2016). In the District Landscape Survey (2015), 106 districts placed reading as one of their highest priorities. Over 90 percent of Tennessee districts participated in the survey. All but four had a dedicated daily reading block for students in grades K-3 and over 80 percent of districts had hired instructional coaches to support teachers, with the majority of these coaches supporting literacy instruction (TN Department of Education, n.d.b). School-level leaders and teachers also prioritized reading with a substantial portion of professional development hours devoted to literacy and a prioritization of reading needs over math needs in intervention (TN Department of Education, 2016).

TNTP researchers noted several strengths across Tennessee classrooms including valuing students' time in the classroom, with nearly all teachers using classroom routines that allowed students to quickly transition from one activity to another (TN Department of Education, 2016). Lessons included practice in reading and writing across content areas, and students were exposed to a wide range and balance of both informational and literary texts (TN Department of Education, 2016). These practices demonstrated that teachers were making some of the shifts required by the Tennessee academic standards. Specifically, teachers were increasing exposure to nonfiction text and reading and writing using evidence across content areas (Alberti, 2012; Allyn, 2014; TN Department of Education, 2016).

Teachers were spending time on foundational skills, but rarely making the leap from isolated decoding into reading (TN Department of Education, 2016). Reading is comprised of both skills-based competencies and knowledge-based competencies. These competencies are

tightly interwoven with the skills-based competencies growing increasingly automatic and the knowledge-based competencies growing increasingly strategic (Alberti, 2012; Allyn, 2014; “Scarborough’s Reading Rope: A Groundbreaking Infographic – International Dyslexia Association,” n.d.). Gough and Turner (1990) first coined the idea that students must acquire both decoding and fluency skills and linguistic and knowledge competencies to be successful in reading, also known as the simple view of reading. This idea is represented as a multiplication equation and without one of the factors, the result will be zero (Center for Development and Learning, n.d.; Hoover & Gough, 1990). This concept, although deceptively named, highlights the complicated interactions of skills-based and knowledge-based competencies necessary for reading. Kershaw and Schatschneider (2012) tested this theory and found that the interactions between these competencies were predictive of reading success, with different competencies playing a larger role at different grade levels. For example, skills based competencies in grade 1 were predictive of future success and students who did not develop these competencies were less likely to be successful on future measures, but both knowledge-based and skills-based competences (specifically fluency in passage and oral vocabulary) were most strongly correlated with future success in grade 3, while strictly knowledge-based competencies were most predictive of future success in grade 6 and 7 (Kershaw & Schatschneider, 2012; Ouellette & Beers, 2010).

TNTP researchers (2016) found that students in Tennessee classrooms were rarely asked to read and analyze texts for the purpose of understanding key ideas. Most instruction, rather, focused on the mastery of individual skills in isolation or on discreet comprehension skills that were taught as the goal of the lesson to later be applied to any text. Kindergarten through second grade students spent less than 20 percent of their time listening to read-alouds or reading texts

while third through fifth grade students only spent 34 percent of their time reading per lesson (TN Department of Education, 2016). The theory that many Tennessee teachers were practicing under- that mastery of discreet foundational and comprehension strategies would lead to student success -was flawed.

Student ability to comprehend text varies based on the specific qualities of the text, including the vocabulary, structure, syntax, and knowledge demands; therefore instruction should attend to the specific text and its complexities (Alberti, 2012; Allyn, 2014; Johnson, 2013). This attention to complex text and academic vocabulary is a critical shift required by the Tennessee Academic Standards (TN Department of Education, 2016). Because reading instruction should use rich texts to drive the integrated building of skills and knowledge, all students must have access to complex text. This is particularly important for economically disadvantaged students who may have limited experiences to develop vocabulary and contextual knowledge outside of school (Alberti, 2012; Allyn, 2014; Johnson, 2013). TNTP researchers found that in many Tennessee classrooms lower performing students were never exposed to complex text due to time spent in intervention and/or leveled reading groups using instructional level text (TN Department of Education, 2016, 2017).

TNTP researchers (2016) found classroom challenges were not limited to comprehension; classrooms included populations of students who were not competent with decoding or comprehension despite a large percentage of instruction being focused on foundational skills. Skills instruction was often not tied to meaning making and practice of foundational skills was often not fully addressing the rigor of the standards (TN Department of Education, 2016). In addition, there were many factors outside the school walls affecting reading achievement in Tennessee such as chronic absenteeism and socio-economic status. Approximately 58 percent of

the Tennessee student population is economically disadvantaged and over two-thirds of students qualify as either economically disadvantaged, Black-Hispanic-Native American, English learners, or students with disabilities (TN Department of Education, n.d.b). Additionally, ten percent of third graders have missed almost a half a year of school between kindergarten and third grade. Of these chronically absent students, only one in four achieve proficiency in ELA in third grade (TN Department of Education, 2016).

Tennessee officials were prompted by the findings of the TNTP researchers (2016) to set four goals to address challenges, which may be preventing students from reaching proficiency.

These included:

1. Support deeper literacy instruction to ensure that students learn decoding within the context of broader comprehension.
2. Increase schools' and teachers' ability to differentiate instruction in the early grades and to target students' academic and non-academic needs as early as possible.
3. Improve Response to Instruction and Intervention implementation for students who need greater support in specific skill areas.
4. Get better at getting better. (TN Department of Education, 2016, pp. 18-20)

The plan included action both outside the school walls and within, but it was clear that a significant shift in classroom instruction was needed to produce attain the goal of 75 percent of Tennessee third graders proficient in reading by the year 2025.

The Vision for Literacy Instruction in Tennessee

Leaders at the TDOE stated a vision for a literate Tennessee student in the report released in 2016. "In Tennessee, we want to develop lifelong thinkers and learners. We want students

who continue to engage in what they are learning, who become interested in discovering more about the world around them, and who are equipped to pursue a variety of passions in a range of fields” (TN Department of Education, 2016, p. 9). The TDOE (2017a) revealed in a second report that progress was made in the first year of improvement work. Specifically, the structural features of classrooms were changing with high-quality texts becoming more prevalent and students spending more time reading and listening to texts that have the potential to build both knowledge and foundational skills. Sixty-seven percent of observed K-2 lessons in 2016 were focused on comprehension compared to 37 percent in 2015 (TN Department of Education, 2017a). Teachers were providing grade-level aligned foundational skill instruction, but offering limited opportunities to practice these skills with authentic reading and writing. Fifty-nine percent of classrooms were teaching foundational skills aligned to grade level standards, but only 14 percent of classrooms offered sufficient practice opportunities involving authentic reading and writing, and only five percent allowed students to connect acquisition of foundational skills to making meaning from connected text (TN Department of Education, 2017a). This data could be used to support the claim that change was beginning to occur, but this change was not yet evidence of deeper instructional shifts. The TDOE (2017a) further defined their vision with a definition of reading proficiency and key indicators in instruction that would indicate that the deeper shifts in instruction were taking place.

Proficient reading is all about making meaning from text. To do this, readers must accurately, fluently, and independently read a wide range of appropriately complex texts; strategically employ comprehension strategies to analyze key ideas and information; construct interpretations and arguments through speaking and writing; develop vocabulary; and build knowledge about the world. (TN Department of Education, 2017a,

p. 3)

Key indicators in literacy instruction included a positive culture of learning; explicit foundational skills instruction with sufficient opportunity to master the skills; high-quality texts or sets of texts; questions and tasks that integrate the standards and build students' comprehension; and students responsible for the cognitive work in the lesson (Achieve the Core, n.d.; TN Department of Education, 2017a). These instructional indicators were used to outline a vision for aligned instruction that demonstrated the key shifts in instruction required by the Tennessee academic standards (Achieve the Core, n.d.; TN Department of Education, 2017). The TDOE (2017b) illustrated their vision of aligned instruction with the release of a guide for literacy instruction. The framework for this guide for instruction was based on a theory of action grounded in research in the science of reading (Alberti, 2012b; Allyn, 2014; Student Achievement Partners, n.d.).

If we provide daily opportunities for all students to build skills-based and knowledge-based competencies by...

- Engaging in a high volume of reading;
- Reading and listening to complex texts that are on or beyond grade level;
- Thinking deeply about and responding to text through speaking and writing;
Developing the skill and craft of a writer; and
- Practicing foundational skills that have been taught explicitly and systematically
and applied through reading and writing;

Then we will meet or exceed our goal of having 75 percent of third graders reading on grade level by 2025. (TN Department of Education, 2017a, p. 10)

Networks of Teacher Support

As part of the goals and action steps to move instruction in Tennessee toward the vision, the TDOE entered into partnerships to form networks to support the educators in the state. Two such networks were created from within the TDOE: the Read to Be Ready Coaching Network (RTBR) and the Tennessee Early Literacy Network (TELN). In addition, another network, Leading Innovation for Tennessee (LIFT), comprised of a group of superintendents with a mission to improve student-led instruction, refocused their mission to improve early grades reading. These three networks shared a common goal- empower educators to achieve the vision of aligned instruction set forth by the state- yet each had different methods to empower educators.

Rincon-Gallardo and Fullan (2016) described a network as “a set of people or organizations and the direct and indirect connections that exist among them” (p. 6). Katz, Earl, and Ben Jaafar (2009) described a network as a “group of schools working together in intentional ways to enhance the quality of professional learning and to strengthen capacity for continuous improvement” (p. 9). Sharratt and Planche (2016) described a network as “individuals working together within or across schools to use data to consider a common area of focus as a collective” (p. 7). Donohoo (2017) discusses the formation of teacher networks as an effective structure for collaboration and shared learning. Reeves (2008) suggested that networks provide an alternative to hierarchical frameworks for system change. Change strategies are more likely to be transmitted through a trusted colleague than a superintendent and teachers are more likely to connect to colleagues than to supervisors (Reeves, 2008). Katz et al. (2009) theorized that the professional knowledge creation and sharing that occurs through networks is critical in reform. Fullan and Quinn (2016) and Hargreaves and Fullan (2012) noted that networking was one of the

most powerful and underutilized strategies in education to result in effective reform.

Rincon-Gallardo and Fullan (2016) noted that the key factors in improving student outcomes across education systems are how the network functions and what they do, not merely the existence of a network. The key characteristic of effective networks is action through collaborative inquiry (Rincon-Gallardo & Fullan, 2016). Collaborative inquiry ensures the network is grounded in action rather than merely information sharing (Rincon-Gallardo & Fullan, 2016). Sharratt and Planche (2016) and Katz et al. (2009) suggest that successful networks move beyond conversation and research into a clear commitment to act.

Read to Be Ready Coaching Network

The Read to Be Ready Coaching Network (RTBR) began in 2016 and grew to 92 districts. Approximately 250 literacy coaches were supported by regional coaches employed by the department of education in order to provide professional learning and ongoing coaching and support to classroom teachers across the state (TN Department of Education , n.d.a; TN Department of Education, 2018). The theory of action behind RTBR is that by supporting literacy coaches to build content knowledge in early literacy and develop coaching skills they will empower teachers to build content knowledge and sustained high impact instructional practices, which will lead to student learning and literacy achievement (TN Department of Education, 2016). RTBR was a three-year initiative with a plan for professional learning to take place each semester. (TN Department of Education, 2016). The plan for learning included:

- Semester 1: Accessing Complex Text through Interactive Read Aloud
- Semester 2: Accessing On-grade Level Texts through Shared Reading
- Semester 3: Teaching Foundational Skills through Reading and Writing

- Semester 4: Responding to Texts through Interactive Speaking and Writing Activities
- Semester 5: Guided Reading and Instructional-level Texts
- Semester 6: Independent Reading and Reading Conferences (TN Department of Education, 2016)

The unique feature of RTBR was the ongoing support provided by instructional coaches in schools. Participating districts agreed to fund a literacy coach to work with at least 15 teachers for three years (Gonzalez, 2016). These coaches were then supported through training at both network and regional sessions and with on-going support from regional coaches. The school-based coaches guided teachers through the implementation of new strategies using learn and plan; apply; reflect; refine and extend; evaluate coaching cycles (TN Department of Education, 2016).

Benefits of coaching. Instructional coaching is a tool utilized to change instructional practice. Knight (2009) found conclusive evidence that coaching teachers to implement a new teaching strategy leads to successful implementation as well as positive effects on teacher efficacy beliefs when utilizing cognitive coaching. Knight (2009) found that a one-shot workshop was likely to lead to, at best, 15 percent implementation. When the skill was only described, there was a 10 percent implementation; modeling, practice, and feedback led to a 2-3 percent increase in implementation, but with job-embedded coaching a 95 percent implementation rate could be expected (Knight, 2009). Edwards (1995, 2018) described the benefits that could be anticipated from coaching including increased student test scores, growth in teacher efficacy, increase in reflective and complex thinking among teachers, increase in

teacher satisfaction, increase in professional climate in schools, and increase in teacher collaboration. Knight (2009) found that teachers who received coaching following a workshop averaged 90 percent usage of the unit planning tool and teaching routine, while the non-coached group only averaged 30 percent usage. McCollum, Hemmeter, and Hsieh (2013) found that the groups that received coaching had significantly higher levels of implementation of a literacy program, but there were not significant effects in the quality of the language and literacy teaching environment. The RTBR coaching model included best practice for instructional and cognitive coaching.

Cognitive coaching. Cognitive coaching is a specific set of strategies employed in order to enhance the teacher's thinking, perceptions, and instructional decisions (Costa & Garmston, 1989). Costa and Garmston (1989) argued that the effective teacher thinking that is a prerequisite to improving instructional practice does not automatically develop, but is a product of careful training. According to Costa and Garmston (1994), cognitive coaching results in teachers who are able to act autonomously while attending to the common goal of the group. During the three phases of the coaching process- planning, observation, and reflection- coaches attend to the stages of development of teachers and craft questions to move the teacher forward in development (Costa & Garmston, 1994). Cognitive coaching has been associated with many benefits, with one of the most significant being teacher efficacy (Edwards, 2018).

Edwards (1995) found that teachers trained with cognitive coaching had significantly higher efficacy scores and that teachers who received more training or were farther removed from the training scored higher. Wooten Burnett (2015) found that cognitive coaching had a statistically significant impact on the efficacy of physical education teacher candidates. Maginnis

(2009) found that student teachers who received mentoring from faculty who were trained in cognitive coaching grew more than those trained by faculty not trained in cognitive coaching. Baker (2008) found that mentors with a high level of content knowledge in cognitive coaching had mentees with high levels of self-efficacy and mentors with low levels of cognitive coaching content knowledge had mentees with lower self-efficacy.

Cognitive coaching has been associated with increased reflective and complex thinking among teachers and administrators (Edwards, 2018). Gonzalez Del Castillo (2015) found that teachers who received cognitive coaching reported an increase in their use of reflective practice, feelings of empowerment to use, analyze, modify, and apply skills and practices, and that the opportunity to discuss their planned lessons prior to delivery allowed them to proactively adjust the lesson when necessary. Chang, Lee, and Wang (2014) found that teachers who participated in cognitive coaching improved significantly more than the comparison group in their ability to reflect on their practice. Bjerken (2013) found that teachers who had received cognitive coaching indicated that they increased in reflection, decreased in isolation, and focused on the positive aspects of lessons rather than faults. The teachers Bjerken studied also indicated they were able to apply learning in future lessons, focused on planning for specific groups of students, and were aware of student engagement while they were teaching.

Cognitive coaching has been linked with increased student test scores and teacher behaviors associated with other student benefits (Edwards, 2018). Akyildiz and Semerci (2016) found that a teaching approach supported by cognitive coaching resulted in significantly more student growth and that these students retained their learning at a significantly higher level than students taught by teachers who were not supported by cognitive coaching. Gonzalez Del Castillo (2015) found that teachers who received cognitive coaching showed more evidence of

responsive teaching. Alicea (2014) found that cognitive coaching was a statistically significant predictor of teacher knowledge and implementation of a new instructional strategy. Diaz (2103) found that student achievement improved more among teachers who received cognitive coaching than teacher who participated in the National Board Certification process or teachers assigned to a controlled group.

The teacher support model for RTBR included a coaching cycle based on the principles of cognitive coaching which included learning, planning, implementation, and reflection (TN Department of Education, 2016). District RTBR coaches also received training on effective instructional coaching and best practices for adult learners in order to combine the benefits of cognitive coaching with job-embedded support for instructional practice (Gonzalez, 2016).

Characteristics of effective coaching. Effective coaching is focused on supporting the learning, growth, and achievement of students through the empowerment of teachers with job-embedded professional learning and support (Devine, Houssemand, & Meyers, 2013; EL Education, 2015; Knight, n.d., 2005, 2006, 2009; Knight et al., 2015). Literacy coaches provide teacher support, develop content knowledge in literacy, demonstrate skill in literacy teaching, and foster a professional learning community (Coskie, Roginson, Buly, & Egwa, 2005). There are many factors that lead to effective coaching. Effective coaching occurs in cycles. Although the terms may differ slightly, researchers agree that the structure of a coaching cycle should include goal setting, learning, feedback, and reflection (EL Education, 2015; Knight, 2015; Knight et al., 2015). The cycle is a continuous process focused on professional practice (Knight, 2009). The coach should employ a toolbox of coaching and instructional strategies to effectively respond to a variety of needs (Blachowicz, Obrochta, & Fogelberg, 2005; Knight, 2009).

Coaches should be aware of the considerations associated with adult learning and strategically select a student-centered or teacher-centered focus based on the needs of the teacher (Blachowicz et al., 2005; EL Education, 2015; Knight, 2015). Coaching should occur within structures and systems in which a culture of continuous learning has been built (Blachowicz et al., 2005; EL Education, 2015; Knight, 2009).

Effective coaching is grounded in relational trust and effective communication (EL Education, 2015). For coaching to be effective it must be non-evaluative and confidential (Knight, 2011). The coaching relationship is grounded in the principles of equality, choice, voice, dialogue, reflection, practice, and reciprocity (Devine et al., 2013). Coaching is rooted in partnerships- between both the coach and teachers and the coach and leaders (Devine et al., 2013). With effective coaching, the teachers, leaders, and coach increase knowledge and skill as a result of the relationship (Devine et al., 2013; Knight, 2009, 2015).

Effective coaching is job-embedded and builds connections between professional learning, student assessment data, and the implementation of instructional practice (Blachowicz et al., 2005; Knight, 2009, 2015). Powell and Diamond (2011) found that coaching around content-specific literacy skills resulted in the increased use of those skills and greater student mastery. Peterson, Taylor, Burnham, and Schock (2009) found the following characteristics of effective coaching conversations: protocols were used; data from lessons provided concrete examples; generative questions were asked; and connections were built between professional learning and implementation. RTBR's model included training around content knowledge and instructional practice in literacy for instructional coaches as well as training in how to conduct effective coaching conversations and ongoing support from regional coaches for the coaching practice (, 2016). This model of support for the coaches is consistent with research for effective

coaching (e.g. Devine et al., 2013; EL Education, n.d., 2015; Knight, 2015).

The role of the coach. Another key characteristic of effective coaching includes clear, well-defined roles for the coach (Devine et al., 2013; Knight, 2009). Knight (2005) reported that an instructional coach teaches teachers how to use effective instructional strategies. The coach's role is dependent upon a partnership with the principal, focused goals, and the ability to be successful in any classroom (Knight, 2005). Lynch and Ferguson (2010) identified some common patterns in the definition of the coaching role: designing and modeling lessons; observing instruction and debriefing with teachers; presenting professional learning workshops; examining student assessment data; and determining ways to improve the school program. Knight (2011) identified behaviors associated with effective coaching including identifying teacher goals, active listening, questioning, providing feedback, and explaining practices. Devine et al. (2013) specified that these roles are fulfilled within a partnership with the principal and with teachers. Blachowicz et al. (2005) identified different roles the literacy instructional coach may assume including teaching and supporting teachers in implementing strategies, guiding teachers in planning and instruction, observing and providing feedback, assisting in instructional decisions such as grouping, and assisting in the analysis of data. Devine et al. (2013) and Knight (2005) identified common instructional practices that are positively addressed through coaching, including classroom management, content planning, instruction, and assessment. These instructional practices are consistent with the RTBR framework, which seeks to address access to text; instructional practice; and the learning environment (TN Department of Education, 2016).

Potential barriers to coaching. Unclear roles for the instructional coach can negatively

impact the effectiveness of coaching. Lynch and Ferguson (2010) found barriers resulting from unclear roles included conflicting assigned duties, too many schools or teachers, and limited resources. Limited principal involvement and resistant teachers are other barriers that emerged to effectiveness (Lynch & Ferguson, 2010). Teacher resistance may be tempered by working to develop a growth mindset focused on improvement so that teachers ask the coach for targeted feedback; are open to reflection; and express needs to the coach through clear communication (Yopp et al., 2011). McCombs and Marsh (2014) found that principals cited recruiting and retaining high quality coaches as potential barriers, with some citing a lack of qualified candidates as a barrier. Leaders in this study also expressed doubts about their ability to determine quality due to a lack of literacy content knowledge (McCombs & Marsh, 2014). Although coaches, teachers, and principals generally expressed satisfaction with their coaching models, coaches cited conflicting duties assigned by administrators and a lack of support for coaching with teachers as potential barriers to success (McCombs & Marsh, 2014). Lynch and Ferguson (2010) and McCombs and Marsh (2014) found administrative support to be a factor in the effectiveness of coaches. This could be a potential barrier in the RTBR model because the network originally only included instructional coaches (TN Department of Education, 2018).

Evaluating the effectiveness of coaching. An instructional coach is a significant investment on behalf of a school or district; therefore, it is important to evaluate the effectiveness of coaching. Devine et al. (2013) found that coaching effectiveness can be evaluated by examining teacher perceptions, instructional practices, and student achievement. RTBR has been collecting data on these factors through teacher and coach surveys, classroom observations, and student achievement data, however, these measures require time to see significant shifts in state-

wide data (TN Department of Education, 2018). RTBR data has seen slight and inconsistent improvements in instructional practice and little improvement in student achievement across the network (TN Department of Education, 2018). Edwards (2018) and Knight (2009) found in their research that teacher efficacy is an expected outcome of coaching that may precede observable improvements in instructional practice or student achievement.

Tennessee Early Literacy Network (TELN)

The Tennessee Early Literacy Network (TELN) was developed in 2016 with seven districts and increased to twenty-one districts across the state of Tennessee in 2017 (Tennessee Early Literacy Network, n.d.b). The purpose of TELN was to empower districts with new problem-solving tools and collaboration with other regions and districts in an effort to improve third grade literacy achievement in Tennessee (Tennessee Early Literacy Network, n.d.b). The TDOE partnered with the Carnegie Foundation for the Advancement of Education in order to utilize the tools of improvement science to understand the system that is impeding K-3 reading achievement, rapidly test ideas for change, and measure progress (Tennessee Early Literacy Network, n.d.b). Membership in TELN was a unique opportunity for districts to participate in a collaborative relationship between districts and state; function as innovation labs; generate evidence-based, locally tested resources for success in their own schools; and build their capacity to problem solve and improve student achievement in their own unique, local context through the use of improvement science techniques including systems thinking, working in networked improvement communities, and completing plan-do-study-act (PDSA) cycles (Tennessee Early Literacy Network, n.d.b).

Systems thinking. A principle of improvement science is systems thinking. Systems thinking is defined in different contexts in different ways, but Senge (2012), described systems thinking as it relates to the context of education as “a different way of looking at problems and goals- not as isolated events but as components of larger but less visible structures that affect each other” (p. 124). Senge (2012) further defined systems thinking as understanding the interrelationships within a system and how they recur and change. Within the education context, there are many interrelated systems that operate together. A school district, for example, is a system with many components such as the building design, the culture of the workplace, and the policies and procedures from the state. Examining how all of these components interact with each other can help a leader act more effectively. The systems are more abstract than just the school district, however, the curriculum development, the approaches to disciplining students, the policies regarding placement and retention, staff behavior, student home lives are all components of the system (Senge, 2012)..

Systems thinking has been used prevalently throughout healthcare to understand the complex problems that may lead to positive or negative patient outcomes, but systems thinking is also relevant to education. The issues in education are complex and uncertain, the timeframes long (when considering the length of a child’s education), knowledge is more fragmented, and there is less consensus than in fields of science (Senge, 2012). Senge (2012) argued applying systems thinking to education reform is important to achieving results at scale. Shaked and Schechter (2017) found school leaders who exhibited systems thinking had both a holistic point of view and a multidimensional view. These leaders could see both the big picture and understand that each element is a multi-faceted part of a complex system (Shaked & Schechter, 2017). Systems thinking leaders were able to assess the significance of the components of school

life to the whole system and used an indirect approach when dealing with challenges due to the recognition that the challenge was part of a large system and may be influenced without dealing with it directly (Shaked & Schechter, 2017).

Tools for inquiry. A first step in using principles of improvement science is to accurately see the system (Martin & Gobstein, 2015). Proger, Bhatt, Cirks, and Gurke (2017) described the process of conducting a root-cause analysis to define the focus problem. The process included representing root causes and the factors that lead to those causes visually (Proger, et al., 2017). TELN members employed similar inquiry tools to see the system, understand the problem, and create a theory of action. TELN district leads used their experience and expertise to identify the possible causes of Tennessee’s early literacy problem and visualized those causes using a fishbone diagram (Bryk, 2015; Bryk, et al., 2015; Tennessee Early Literacy Network, n.d.a). District leads focused on the users of the system- the student and teacher - and narrated student learning and teacher experiences through student and teacher journey maps (Baron, 2017; Tennessee Early Literacy Network, n.d.a). Through the use of journey maps, districts leads were able to identify patterns including student understanding of reading as reading words instead of making meaning, lack of exposure to books in the home, student feelings of frustration with learning to read, teacher feelings of ill-preparation to teach reading, few formal support systems for new teachers, and inconsistent learning experiences for teachers (Tennessee Early Literacy Network, n.d.d, e). District leads completed a system analysis and process map to examine how struggling readers were supported (Bryk et al., 2015; Tennessee Early Literacy Network, n.d.a). The results from this inquiry were utilized to establish inconsistent processes and practices in the Response to Instruction and Intervention system

among the districts (Tennessee Early Literacy Network, n.d.a).

BeLue et al. (2012) found that understanding the system that created the problem resulted in a sense of control over the problem. Martin and Gobstein (2015) described identifying and understanding the problem as a first step in developing a community for improvement. Proger et al. (2017) found that the use of inquiry tools to understand the system led to a deeper understanding of the problem. Zmuda (2004) argued that the competence of the system is dependent on how it is understood by key stakeholders. If the system is understood through an examination of the system's elements and their interrelationships the system becomes competent and the members are able to recognize potential (Zmuda, 2004). Sadeghi, Jashnsaz, and Chobar (2014) found that assessing the perceived state of a system versus the desired state resulted in increased focus on improvement. Zmuda (2004) reported that when educators see the school as a complex living system with purpose they understand their individual and collective work. Martin and Gobstein (2015) and Proger et al. (2017) found that understanding the system focused the work of the network on developing a theory of action. A working theory of action is developed into a driver diagram – a theory of improvement (Bryk et al., 2015; Proger et al., 2017; Tennessee Early Literacy Network, n.d.d, n.d.e). TELN's working theory of improvement emerged as a Driver Diagram with key levers to improve literacy proficiency for Tennessee's third grade students. Those key levers included standards-aligned instruction; supporting struggling students; schools family and communities; and coherent state guidance (Tennessee Early Literacy Network, n.d.c).

Networked improvement communities. Improvement science is practiced within networked improvement communities (NICs) (Bryk et al., 2015). . NICs are intentionally

designed social organizations with distinct participant roles, responsibilities, and norms (Bryk et al., 2015). NICs within improvement science have four essential characteristics:

- Focused on a well-specified common aim
- Guided by a deep understanding of the problem, the system that produces it, and shared working theory to improve it
- Disciplined by the methods of improvement research to develop, test, and refine interventions
- Organized to accelerate the diffusion of these interventions out into the field and support their effective integration into varied educational contexts (Bryk et al., 2015, p. 144).

NICS are an extension of social learning contexts known as professional learning communities (PLCs) or design partnerships (Bryk et al., 2015). Team learning is the regular willingness of a group of people to think and act together as a system (Senge, 2012). It is characterized by dialogue, respect, and deliberation about the issues. Teams have varying perspectives, but are aligned to common values, goals, and vision (Senge, 2012). Bryk (2015) distinguishes between PLCs and NICs. PLCs promote cooperative problem solving within schools and connect educators with common problems. Central issues addressed in PLCs are concrete problems in the work of teaching and create spaces where faculty can learn from one another. In NICs educators are bound by norms and structures similar to a scientific community. Members in NICs aim to build practice-based evidence to support new problem-solving strategies (Bryk, 2015).

Bryk (2015) refers to NICs as execution networks in contrast to sharing networks. Sharing networks require less coordination than a network with a goal of achieving measurable

improvements (Bryk, 2015). The aim of a sharing network is to access the skill, expertise, and knowledge of others. Members of execution networks collectively agree to accomplish an aim (Bryk, 2015). The structures in NICs result in the cooperation and cohesion required for systems work (Bryk, et al., 2010). The technical core of a NIC is comprised of a common problem of practice; a mutually understood theory of practice; a common set of research tools and methods; and a measurement system (Gomez, et al., 2016). Proger et al. (2017) found that a NIC was united by those elements that comprise the technical core. The outer rings of the NIC framework provide the social participation structures including a shared culture of will based on shared vision, values, and norms (Gomez, et al., 2016; Proger et al., 2017). NICs have multiple purposes- design community, learning community, but the most critical is improvement community (Bryk, 2015).

Martin and Gobstein (2015) found that the methods used to convene the network, including membership applications were relevant to the eventual success of the network. Additionally, the organization of the membership into teams or partnerships, participation structures, and infrastructure for communication were factors that affected the health of the NIC and engagement of the members (Martin & Gobstein, 2015). The leadership structure including a central hub to coordinate the activities of the network was a relevant factor in the success of the NIC (Martin & Gobstein, 2015). Woodland (2016) found collaborative social structures such as professional learning communities had positive effects on teacher satisfaction, school culture, teacher self-efficacy, school effectiveness, and student achievement.

Gregory (2010) found mixed results regarding teacher perceptions in problem-solving teams. The most significant finding was that positive expectations at the onset of the problem-solving team significantly correlated with positive perceptions at the conclusion of the problem-

solving team. Sixty percent of teachers indicated in interviews that they had learned new intervention skills or become better teachers, but 40 percent reported they had not. Many of the teachers who did not have positive perceptions of the problem-solving team expressed frustration at feeling like they had to try a particular strategy when they believed it would not work as a result of membership on the team (Gregory, 2010). Martin and Gobstein (2015) found competition between the overarching goals of the NIC and the agendas of the smaller action committees and the complex organization and communication structure to be challenges that affected the perception of the NIC among members.

Plan-do-study-act cycles. The structure of the NIC is designed to execute rapid cycles of action-research in order to inform decisions, policy, or practice (Bryk, 2015). In education, leaders often attempt large-scale implementation of a new reform proposal, which ends up with disappointing results. The failure leads to waning enthusiasm and a move to the next idea without understanding the failure of the first one (Bryk et al., 2015). Improvement science is a learning to improve model and, although it holds the end goal of improving broad outcomes across classrooms, schools, districts, or states, it recognizes the complex systems involved in productive change. Therefore, change is structured into disciplined inquiry so that participants can learn what it takes to implement a new practice reliable with quality at scale (Bryk, 2015).

A key component of this concept is defining the expected outcome and how that will be measured. In addition, there should be a connection to a targeted aim that will lead to movement on the broad goal. Bryk, et al. (2015) offered three questions that will discipline this improvement science work:

1. What specifically are we trying to accomplish?

2. What change might we introduce and why?
3. How will we know that a change is actually an improvement? (Bryk, et al., 2015, p. 114).

Once the change idea is situated within these three questions the team engages in small, rapid tests that scale out as the improvement team learns (Bryk et al., 2015). Bryk (2015) offered key principles guiding this approach including learn quickly and cheaply when possible; minimize the negative effects of failure by being minimally intrusive; and develop empirical evidence at each step to guide the next step. This method allows the team to develop the technical knowledge required to execute an idea effectively; build practical expertise among the individuals so that they can coach others; and build will for change as early adopters experience efficacy in their daily work (Bryk et al., 2015).

The plan-do-study-act (PDSA) cycle, a basic method of inquiry in improvement research, is the framework for this work. The cycle is a process that involves articulating hypotheses based on a working theory, gathering data to test them, and analyzing the results to determine gaps in understanding that help the researcher adjust the working theory and determine next steps (Bryk, et al., 2015). It may take several PDSA cycles to develop a change idea that works. Once the idea works reliably, the PDSAs are scaled to other contexts adjusting with new learning throughout the process (Bryk et al., 2015). Throughout the PDSA cycles, there are key measurements that should be tracked in order to determine if the changes are successful. These include frequent measures of the change processes, watching for unintended consequences, closing the learning loop by keeping an eye on the overall theory of improvement, measuring the primary driver to determine if the change processes are resulting in improvement, and leading and lagging outcome measures- those which are both present as the change is occurring and after

it has occurred (Bryk et al., 2015). Martin and Gobstein (2015) found that the development of common measures was a factor leading to the common identity and united focus of the NIC.

Improvement science has a strong history in the health care industry where it has been in use for over two decades (Bryk, et al., 2010). The concepts have only recently been applied in education (Bryk et al., 2015). Tichnor-Wagner, et al. (2017) studied the use of PDSA cycles and found both possibilities and challenges with the process. Most participants reported value in the PDSA process, specifically in capacity building, but there were mixed levels of enthusiasm for actually carrying out the process due to challenges involving time to carry out the PDSAs and data collection (Tichnor-Wagner, et al., 2017). Martin and Gobstein (2015) found that some early leaders in the work experienced fatigue as they attempted to facilitate the work of PDSAs within their smaller team as well as provide guidance for the NIC as a whole, while completing existing job duties. Proger, et al., (2017) found that clarifying what participation entailed and aligning work with ongoing efforts were two actions that decreased potential burnout and increased the success of the PDSA cycle. It was also critical to embed capacity building around the use of improvement science as participants may not have experience in designing and engaging in continuous improvement research (Proger, et al., 2017).

Potential outcomes of improvement science. The concept of action research- of the teacher as researcher-is closely aligned to improvement science (Bryk, et al., 2015). Schutz and Hoffman (2017) discussed the application of action research in the field of literacy and identified the importance of the teacher as a continuous learner who adjusts theories and practice based on new knowledge, new research. These authors described the importance of advocating for action research as a powerful tool for teacher empowerment and in the effort to maintain the respect of

the teaching profession and offer these suggestions to increase the effectiveness of the work :

- Make it meaningful in the moment
- Expect and thrive in messiness, ambiguity, and uncertainty
- Find or create a community
- Share your practices (Schutz & Hoffman, 2017, pp. 4-5.).

Cabaroglu (2014) found that action research resulted in highly significant growth in teacher efficacy, improved problem- solving skills, and enhanced autonomous learning among teacher candidates. Shanks, Miller, and Rosendale (2012) discovered that teacher candidates participating in action research developed an understanding of issues occurring in practice, how to improve, and of the power of the role of teacher and the influence of the teacher on student outcomes. Phillips, et al. (2010) discovered a gap between theory and practice among teachers participating in action research as evidenced by the following challenges. Teachers felt a misalignment between the practice of action research, particularly structured collection of data, and their regular teaching duties. Teachers viewed the mandate from school leaders to participate in action research as an encroachment. The school leaders also acknowledged an increased burden as a result of the extra demands. These challenges resulted in feelings of disempowerment among teachers (Phillips, et al., 2010).

Tichnor-Wagner et al. (2017) found PDSA methodology with a system of practical measures provided NICs with a framework for learning, building capacity, will, efficacy, and technical knowledge to scale change effectively, but advancing change at scale is a demanding endeavor. It can be difficult to scale these ideas without a sufficient number of people with the technical knowledge, capacity, and will for change (Bryk et al., 2015; Martin & Gobstein, 2015; Proger, et al., 2017).

Leading Innovation for Tennessee (LIFT)

LIFT Education was a small group of committed superintendents working together to explore innovative approaches and share best practices that would benefit their students as well as other superintendents and school districts (“LIFT Education,” n.d.b). In 2016 LIFT partnered with TNTP (a non-profit education reform organization formerly known as The New Teacher Project) and focused their work on new classroom strategies, practices, and curriculum to improve reading in the early grades (“LIFT Education,” n.d.b; “TNTP Home Page,” n.d.). LIFT adopted the following shared problem of practice: “K-2 students are not yet accessing a high-quality literacy program that lays the foundation for meeting rigorous standards. District teachers and leaders have not yet fully made the shifts that ensure implementation of those standards”(LIFT Education, 2018, p.2). LIFT was comprised of 15 diverse Tennessee school districts that represented a variety of rural, urban, and suburban districts of different sizes across the regions of the state (“LIFT Education,” n.d.b). The work of LIFT was guided by the following principles:

1. Driving a Student-Centered Culture
2. High Standards and High Expectations
3. Teacher Quality/Effectiveness
4. Effective Instructional Leadership
5. Flexibility for Innovation
6. Multiple Pathways to Success for Kids
7. Rigorous and Transparent Accountability (“LIFT Education,” n.d.b; “TNTP Home Page,” n.d.).

LIFT’s theory of change was developed through the review of relevant research and

consideration of their unique contexts (LIFT Education, 2018). The Tennessee Educator Survey data showed that the average K-3 reading teacher spent 4.5 hours per week creating or sourcing materials for daily reading blocks and that half of instructional coaches helped teachers obtain resources and materials on a daily basis, though few believed it was the most effective use of their time (TN Department of Education, n.d.; LIFT Education, 2018). In addition, TNTP researchers found disparity in the strength of these materials during classroom observations (TN Department of Education, 2016). In order to meet the goal of 75 percent of Tennessee third grade students scoring proficient in ELA, the members of LIFT believed that teachers needed a foundation for their practice so that their limited and valuable time could be spent preparing for strong lesson implementation. Therefore, a critical piece of the theory of change for LIFT was the belief that strong instructional materials that reflected the demands of the Tennessee standards would drive significant improvements in classroom instruction (LIFT Education, n.d.a). Teachers in LIFT districts demonstrated improvement in instruction during the first year of implementing a pilot of aligned instructional materials, which indicated that strong instructional materials were an essential tool in improving early literacy instruction, but the network also experienced critical learning that further developed the theory of action (LIFT Education, 2018b).

LIFT Education (2018-b) found that although strong instructional materials were a critical piece of improving instruction, they alone did not lead to universally strong instruction. Teachers required sustained, resource-specific, and job-embedded support to implement the materials well (Chingos & Whitehurst, 2012; LIFT Education, 2018-b; Steiner, 2017). An important aspect of the LIFT theory of action was that the change was led by district and building-level leaders, which required deep content knowledge around the standards, shifts, early

literacy instruction, and instructional materials (LIFT Education, 2018-b; Steiner, 2017). Finally, change management is critical to systems-level course adjustment (LIFT Education, 2018b). Therefore, the three unique elements of LIFT's work included building capacity of leaders to develop and lead a shared vision, implementation of strong, aligned instructional materials, and change management through the Concerns-Based Adoption model (LIFT Education, 2017).

Increasing leader capacity. Leithwood, Patten, and Jantzi (2010) found that leadership practices had a significant effect on student achievement. Within those leadership practices, organizational practices (managing instructional time and professional learning communities) were most strongly correlated as leadership behaviors. The second strongest correlation was for practices such as academic press, disciplinary climate, and collective teacher efficacy. Organizational practices most strongly correlated with leaders had the least significant effect on student achievement, while the next set of correlated practices- collective teacher efficacy, academic press, and disciplinary climate- had the most significant effects on student achievement (Leithwood et al., 2010). Leithwood et al. (2010) recommended that leaders focus limited time and attention on the aspects of leadership with the most significant effect on student achievement. School leaders influence student outcomes through the academic climate (Robinson, Lloyd, Rowe, 2008; Supovitz, Sirinides, & May, 2010). MacNeil, Prater, and Busch (2009) found academic climate to be a common characteristic of high-performing schools. Heck (2006) found academic climate to mediate the influence of socioeconomic status on achievement. Leithwood and Jantzi (2008) and Heck (2006) found that the school principal influences the academic climate through his or her leadership behavior. Focus on instruction through communicated goals, involvement with teachers, influence over instructional policies,

and relationship with district and parents are leadership factors that influence the academic climate (Robinson, et al., 2008; Supovitz et al., 2010). Urick and Bowers (2014) found that higher principal perceptions of academic climate led to higher student achievement. Allen, Grigsby, and Peters (2015) found a positive relationship between transformational leadership and school climate, however a relationship was not found between transformational leadership and student achievement or between school climate and student achievement.

Northouse (2016) identified transformational leadership as a pivotal factor in change because followers and leaders are inextricably bound together in the transformation process. Northouse (2016) noted that a transformational leader creates connections that raise the level of motivation and morality in both the leader and follower, is attentive to the needs of followers, and helps followers reach their full potential. Transformational leaders inspire followers to become committed to the shared vision and mission. The transformational leader provides a supportive climate, structures for change, and stimulates followers to be innovative and to challenge their own beliefs. Transformational leaders move a group to accomplish more than what was expected (Northouse, 2016). Exemplary leaders of change have been found to lead by example, inspire a shared vision, challenge the status quo, empower and enable others to act, and encourage followers to carry out the mission (Kouzes & Posner, 2007). Fullan (2012) found relentless and focused leadership at the center of the effort to be a significant factor in the success of educational reform.

Day, Gu, and Sammons (2016) found evidence that successful principals achieve and sustain improvement through a combination of transformational and instructional leadership strategies. Sustained effectiveness was not primarily the result of the principal's leadership style, but of the leadership behaviors associated with the transformational style: diagnosing school

needs, clearly articulating shared educational values, and embedding these values in the work, culture, and achievements of the school (Day et al., 2016). Robinson et al. (2008) found that the average effect of instructional leadership on student outcomes was three to four times that of transformational leadership. The factors associated with instructional leadership included establishing goals and expectations; resourcing strategically; planning, coordinating, and evaluating teaching and curriculum; promoting and participating in teacher learning and development, and ensuring an orderly and supportive environment (Robinson et al., 2008). Hord, Rutherford, Huling, and Hall (2014) found that creating and sustaining momentum required both focused and widespread instructional leadership. District and school leaders set the direction of the work, cleared obstacles, and developed a deliberate strategy around both immediate and long-term priorities (Hord et al., 2014).

Capacity must be built in both content knowledge and change strategy to successfully implement change in literacy (Stein, 2012). An important early learning in the work of LIFT was that leader content- area knowledge was essential in supporting teachers (LIFT Education, 2017). Novack and Houck (2016) determined that educational leaders who are not proficient in their knowledge of literacy instruction have difficulty identifying the key characteristics of excellent teachers. Principals must understand the foundational research-based practices that support literacy instruction and what effective instruction looks like (Chingos & Whitehurst, 2012). LIFT intentionally built leadership capacity through knowledge-building sessions on the principles of early literacy instruction, the Instructional Practice Guide (IPG)- a classroom observation tool, discussion of high-quality instructional materials, participation in virtual professional learning communities, regional convenings on key topics, norming on high-quality practices, and discussing key implementation strategy (LIFT Education, 2017).

One key lever for increasing leader capacity was monthly classroom observations using the IPG that allowed leaders to norm classroom instruction based on a shared vision of quality literacy instruction (LIFT Education, 2018a). Novak and Houck (2016) found that the use of a classroom observation tool resulted in significant change in the development of common practices and the establishment of a literacy culture. Novak and Houck (2016) identified the following positive purposes to professional learning for leaders using literacy classroom visits:

- Establish a body of evidence about the overall literacy culture and instruction
- Identify instructional patterns including strengths and weaknesses
- Provide data to identify resource needs
- Guide professional learning planning
- Inform a school community about the implementation of professional learning goals
- Ensure that students are learning and meeting expectations (pp. 50; 56)

Beecher, Abbott, Petersen, and Greenwood (2017) and Benjamin (2011) found that the use of quality checklists and rubrics in classroom observations allowed leaders to set expectations, attend to progress, refine strategy, and overcome leadership shortcomings by aiding in setting vision and developing content knowledge. The use of observation tools was found to be helpful in focusing leader attention on critical goals, strategies, and progress (Benjamin, 2011).

The concerns-based adoption model. The leader at the forefront of systemic change, sometimes labeled change agent or change facilitator must understand the change process and form a strategic plan for the implementation of the change process (Hord et al., 2014). A change facilitator performs key strategies and actions to support change including developing a shared vision of the change, providing professional learning around the change, devising an

implementation plan and securing required resources, guiding the implementation progress, providing ongoing support, and developing a culture and structures that support change (Hord et al., 2014).

Hord et al. (2014) defined key principles of change that leaders must understand. Leaders must recognize and appreciate the complexities of change and understand that change happens over time. Individuals accomplish change, so individuals should be the focus of implementation, not the initiative. Each individual reacts differently to change and support should be differentiated to the varied needs of individuals. Change involves developmental growth. Teachers relate to change or improvement in terms of how it will affect them (Hord, et al., 2014). LIFT utilized the Concerns Based Adoption Model (CBAM) as a guide in developing a strategic plan for implementation and professional support (LIFT Education, 2018a).

The Concerns-Based Adoption Model (CBAM) was developed by a team of researchers at the Research and Development Center for Teacher Education at the University of Texas at Austin (Hord et. al, 2014). George, Hall, and Stiegelbauer (2006) completed the most recent reliability and validity testing and updated the Stages of Concern Questionnaire, which is a formal tool that can be used to monitor the change process using the CBAM. The CBAM looks at change from two perspectives, the teacher and the initiative. The teacher perspective identifies stages of concern related to the individual, while the initiative perspective looks at stages of implementation of the initiative. Both perspectives are helpful in determining where individuals or organizations fall on the spectrum of change implementation and how this can direct next steps from a leader's perspective (Hord et al., 2014).

The CBAM is utilized in a variety of ways from developing change strategy to assessing successful change (Hord et al., 2014). Gabby, Avargil, Herscovitz, and Dori (2017) studied

technology implementation using the CBAM and found that teachers moved through the stages of concern and implementation at different rates; therefore, it is necessary to differentiate according to level of concern or implementation. Saunders (2012) found the CBAM to be an effective framework to understand the professional change of teachers, both for the purposes of support and assessment. Trapani and Annunziato (2018) used the CBAM as a research instrument to evaluate the efficacy of an implementation plan for a new instructional strategy. Trapani and Annunziato (2018) found the CBAM to be useful in directing administration to provide what each individual needed at each stage of implementation. Individual teachers progress at different rates in understanding the impact on learning and require different supports in their classrooms.

According to the CBAM, a teacher or other user progresses through predictable stages of concern when implementing a change. These include awareness, informational, personal, management, consequence, collaboration, and refocusing. These stages of concern are based on how the teacher perceives the initiative in relation to the effect it will have on him/her personally and professionally (George, Hall, & Stiegelbaur, 2006; Holloway, 2003; Hord et al., 2014). Stages of concern may be evaluated formally using teacher survey or informally by listening to teacher language (George et al., 2006). Leaders should attend to both organizational level and individual level stages of concern in order to manage change effectively (Hord et al., 2014). Progression through stages of concern can also serve as soft indicators of the success and sustainability of a change initiative while waiting for hard indicators such as student achievement data (George et al., 2006; Trapani & Annunziato, 2018). These indicators are present in the shifting mindsets and perspectives of teachers implementing change (Fullan, 2012; Hord et al., 2014).

The CBAM also considers the predictable stages through which a teacher progresses in regard to the practice of implementation in the classroom. The focus is on what the individual or group is doing or not doing (Hord et al., 2014). Classroom observations can be insightful in informing progress through the CBAM levels of use (Hall, Dirksen, & George, 2006). The levels of use include nonuse, orientation, preparation, mechanical, routine, refinement, integration, and renewal (Hall et al., 2006; Hord et al., 2014). Evaluating level of use for both the organization and the individual helps leaders determine appropriately sequenced and timed professional learning and support (EL Education, n.d.; LIFT Education, 2018a). LIFT utilized this research in order to guide leaders in planning for appropriate professional learning and support through the creation of the phases of implementation document, which offered suggested professional learning for each phase of curriculum implementation (LIFT Education, 2018a).

Curriculum implementation. Independent analyses and reviews can be utilized to examine the weaknesses in common curricula to meet the demands of the standards (“EdReports.org”, n.d.; Heiten, 2015). EdReports, an independent, nonprofit that reviews instructional materials, found the top three publishing companies for English language arts curriculum failed to meet review criteria (“EdReports.org”, n.d.). Kane, Owens, Marinell, Thal, and Staiger (2016) found that 80% of English teachers and 72% of math teachers surveyed reported using self-developed or self-sourced materials on a weekly basis. Opfer, Kaufman, and Thompson (2016) analyzed state and national survey data and found corroborating evidence of high teacher use of self-developed or sourced materials: 82% of elementary and 91% of high school teachers reported the use of self-developed or self-selected materials at least once a week. LIFT worked to build leader capacity in content knowledge and change management for the

purpose of successfully implementing their identified change initiative- strong, aligned instructional materials (LIFT Education, 2018b). LIFT's working theory was that strong instructional materials that reflect the demands of the Tennessee standards would drive significant improvements in classroom instruction, which would lead to improvement in third grade reading achievement (LIFT Education, 2018b).

An analysis of the research housed on the What Works Clearinghouse (WWC) identified curricula that produced significant positive effects on student achievement supporting the conclusion that curriculum is a critical factor in student academic success (Institute of Education Services, n.d.). Borman, Dowling, and Schneck (2008), found a gain of 10 percentile points associated with specific reading curricula. Zucker, Tinker, Staudt, Mansfield, and Metcalf (2008) found significant gains (24 percentile points) associated with a particular science curriculum. Kane et al. (2016) reported students using a specific math textbook scored an average of 4 percentile points higher than similar students using other textbooks or no textbook. Kane et al. (2016) also found the average student using a different textbook scored 6 percentile points lower. These significant findings support that curriculum choice matters in student achievement (Kane et al., 2016).

Steiner (2017) reported the following findings revealed in the research review on the effects of curricular choices in K-12 education:

- Curriculum is a critical factor in student academic success.
- Comprehensive, content-rich curriculum is a common feature of academically high-performing countries.
- The cumulative impact of high-quality curriculum can be significant and matters most in the upper grades.

- Because the preponderance of instructional materials is self-selected by individual teachers, most students are taught through curricula that are not defined by districts or state.
- Research comparing one curriculum to another is rare and therefore, usually not actionable. (p. 1)

Steiner (2017) found that the shift from a weak curriculum to a strong one has an especially large effect, as much as a 10 percentile point gain. Steiner (2017) also identified challenges with research that examined curriculum effectiveness including a broad definition of curriculum and lack of research in the areas of curriculum development, what makes curriculum effective, differences in content-rich and skills-based curricula, questions around the fidelity of curriculum study, and extraneous variable regarding to instructional practice that may affect curriculum research..

In a study that examined the effort of the Louisiana state department of education to align instruction to standards, Kaufman, Thompson, and Opfer (2016) found key differences between Louisiana teachers and other U.S. teachers. Louisiana teachers were using instructional materials aligned with state standards more frequently than teachers in other states. Louisiana teachers demonstrated a more accurate understanding of approaches and practices aligned with Common Core State Standards for ELA compared with teachers in other states. Louisiana ELA teachers were more likely to report that their students engaged in practices aligned with Common Core state standards such as more text-centered practices (Kauffman et al., 2016). Specific state systems and strategies have been implemented to support Louisiana teachers in the implementation of standards such as a coherent academic strategy including curricula, professional development, and student assessments; transparent and regular communication

about academics within the state department and across the layers of the education system; and strong support for local decision-making and ownership of change by districts and teachers (Kauffman et al., 2016) . The findings of the study prompted Kauffman et al. (2016) to recommend that states vet and recommend high quality, aligned curricular and professional development tools to allow districts and teachers to focus more energy on supporting student learning.

Chingos and Whitehurst (2012) reviewed the research regarding instructional materials, teacher effectiveness, and the common core and found a trend in the lack of research on the effectiveness of curriculum materials. Chingos and Whitehurst found that publishers of instructional materials were declaring the alignment of their materials to the Common Core standards with superficial definitions and that most materials had not been thoroughly evaluated. Chingos and Whitehurst also found that implementing higher quality curriculum had a large and significant effect (0.17) on student test scores and that this effect was largest for the weakest teachers. Jackson and Makarin (2016) found that the effect size of using well- designed math lessons on student test scores was significantly larger for weaker teachers than for stronger teachers. As a result of the findings, Chingos and Whitehurst (2012) concluded that quality instructional materials were a critical factor in aligning instruction to standards and improving teacher effectiveness. Johns Hopkins Institute for Education Policy (referred to as the Institute) (2017) used these findings to support the claim that investment in curriculum components are a scalable method to affect the weakest teachers, who are disproportionately present in high- needs classrooms.

Crowe, Connor, and Petcher (2009) examined curricula, poverty, and reading achievement and found that curriculum was a significant factor in student success, particularly

for students who come from low socio-economic status backgrounds (Kaufman, Thompson, & Opfer, 2016). Bhatt and Koedel (2013) found that math textbook choice showed significant effects on test scores. Bjorklund-Young (2016) found that particular curricula can outperform others with regard to students learning specific math content. Polikoff and Corey (2017) compared the effects of four common elementary math curricula and found that students using one particular curriculum consistently outperformed those using the others. Jackson and Makarin (2016) found that the use of scripted lessons showed significant effects on student outcomes, especially for weaker teachers. Dee and Penner (2016) found that Black and Latino students enrolled in courses featuring culturally relevant themes and texts increased GPA, attendance, and credit accumulation. Hattie (2009) found an average curriculum effect size of +0.45, which was larger than the influence of a student's home or school. Curriculum decisions affect student outcomes in different ways, but research supports curriculum choice as a factor in student achievement (Chingos & Whitehurst, 2012).

Fasimpaur (2012) reviewed states using open educational resources (OER) that are aligned to Common Core state standards and recommended that districts considering OER consider the unique student needs in the selection of curriculum, align programs to goals and vision, involve teachers from the beginning, offer resource-specific professional development, and use OER to customize curriculum and differentiate learning. The Institute (2017) completed case studies on aligned curriculum implementation in multiple states and found these common recommendations: use incentives, not mandates, to maintain local autonomy; emphasize evidence and start small if a research basis hasn't been developed; leverage teacher expertise and teacher leaders in the work; and provide professional learning focused on curricular content. LIFT's focus on selecting and implementing an aligned curriculum as a driver to improve student

achievement was based on research and statewide data. It was a unique support offered by the network (LIFT Education, 2018b).

Summary of Similarities and Differences Between Networks

The three Tennessee literacy networks shared the common long-term goal of improving third grade reading achievement and the immediate goal of changing teacher practice in the classroom to align with the shifts required by the Tennessee Academic standards (LIFT Education, 2018b; Tennessee Early Literacy Network, n.d.b; TN Department of Education, 2018). The three networks had measurement tools in place that varied slightly. RTBR and LIFT both collected teacher survey and classroom observation data (LIFT Education, 2018b; TN Department of Education, 2018), while TELN focused on various process and driver measures and survey data regarding the health of the network (Tennessee Early Literacy Network, n.d.b). Examination of recent data for all three networks could be used to support gradual instructional change in classrooms, but teachers in all networks had yet to fully exhibit instruction that reflected the shifts required by the Tennessee state standards in ELA (LIFT Education, 2018b; Tennessee Early Literacy Network, n.d.b; TN Department of Education, 2018). The progress in instructional practice of teachers in LIFT slightly outpaced RTBR, and TELN did not have a clear measurement tool for network wide change in instructional practice (LIFT Education, 2018b; Tennessee Early Literacy Network, n.d.b; TN Department of Education, 2018). .

Learning was shared among networks. Learning from one network guided next steps in other networks so that some aspects of work overlapped (LIFT Education, 2018b). Examples of overlap included the use of improvement science methods in LIFT and the development of unit starters in RTBR, but key differences in these practices remained. Unlike TELN where

improvement work was practiced by teachers in school teams within NICs, LIFT's improvement science work was practiced by leaders and TNTP to guide change management strategy (LIFT Education, 2018-b; Tennessee Early Literacy Network, n.d.b). Although, RTBR initiated the development of unit starters as an example of aligned curricular materials, they were not comprehensive and were developed as a model for teachers to aid in teacher development of curriculum rather than the implementation of a published and vetted quality-aligned curriculum (LIFT Education, 2018b; TN Department of Education, 2018). As of 2018, there had not been a significant difference in the achievement outcomes of the districts involved in the three networks and statewide achievement data had not significantly improved (LIFT Education, 2018b; Tennessee Early Literacy Network, n.d.a; TN Department of Education, 2018b; TN Department of Education, n.d.b). There were noticeable differences in the underlying philosophies in leadership, professional development, teacher expertise, and teacher autonomy of the three networks (LIFT Education, 2018b; Tennessee Early Literacy Network, n.d.b; TN Department of Education, n.d.). The research presented in the previous sections supports the idea that these differences in models of support may result in different outcomes in teacher expectations, teacher self-efficacy, and collective teacher efficacy. These mindset factors may serve as leading indicators of progress in the implementation of change in instructional practice (Fullan, 2012; Hord et al., 2014).

Teacher Mindsets

Hattie (2018), in his most recent ranking of influences related to student achievement listed collective teacher efficacy as the most influential indicator and teacher estimates of achievement as third. Teacher self-efficacy, which is closely related to collective teacher efficacy

has been found to influence achievement in multiple studies (e.g. Goddard et al., 2000, 2007; Miller, Satchwell, Miller, & Satchwell, 2007; Rubie-davies & Rosenthal, 2016; Tschannen-Moran & Hoy, 2007; Tschannen-Moran et al., 1998). Furthermore, these variables have been associated with effective and sustained change in multiple studies on school reform (Fullan, 2012; Hord et al., 2014). Changes in mindset often precede lasting change in practice and significant change in student achievement and therefore, are considered early indicators of success in reform efforts (Fullan, 2012; Hord et al., 2014).

Teacher Expectations

Teacher estimates of achievement ranked third in effect size on Hattie's 2018 updated list of factors related to student achievement ("Hattie effect size list- 256 Influences Related to Achievement", n.d.; Hattie 2008, 2009). Hattie (2012) found that teacher expectations have an effect size of 0.43, demonstrating that they are a powerful influence on student learning. ASCD (2005) commissioned a study to compare common trends among high poverty, high performing schools and found statistically significant differences between the high- and low- performing schools on 22 of the 88 indicators. The most significant indicator was the belief that all students can succeed at high levels; high expectations was number two on the list; followed by teachers accept their role in student success or failure at number four (Albanese, 2015; ASCD, 2005).

Rosenthal and Jacobson (1963) identified teacher expectations as a powerful influence and coined what is now known as the *Pygmalion Effect*. Rosenthal and Jacobson (1963) told teachers that certain students would show exceptional gains based on their scores on a particular test, when in reality students had been randomly assigned to test and control groups. The students randomly assigned to the test group showed significantly greater gains than did the other

students (Rosenthal & Jacobson, 1963). The *Pygmalion Effect* results in a cycle wherein positive teacher beliefs influence productive teaching behaviors which impact students' positive beliefs about their own ability which lead to positive actions toward their teachers, which reinforce the teacher's positive beliefs (Donohoo, 2017). Hattie (2012) found that the effect size of the expectations a student has about his or her own success is 1.44, second only to collective teacher efficacy in regard to factors that influence student achievement.

Brophy (1983) found that this cycle is also accurate in reverse. *The Golem Effect* is a phenomenon that occurs when teachers' low expectations lead to decreased performance (Brophy, 1983). Brophy found that when teachers hold low expectations they employ inconsistent teacher actions toward low expectation students, including less wait time for students to respond and rewarding incorrect answers. Graham (1990) suggested that students gain attributions about the causes of their learning behavior from teacher actions. For example, the communication of pity or unsolicited help could send messages to students that they are incompetent or incapable (Graham, 1990).

Both the *Pygmalion* and *Golem Effects* have been upheld in recent research. Sorhagen (2013) found that when teachers underestimated the ability of their first grade students in math and reading, those students tended to score lower on test measures at age 15, even when controlling for ability, gender, ethnicity, family income, and noncognitive factors that influence achievement. Conversely, when a student's academic abilities were overestimated, his or her later performance was higher (Sorhagen, 2013). Sorhagen found significant interactions between students' family income and teachers' misperceptions of ability, so that teacher underestimation of ability had a stronger impact on students from lower income homes. Similarly, Hinnant, O'Brien, and Ghazarian (2009) found that low teacher expectations from first grade negatively

influenced the outcomes of low-income students in grade 3 and grade 5, but not high-income students.

Babad (2009), Jussim, Robustelli, and Cain (2009), and McKnown, Gregory, and Weinstein (2010) all found that teachers' expectations often become confirmed in reality even when controlling for prior ability or when teacher's perceptions of students are incorrect. Troia and Graham (2016) found that the students of teachers who held high expectations outperformed students who had teachers with low expectations when controlling for prior ability, socioeconomic status, and cognitive ability. McKnown and Weinstein (2008) found that after controlling for prior achievement, teacher expectations explained more of the achievement gap between stereotyped and non-stereotyped groups in high bias classrooms than in low bias classrooms. Rubie-Davies et al. (2006) explored the difference in teacher expectations and reading achievement and found despite similar initial achievement levels, the low teacher expectations of the minority students were correlated with a decline in reading performance. TNTP (2018c) found that teacher expectations had the largest affect out of the factors measured on student growth, with students in classrooms in which teachers held high expectations growing on average 4.6 months more than students in classrooms with teachers with low expectations. These results were even greater for students who started the year substantially behind their peers (TNTP, 2018c).

The effect of teacher expectations on instructional decisions. Tate (2005) found that the presence of low expectations impacted the opportunity to learn by affecting content, time, and quality. Standholtz, Ogawa, and Scribner (2004) found that the beliefs held by school personnel influenced adaptations to state standards at the local level. As a result of concerns

about student ability, standards were differentiated by creating three levels and applied to students based on perceptions about student academic ability (Standholtz, et al., 2004). TNTP observers in Tennessee classrooms found that groups of students for whom teachers typically hold lower expectations such as minorities, students with disabilities, English language learners, and low socio-economic status students rarely had access to grade level content or texts (TN Department of Education, 2016). TNTP (2018c), in a national study, found that students tended to meet teacher expectations for assignments, yet access was withheld to four key resources: grade-appropriate assignments, strong instruction, deep engagement, and teachers who hold high expectations. Students of color, those from low-income families, English language learners, and students with mild to moderate disability had even less access to these resources (TNTP, 2018c). TNTP (2018c) found that 71 percent of students succeeded on their assignments, but only 17 percent of assignments met the rigor of grade level standards.

TNTP (2018c) used survey data to reveal a deficit mindset trend among teachers nationally in which they viewed students through the lens of inability instead of ability. Harris (2012) found that 54% of teachers surveyed believed their students were not capable of learning the material required and that 84% felt that students were not ready for problem solving until they had acquired the basics. Harris (2012) observed that these perceptions affected how they implemented the standards. Teachers in the study tended to modify the expectations of the standard or stratify the requirements of standard which included applying different standards for judging student work or assigning grades based on effort (Harris, 2012). The Tennessee department of education (2016) found a similar trend in survey data- more than 50 percent of Tennessee teachers did not believe the Tennessee academic standards were appropriate for their students or that their students could meet the rigor of the standards (TN Educator Survey, 2016).

Explanations for teacher expectations. Brault, Janosz, and Archambault (2014) found that school composition and school climate were related to teacher expectations. School composition had the greatest effect with a direct link to socio-economic status, but school climate was also of importance (Brault et al., 2014). Diamond, Randolph, and Spillane (2004) found that school personnel held different expectations for students based on school composition. Balfanz (2000) and Rumberger and Palardy (2005) found that urban school personnel that served a large number of minority students or socioeconomically disadvantaged students were at higher risk for holding lower expectations than personnel that serve mostly White, Asian, and middle-income students. Vroom (1964, 2013) described a phenomenon known as the *expectancy theory* in which motivation is influenced by a person's belief that he or she is capable of doing the work and that their success will be noticed. The belief in capability is related to self-efficacy, which is often influenced by mastery experience (Hoy & Miskel, 2013). Brault et al. (2014) suggested that schools with more challenging demographics may believe that their hard work will not result in success and therefore, lose motivation for the work and lower expectations. Harris (2012) found that teacher perceptions about the differences in student backgrounds influenced teacher expectations. These studies support the phenomenon of defensive pessimism, a term psychologists use to describe the lowering of expectations in order to cope with the anxiety arising from difficult situations (Donohoo, 2017).

Dweck (2006) found a relationship between fixed and growth mindset and expectations. A fixed mindset, also known as stable mindset, of ability assumes that ability is a stable and uncontrollable trait. A person with a fixed mindset believes concepts such as talent and intelligence are characteristics that are not affected by effort or education (Dweck, 2006). A growth mindset, or incremental mindset, on the other hand, assumes that ability can be improved

(Dweck, 2006; Hoy & Miskel, 2013). Rodriguez (2012) and Harris (2012) found trends that indicate some teachers project their fixed mindset onto their students by viewing them with a deficit lens and applying negative labels (Dweck, 2006, Rodriguez, 2012).

Harris (2012) found teachers tended to attribute lack of student achievement to student IQ, home life, culture, and lack of student responsibility. Teacher comments indicated that they felt student achievement was beyond their control due to the strength of the influence of these factors (Harris, 2012). Even trends that surfaced such as the lack of necessary skills for student engagement were revealed through comments related to engaging students from difficult backgrounds or with academic deficits rather than a need for a change in pedagogy (Harris, 2012). Diamond et al. (2004) found similar trends among teachers working with mostly Black and socioeconomically disadvantaged students. These teachers focused on the academic deficits of the students, which affected the teachers' beliefs about academic responsibility (Diamond et al., 2004). Teachers in these schools had a lower sense of responsibility for student learning than teachers who were teaching mostly White, Asian, and middle-income students (Diamond et al., 2004). Weinstein (1996) explained that when teachers do not assume responsibility for student learning, they are less likely to associate lack of progress with ineffective instruction and more likely to view students and their families as obstacles to improving outcomes. Flessa (2009) found that deficit thinking resulted in a school culture in which the burden to change fell on students and families rather than school practices or individual teachers. Individuals with a fixed mindset tend to set performance goals that they know they can achieve in order to protect their self-esteem (Dweck, 2006).

Factors affecting teacher expectations. Rubie- Davies and Rosenthal (2016) found that

professional development that described the practices of teachers with high expectations was successful in increasing teacher expectations. Rodriguez (2012) reported that transparent conversation about teacher mindsets and intentional efforts to change dialogue as part of changing school culture also resulted in raising teacher expectations. Northouse (2016) noted that achievement oriented leadership in which the leader holds high expectations for followers and believes in their ability to achieve those expectations and path-goal leadership in which the leader adjusts leadership styles according to the task and needs of the followers could affect teacher expectations. Transformational leaders may also affect teacher expectations through intentionally inspiring a shared vision and encouraging the group to articulate individual and shared aspirations (Northouse, 2016; Senge, 2012). In addition, Northouse (2016) noted that the self-awareness of competence of the transformational leader may transfer to followers creating feelings of confidence and high expectations. Teachers' expectations may be affected by a misunderstanding regarding the rigor of the standard exacerbated by misaligned materials and assessment (TNTP, 2018c; Troia & Graham, 2016). TNTP (2018c) found that implementation of aligned instructional materials and assessments as part of a shared vision, accompanied by student success with these materials resulted in increasing expectations as evidenced on teacher surveys.

Timperley and Phillips (2003) found that teachers who received intensive professional development in the implementation of a new literacy program had significant increases in the expectations about the progress students can make in school, student readiness for school, self-efficacy, school self-efficacy, and literacy priorities. Analysis of follow-up interview questions was used to support the idea that changed expectations were a result of improved student achievement (Timperley & Phillips, 2003). Timperley and Phillips (2003) found that there was a

significant shift in responsibility for student learning in the post-course survey as compared to the pre-course survey in which external school factors such as the inadequacies of students and their parents scored higher. Additionally, teachers reported an increased confidence in using their skill to influence student outcomes (Timperley & Phillips, 2003). These significant results were found in all but one school, which decided not to adopt the program, in the study (Timperley & Phillips, 2003).

Curricular decisions as a mediating factors. Bohlmann and Weinstein (2013) found that classrooms that were observably highly differentiated by ability resulted in congruence between teacher and student perceptions of ability- that is higher teacher expectations were correlated with higher student expectations and lower teacher expectations were correlated with lower student expectations for ability, while classrooms that were not highly differentiated resulted in a gap between teacher and student expectations, with student often rating their expectations higher than the teacher ratings. Furthermore, when cognitive ability was considered, students of high cognitive ability tended to rate themselves lower in highly differentiated classrooms whereas high cognitive ability students in less differentiated classrooms tended to rate themselves higher. There was not a correlation between teacher reported differentiation, only classrooms in which the observable differentiation practices made teacher expectations explicit to students (Bohlmann & Weinstein, 2013).

Pugach and Warger (2001) examined the availability of the general curriculum for special education students and found that those students who had access to the general curriculum outperformed those who were taught using materials believed to be on their instructional or ability level. Zwiers (2008) found that English language learners acquired knowledge and

vocabulary faster with supported exposure to grade level content rather than modified content. Card and Guiliano (2016) found that access to rigorous coursework increased student achievement for Black and Latino students.

TNTP (2018c) found a correlation between teacher expectations and the rigor of the assignments. Students who were in classrooms in which the teacher held high expectations were provided instruction and assignments that were grade level appropriate and on average grew more than one year more as compared students whose teachers did not offer these resources (TNTP, 2018c). TNTP (2018c) found the relationship between expectations and curricular decisions to be cumulative. Students who had access to grade-level appropriate assignments grew 7.3 months more, students with access to grade level instruction grew 6.1 months more and students with teachers who held high expectations grew 7.9 months more than students in classrooms with lower teacher expectations and less rigorous curriculum (TNTP, 2018c).

Teacher Self-Efficacy

Self-efficacy is a person's perception of his or her ability to accomplish a goal or complete a task (Hoy & Miskel, 2013; Tschannen-Moran, & Hoy, 2001). Self-efficacy beliefs contribute to motivation by affecting goals, effort, perseverance, and resilience to failure (Hoy, & Miskel, 2013). Bandura (1994) found that self-efficacy significantly affected behavior. People without self-efficacy did not expend effort because they perceived effort to be futile (Bandura, 1994). Individuals with a growth mindset are more likely to believe in their ability to complete a goal with hard work and perseverance, whereas an individual with a fixed mindset is more likely to believe their ability to complete a task is predetermined (Dweck, 2006; Hoy & Miskel, 2013; Tschannen-Moran & Hoy, 2013). Hattie (2009) found that self-efficacy is positively correlated

with student achievement. It was ranked eleventh on Hattie's list of 252 factors that related to student achievement ("Hattie effect size list- 256 Influences Related to Achievement," n.d.).

Guskey and Passaro (1994) defined teacher self-efficacy as the perceived capability to impart knowledge and influence student behavior. Bandura (1977) theorized that teacher self-efficacy beliefs are related to the effort they invest in teaching, the goals they set, their persistence through struggle, and their resilience in the face of failure. Hoy and Miskel (2013) define teacher self-efficacy as the teacher's belief in his or her ability to accomplish a specific teaching task within a specific context. Teachers do not feel equally efficacious for all teaching situations. When a teacher judges his or her efficacy the teacher analyzes the teaching task, the context, and skills in relation to the demands of the task (Hoy & Miskel, 2013).

Factors affecting the development of self-efficacy. Bandura (1997) found mastery experience to be the most influential source of self-efficacy. Success is particularly effective at building self-efficacy when it occurs early in the learning process and with few setbacks (Bandura, 1997; Hoy & Miskel, 2013; Tschannen- Moran & McMaster, 2009). Mastery experience is cyclical in that success leads to increased motivation, which leads to increased effort, which leads to recurrent success (Bandura, 1997; Hoy & Miskel, 2003). Recurrent successes raise perceptions of self-efficacy, whereas failures produce self-doubts, especially if failure occurs early and does not reflect a lack of effort or opposing external influences (Hoy & Miskel, 2013). Timperley and Phillips (2003) found that increased student achievement correlated with increased feelings of self-efficacy, increased expectations about potential student progress, and increased feelings of personal responsibility in student learning. Tschannen-Moran and Woolfolk Hoy (2007) found that self-efficacy effects may be diminished when success is

achieved with extensive external assistance, after considerable effort, or on a task that is perceived as easy or unimportant.

Other factors that influence the development of self-efficacy are modeling and vicarious experience, verbal persuasion, and physiological and affective states (Hoy & Miskel, 2013). Tschannen-Moran and Hoy (2007) examined relationships between contextual elements including abundance of teaching materials, various forms of verbal persuasion, and mastery experience. Of these, mastery experience was moderately related to teacher sense of efficacy for both novice and career teachers. For career teachers, verbal persuasion from administrators, colleagues, parents and the community was also correlated with their rating of satisfaction with their professional performance- but not their sense of self-efficacy. Verbal persuasion from colleagues and support of the community made a significant contribution to explaining self-efficacy beliefs in the regression analysis for novice teachers (Tschannen-Moran & Hoy, 2007). Tschannen- Moran and Hoy hypothesized that the lack of verbal persuasion as a predictor of self-efficacy beliefs among career teachers may indicate that with the accumulation of mastery experiences, verbal persuasion becomes less significant in sustaining teachers' self-efficacy beliefs.

Vicarious experience- observing another person successfully performing the task- is another source of self-efficacy (Hoy & Miskel, 2013). Bandura (1997) found that because teaching lacks absolute measures of success, teachers evaluate their ability in relation to the performance of others. Bandura (1997) explained that with vicarious experience the observer evaluates his or her capabilities against the standard provided by the model. This can help the observer set goals for his or her own teaching. Tschannen- Moran and Hoy (2007) found that the greater the similarities between the observer and the model, the greater the influence on self-

efficacy beliefs.

Bandura (1997) found that people rely partly on information conveyed by physiological states when judging their own capabilities. Gregoire (2003) theorized that anticipation or anxiety can influence self-efficacy beliefs. Elevated heart and respiratory rate, increased perspiration, or trembling hands are examples of physiological states that may have positive or negative effects, depending upon whether the situation is seen as a challenge or a threat. Moderate levels of arousal when perceived as a challenge can improve focus, attention, and energy on the task, whereas high levels of arousal perceived as a threat might interfere with the use of skills and capabilities (Gregoire, 2003).

Self-efficacy and instructional reform. Guskey (1986) hypothesized that the majority of instructional improvement programs fail because they do not consider what motivates teachers to engage in professional development or the change process. Sahid and Thompson (2001) found teacher self-efficacy to be a powerful influence on receptivity to change. Gregoire (2003) explained variations in teachers' self-efficacy through their response to instructional reform. In particular, self-efficacy will affect how the teachers view and respond to the reform. If teachers feel they are already implementing the reform, they will process the change superficially, however, if teachers feel implicated by the reform they will experience stress and discomfort. Teachers in this position with low self-efficacy tended to respond to the initiative as a threat, leading to avoidance and superficial change while teachers with high self-efficacy and who feel supported with resources and time responded to the reform as a challenge and engage in deeper implementation of the change (Gregoire, 2003).

McKinney, Sexton, and Meyerson (1999) found that as teachers who were introduced to

new literacy teaching strategies moved through the three stages of initiation, implementation, and refinement, there was a significant relationship between their self-efficacy and the concerns they expressed. Participants with lower self-efficacy beliefs expressed concerns typical in an early stage of change such as how the reform would impact them, while those with higher self-efficacy focused on how the new strategies might affect their students and school as well as how they would refine their teaching strategies- concerns that are typical of later stages of change (McKinney, et al., 1999). Haney et al. (2007) found that interventions to address teacher self-efficacy beliefs as they encountered new instructional processes led to increases in self-efficacy beliefs and implementation. This increase in self-efficacy correlated with an increase in the use of reform-based practices (Haney, et. Al., 2007). Ross and Bruce (2007) found that interventions targeting beliefs led to an increase in self-efficacy in classroom management.

Woolfolk Hoy and Burke-Spero (2005) found that a dip in self-efficacy as teachers began to implement a change was common. Self-efficacy beliefs tended to rebound among teachers who successfully implemented the reform (Woolfolk Hoy & Burke-Spero, 2005). Cunningham, Perry, Stanovich, and Stanovich (2004) found that teachers' estimation of the level of their content knowledge was often inaccurate, with teachers tending to overestimate their knowledge and skills. Teacher self-efficacy beliefs may be negatively affected when encountering evidence that their knowledge and skills were not as strong as they believed (Cunningham, et al., 2004). Bandura (1997) theorized that self-doubt was detrimental to achievement, but Wheatley (2002) challenged this claim and argued that doubt is critical for teacher reflection, learning, and improvement.

Self-efficacy and literacy instruction. Effective literacy instruction requires teachers to

make complex teaching decisions in the moment to meet the diverse needs of their students, which depends in part on the teacher's perceived self-efficacy to perform the task on demand (MacFarlane & Tschannen-Moran, 2010; Tschannen-Moran & Johnson, 2011; Tschannen-Moran, Johnson, & MacFarlane, 2017). Tschannen Moran & Johnson (2011) found that quality of university preparation, quality of professional development, and resource support positively correlated with teacher self-efficacy for literacy instruction. Tschannen- Moran et al. (2017) found that increased self-efficacy is associated with increased student achievement in language arts.

Self-efficacy and teacher support. Kleinasser (2014) found that teacher efficacy was a fluid construct that was influenced by multiple factors including professional development, resource allocation, ongoing support, and stage of career. Timperley and Phillips (2003) found that teachers who participated in professional development surrounding the implementation of a new literacy program had significant increases in self-efficacy scores. These increased self-efficacy scores were related to unexpected improvements in their students' achievement. The findings were used to support the notion of a complex interaction between new knowledge, changes in student achievement, and teacher self-efficacy (Timperley & Phillips, 2003). Timperley and Phillips (2003) recommended that professional development should simultaneously address teachers' beliefs and instructional practice. Wheatley (2002) proposed that ongoing support through follow-up coaching might moderate self-efficacy doubts early in the reform process. Varghese, Garwood, Bratch-Hines, and Vernon-Feagans (2016) found that intensive professional development and ongoing coaching led to increases in teacher self-efficacy related to classroom management and instruction.

Tschannen-Moran and McMaster (2009) examined the effect of four professional development models on teacher efficacy beliefs and found that a combined model of information, modeling, practice, and coaching resulted in an increase of both self-efficacy for reading and implementation of the new strategy while the other three models (information only, information plus modeling, and information plus modeling plus practice) resulted in modest gains in general teacher self-efficacy. The first model (information only) was related to gains in teacher self-efficacy for reading instruction, but none of the first three models were related to increases in implementation (Tschannen-Moran & McMaster, 2009). Tschannen-Moran and McMaster (2009) found a substantial proportion of teachers in the information plus modeling and information plus modeling plus practice groups saw declines in self-efficacy for reading instruction. After analyzing qualitative survey information, Tschannen-Moran and McMaster (2009) found that the awareness of a new strategy that was shown to have an impact on struggling readers led to a reassessment of quality teaching and of their own self-efficacy in this context.

Gregoire (2013) found that teachers who perceived that they had the resources, time, and support necessary to implement reform engaged in more systematic processing of the information and exerted more energy into the reform. Haney, et al. (2007) and Timperley and Phillips (2003) found correlations between increased implementation of specific instructional programs and increased self-efficacy. Improvement science work has the potential for affecting self-efficacy through mastery experience, however, early failures could result in frustration (Bryk, 2015). Gregory (2010) and Woodland (2016) found that teachers working in professional learning communities and problem solving teams experienced mixed feelings with some reporting increased self-efficacy, and others reporting declining self-efficacy feelings due to

feeling obligated to engage in practice they believed would be unsuccessful. Leadership behaviors associated with transformational leadership including establishing a clear vision, the positive self-concept of the leader, achievement oriented leadership, modeling, enabling action, and encouragement have been found to be positively associated with feelings of empowerment, confidence, and motivation in followers (Burns, 1978; Kouzes & Posner, 2007; Northouse, 2016).

Collective Teacher Efficacy

Collective efficacy is a group's shared belief in its ability to organize and complete the actions necessary to achieve a specific goal (Tschannen-Moran & Barr, 2004). Collective efficacy is derived from the same social cognitive theory as self-efficacy, but the theory is applied to the group as a whole rather than the individual (Donohoo et al., 2008; Goddard et al., 2000; Hoy & Miskel, 2013). Within an organization, perceptions of collective efficacy represent beliefs about the ability of the system as a whole to affect a particular goal (Goddard et al., 2000). Collective teacher efficacy, like teacher self-efficacy, is context-specific (Donohoo, 2017; Hoy & Miskel, 2013). The faculty of a school may feel collectively efficacious in one area of school operation, yet less efficacious in another (Donohoo, 2017). Therefore, when assessing collective efficacy, teachers analyze what constitutes successful teaching in their school as well as what barriers must be overcome and what resources are available (Goddard, 2001). A second factor of collective efficacy that is analyzed is teaching competence which include the faculty's teaching skills, methods, training, and expertise as well as the faculty's positive beliefs that all students can succeed (Goddard et al., 2000; Hoy & Miskel, 2013). Collective efficacy, therefore, is related to both teacher self-efficacy and teacher expectations (Donohoo, 2017).

Positive effects of collective teacher efficacy. Eells (2011) found that the beliefs teachers held about the ability of the school as a whole are strongly and positively associated with student achievement across contexts, with an effect-size of 1.57. On the basis of Eells's research, Hattie (2016) positioned collective efficacy at the top of the list of factors that influence student achievement. Hattie (2016) found that collective teacher efficacy is greater than three times more powerful and predictive of student achievement than socioeconomic status, home environment, parental environment, student motivation and concentration, persistence, and engagement and more than double the effect of prior achievement (Donohoo, 2017; Donohoo et al., 2018; Hattie, 2016). Marzano (2003) concluded that highly effective schools produce results that almost entirely overcame the effects of student backgrounds. .

Collective efficacy is related to teacher and faculty commitment and resilience to change (Goddard et al., 2000, 2007). Collective efficacy affects educator thoughts, feelings, motivation and behavior and defines school culture (Goddard et al., 2007). Schools with high collective efficacy maintain school environments that foster positive student self-concept (Donohoo, 2017). The lack of collective efficacy can result in a toxic school culture (Donohoo, 2017). Kanter (2006) described lack of efficacy and resignation as reasons organizations are unable to solve problems.

Because collective efficacy is reliant on a collective sense of teacher efficacy, it is related to productive teaching behaviors and learning environments associated with teacher efficacy including increased effort and persistence, especially toward struggling students; trying new teaching approaches; conveying high expectations to students; fostering learning autonomy; decreasing disruptive behavior; increased commitment; and enhanced parental involvement (Donohoo, 2017). Hattie (2012) found each of these factors to be positively related to student

achievement. Leroy, Bressoux, Sarrazin, and Touilloud (2007) found that teachers with a high sense of efficacy reinforced student autonomy in learning, while teachers with low self-efficacy provided less support for student individuality and conducted more controlled activities. Sorlie and Torsheim (2011) found that collective efficacy had a significant impact on student behavior, with more efficacious staffs being more likely to develop socially adjusted students and to prevent and handle misbehavior in more effective ways. Ross and Gray (2006) found that collective teacher efficacy strongly predicted commitment to community partnerships and parental involvement.

Ross and Bruce (2007) found that efficacious schools influenced student achievement through persistence, viewed failure as an incentive for greater teacher effort, and attended more closely to the needs of students not progressing well. Tschannen-Moran and Barr (2014) found that schools with high collective efficacy displayed persistence and resilience when working with students struggling to improve academic achievement. High collective efficacy will result in the acceptance of challenging goals, strong organizational effort, and persistence (Goddard et al., 2000, 2017).

When high collective efficacy exists in the school culture, the efforts of educators are enhanced- especially when they are faced with difficult challenges (Donohoo, 2017). Teachers and leaders believe that success and failure in student learning is attributed to instruction practice rather than factors outside their control. Because expectations for success are high, teachers and leaders approach their work with persistence, resolve, and value in solving problems of practice together (Donohoo et al., 2018). Collective efficacy, therefore, leads to a positive attitude that has been associated with school effectiveness (Hoy & Miskel, 2013). Conversely, lower collective efficacy results in less effort, the propensity to give up, and lower performance

(Goddard et al., 2000, 2007). When educators lack a sense of collective efficacy, their perceptions are filtered through the belief that there is very little they can do to influence student achievement and negative beliefs are pervasive in the school culture (Donohoo, 2017). Educators who operate in such a culture are inactive and lower expectations because they feel they or their students lack the ability to achieve positive outcomes (Hoy & Miskel, 2013).

A shared sense of collective efficacy tends to result in school cultures that are characterized by beliefs that reflect high expectations for student success and shared language that represents a focus on student learning (Donohoo, et al., 2018). Tschannen-Moran and Barr (2004) found that schools with high collective efficacy spent a high proportion of time on task and used more effective instructional strategies with students. Donohoo (2017) observed that schools with a strong sense of efficacy provided students with more opportunities for success. These mastery experiences build student academic efficacy and increase student self-efficacy (Donohoo, 2017). Bandura (1997) found when teachers were efficacious, they conveyed high expectations to students. When a school shares collective teacher efficacy, the culture is characterized by high expectations for the student body (Donohoo, 2017). School staffs with low collective self-efficacy, however, lower their expectations to prepare themselves for failure (Donohoo, 2017). Bandura (1993, 1997) found that students who received instruction in schools in which teachers lack efficacy beliefs exhibited weakened student self-efficacy.

Factors affecting collective teacher efficacy. The same factors that lead to self-efficacy are associated with collective efficacy including, most strongly, mastery experience, followed by vicarious experience, social persuasion, and affective states (Goddard et al., 2000; Hoy & Miskel, 2013). These factors are applied through the lens of the organization or system as a

whole, (Donohoo, 2017). As a group, teachers experience successes and failures. Successes build collective efficacy and failures undermine it. Failure is more likely to result in discouragement when success has been frequent or too easy; therefore, experience in overcoming difficulties through persistent effort is more likely to result in resilient collective efficacy (Donohoo, 2017). Teachers also build collective efficacy by hearing stories about the achievements of their colleagues as well as success stories of other schools, therefore classroom and school visits or networking with other organizations as a group may help build collective efficacy (Donohoo, 2017). Social persuasion through workshops, professional development opportunities, and feedback about achievement can also serve to build collective efficacy (Donohoo, 2017). The more cohesive the faculty, the more likely the group will be persuaded by social or verbal persuasion, but alone it is not likely to be a powerful factor (Donohoo et al., 2018). Efficacious organizations can tolerate pressure and crises and learn to cope with disruptions without severe consequences (Donohoo, 2017; Donohoo, et al., 2018; Goddard et al., 2000, 2007; Hoy & Miskel, 2013).

Leadership and the development of collective efficacy. Characteristics associated with transformational leadership including inspiring a shared vision and being a role model may also help to build collective efficacy in an organization (Burns, 1978; Kouzes & Posner, 2007; Northouse, 2016). One key role that a leader can play is to control the narrative in the school. The leader has the power to ensure the narrative is about high expectations, learning through challenge, and valuing growth in relation to inputs (Donohoo et al., 2018). An essential factor in the development of collective efficacy is to help educators make the connections between their collective efforts and student outcomes (Donohoo et al., 2018). Reeves (2010) noted that

identifying cause and effect relationships is a critical role of a change agent. Reeves (2010) found that examination of the link between teacher actions and student results decreases the replication of mistake. Escobodeo (2012) found that celebrations of success were perceived by teachers as positive elements that strengthen their beliefs in the competence of the faculty. Nelson, Deuel, Slavit, and Kennedy (2010) noted that leaders must help groups to shift the conversation from generalized talk about student progress and teaching strategies to in-depth conversations between the two.

Leaders who consistently demonstrate the ability to respond to the needs of the staff by providing teachers with the materials and learning opportunities necessary for success can positively influence feelings of support and increase the belief in the collective ability to affect outcomes (Donohoo, 2017). Goddard, Hoy, and Woolfolk Hoy (2004) noted that shared decision making correlated with stronger beliefs in the capability of the faculty. Donohoo (2017) suggested that when leaders provided opportunities for shared leadership, decisions were better understood and accepted and created a shared sense of ownership and responsibility. Entrusting teachers with the responsibility to make important decisions in regards to curriculum, assessment, and professional development led to feelings of empowerment and developed a strong sense of collective efficacy (Donohoo, 2017).

A critical role for leaders is to create structures that allow for formal, frequent, and productive teacher collaboration by ensuring a school culture includes non-threatening, evidence-based instructional environments (Donohoo et al., 2018). Johnson (2012) found that collective efficacy perceptions were significantly and positively affected when teachers collaborated three or more times per week. Hattie (2012) found that the method of collaboration with the most significant effect on student outcomes involved small teams of teachers meeting

every 2-3 weeks to analyze student performance, set goals, discuss explicit and deliberate instructional strategy, and create a plan to monitor student learning and teacher instruction.

Ross, Hogaboam-Gray, and Gray (2004) found that staffs with greater measures of cohesion had more opportunities to experience successful collaborations, which increased teachers' perceptions regarding the efficacy of their colleagues. Frequent and structured opportunities for collaboration result in increased knowledge of the work of others, an increased attribution of success team efforts versus individual efforts, and greater cohesion among the group, which are factors that enhance the development of collective efficacy (Donohoo, 2017).

Leaders must be cognizant of the quality of collaboration (Donohoo, 2017). MacDonald (2011) suggested that school teams often develop a culture that prevents shared vulnerability and results in superficial discourse that does not lead to action or improvement. This type of collaboration occurs due to a lack of trust and can result in the development of an unhealthy culture that derails collective efforts (MacDonald, 2011). Katz, et al. (2009) identified issues that can arise with unhealthy collaboration including diffusion of responsibility and lack of consideration for diverse ideas. Sunstein and Hastie (2015) described a phenomenon called the cascade effect in which team members follow the statements and actions of whoever speaks or acts first even if the statements or actions lead them in the wrong direction. Groups often become polarized with members aligning with extreme positions of individual group members (Sunstein and Hastie, 2015). Hargreaves and Fullan (2012) found that unhealthy collaboration may result in fragmentation or division among teams into smaller, uncooperative units or contrived collegiality that prevents successful action. Sunstein and Hastie (2015) noted that unhealthy teams often focused on shared information- what everyone already knew or believed- rather than new ideas or information.

Relational and organizational trust is an important factor in building collective efficacy. It is a necessary component to developing the belief that the faculty together can make a difference (Hoy & Miskel, 2013). School leaders have the ability to create an environment that offers psychological safety, which is critical to the development of collective efficacy (Kouzes & Posner, 2017). Donohoo (2017) surmised that productive collaboration that fosters collective efficacy, leads to changes in beliefs and practices, and ultimately increases student achievement must be intentionally organized. City, Elmore, Fiarman, and Tietel (2009) noted that protocols that structure collaboration allow teams to maintain objectivity and focus and establish norms of accountability for the group.

Collective teacher efficacy and reform. Ross and Bruce (2007) found that when efficacy was high, teachers were more accepting of change and more likely to try new teaching approaches. Collective efficacy can serve as a buffer for the stress involved with change, particularly when coupled with positive outcomes that continue to build increased efficacy beliefs (Donohoo, 2017). Kunnari, Ilomaki, and Toom (2018) found that a higher level of collective efficacy at the start of a reform was associated with the perception of student success as a result of changed instructional practices, but even teams with lower beginning levels of collective efficacy increased collective efficacy as the result of positive student outcomes over the course of the implementation. Leaders should be cognizant of the school culture when implementing reform and recognize increased collective efficacy as an early sign of commitment (Ware & Kitsantas, 2007). Lee, Zhang, and Yin (2011) found that highly efficacious staffs showed increased commitment and a willingness to exert effort on behalf of the organization.

Kunnari et al. (2018) found that that the implementation of a pedagogical reform resulted

in increases in students' motivation, inspiration, and engagement; peer learning and student collaboration; student-centered learning; authentic learning environment; and a holistic and flexible framework for teaching and learning. These student outcomes were positively correlated with an increase in collective teacher efficacy (Kunnari, et al., 2018). Kunnari et al. found that certain factors related to both students and teachers were risks at lowering collective efficacy during pedagogical reform. These included obscurity of new practices, misfit of administrative or evaluative tools, risk of not succeeding in assessment, risk in failing to engage students or address student needs, uncertainty about the new model, time management and workload, insufficient communication, vague roles and guidelines, difficulty in adapting to change, insufficient engagement with collective work, and lack of supervisor's support or involvement (Kunnari, et al., 2018). These findings support the importance of a clear strategy for managing change that includes strategic actions associated with maintaining or building collective efficacy during reform (Donohoo, 2017; Fullan, 2012).

Derrington and Angelle (2013) found that there was a strong relationship between collective efficacy and the extent of teacher leadership in a school. Lewis (2009) suggested that teacher influence over school decision-making allowed faculty to build more mastery experiences in teacher decision-making and to experience social persuasion through colleagues' feedback. Hargreaves and Fullan (2012) found that empowering teachers to make decisions related to school improvement was an important part of implementing successful change strategy. Donohoo (2017) noted that teacher empowerment through shared leadership increased the likelihood of effective and lasting change.

Kurz and Knight (2003) found that consensus on school goals for improvement was a significant predictor of collective efficacy. Leithwood and Sun (2009) found that building

consensus on goals was a leadership behavior that had a significant positive impact on school culture, shared decision-making processes, teacher satisfaction, commitment, empowerment, and efficacy. Kurz and Knight (2003) explained the connection between goal consensus and collective efficacy by the common key element of shared beliefs. Robinson, Hohepa, and Lloyd (2009) found the leadership dimension of goal setting to have an effect size of 0.43 on student outcomes. Robinson et al. (2009) described conditions that result in improvement as a result of goal-setting including setting clear and explicit goals; ensuring team capacity to meet the goals; and staff commitment to the goals. Donohoo (2017) suggested that teachers are more likely to focus on the achievement of goals if they are involved in setting them.

Collective teacher efficacy and teacher support. Donohoo (2017) noted that peer coaching enhanced collective efficacy because it reduced isolation and provided a mechanism through which teachers gain deeper insights into student learning while trying new approaches. Coaching taps into vicarious sources of efficacy as teachers observe their peers bringing about student learning (Donohoo, 2017). Tschannen-Moran (2009) found that professional development formats that supported mastery experiences through coaching had the strongest effect on efficacy beliefs.

Working and learning in teams, especially teams focused on solving problems related to practice or student performance, has also been associated with building collective efficacy and buffering the effects of change (Kunnari et al., 2018). Leithwood and Jantzi (2008) found that efficacy building is closely related to building collaborative cultures. Johnson (2012) found that teachers build collective efficacy when they work together consistently and frequently. Beauchamp, Klassen, Parsons, Durksen, and Taylor (2014) found that collaboration accounted

for the greatest influence on self-efficacy and collective efficacy.

Donohoo (2017) discussed the formation of teacher networks- clusters of schools or clusters within schools working interdependently- as an effective structure for collaboration. Donohoo suggests that collective efficacy is enhanced through teacher networks by increasing knowledge about each other's work, breaking down the isolation of the classroom, and increasing feelings of effectiveness and satisfaction as a result of the relationships built through the network. Kurz and Knight (2003) found that interdependency of teachers contributed to collective efficacy beliefs. Moolenaar, Slegers, and Daly (2012) found that well-connected teacher networks were associated with strong teacher collective efficacy, which in turn supported student achievement. The researchers noted the more existing links or ties within a network, the more likely it was for teachers to take risks to improve their school, continuously learn, and try to improve their teaching.

The collaborative inquiry process, such as the PDSA cycle, has been found to be effective in increasing efficacy (Donohoo, 2017). Donohoo (2017) noted observed changes in educators' beliefs and practice resulted from engagement in cycles of inquiry including increased feelings of empowerment and increased commitment. Voelkel (2011) found a positive relationship between collective efficacy and professional learning communities that were characterized by collaboration and inquiry. Bruce and Flynn (2013) found that teachers who engaged in collaborative inquiry over a 3-year period reported feeling empowered to make instructional decisions together and that the design had a positive effect on self-efficacy and collective efficacy. Donohoo (2017) noted that there are many characteristics of collaborative inquiry that enhances the development of collective efficacy including conditions that enable collaboration, increased knowledge of each other's work, cohesion of staff, empowerment of teachers, and the

interpretation of results. Gallimore, Ermeling, Saunders, and Goldenberg (2009) found evidence that the inquiry process brought about changes in attributions including a shift from external causes outside teacher control toward specific, teacher implemented instructional actions. Through this process, teachers better understood their ability to impact student outcomes (Gallimore, et al., 2009).

Donohoo (2017) suggested that leaders develop a theory of action that includes intentional strategies to build collective teacher efficacy when implementing school reform. City, et al. (2009) defined a theory of action as a verbal or written record of the steps and contingencies that need to be accomplished in order for a vision to become reality. Bushe (2010) noted that a clear leadership strategy that includes involvement from stakeholders and is adapted based on continuous learning results in increased collective efficacy. Cansoy and Parlar (2018) found effective school leadership to be significant and positive predictor of collective efficacy. Donohoo (2017) recommended leaders participate in inquiry cycles as part of developing a strategic leadership plan to build collective efficacy including the following steps: plan, act, observe, and assess. This model encourages leaders to identify a problem of practice, evaluate existing enabling conditions for change, design a change management strategy, implement the change, observe teacher and student outcomes, and assess next steps.

Mindsets as Indicators of Change

With any initiative there will be leading and lagging indicators of success (Fullan, 2012). Lagging outcome measures are available only after the initiative has been implemented. Lagging outcome measures may also take a significant amount of time to be realized. They depend upon many layers of implementation to move the needle (Bryk, et al., 2015). Leading outcome

measures are indicators that should be able to predict the ultimate outcomes of interest, but should be more readily available. They may also indicate some of the first signs of success or movement (Bryk, et al., 2015). In addition, with any implementation of significant change, there is likely to be an implementation dip in both performance and confidence as new skills and new understandings are required (Fullan, 2001). The ultimate outcome measure in the work in Tennessee- the percent of third grade students proficient in reading- is a lagging outcome measure. The TDOE has acknowledged that it will take time and layers of implementation to see significant movement in student achievement, particularly at a statewide level (LIFT Education, 2018a; TN Department of Education, 2016, 2017a, 2018). Therefore, the networks that have been supporting Tennessee teachers to implement change in their literacy strategies have also been tracking process measures- measures that directly impact a part of the theory of action (Bryk et al., 2015). . These outcomes have mostly focused on change in instructional practice in the classrooms of teachers across the state as well as some affective factors such as feelings of support, self-reported planning time, and availability of resources (LIFT Education, 2018a; TN Department of Education, 2016b, 2017, 2018). There is evidence that the first indicators of successful, sustainable change may be in the mindsets of those implementing the reform, particularly when the reform is complex and multi-faceted (Fullan, 2012).

Fullan (2001) states, “All innovations worth their salt call upon people to question and in some respects to change their behavior and their beliefs” (p. 40). A key tenet to understanding the change process is that individuals tend to demonstrate growth through both feelings and skills. The feelings and skills shift with the respect to the innovation as individuals progress through the change process (Hord et al., 2014). The theory of the predictability of shifting mindsets are apparent in the CBAM management system of change through the stages of

concern, which can be used to measure implementation progress (George et al., 2006)..

Fullan (2012) described policy overload as a phenomenon that happens when governments develop complex plans and expect unrealistic outcomes too quickly. He suggested that a successful reform plan is focused, actionable, clear, leads to widespread ownership, and carried out incrementally over a reasonable period of time. Fullan (2012) suggested that capacity building, particularly the development of individual and group efficacy, is at the center of any successful and sustainable reform. Fullan (2001) shared five key capacities that must be built in order to sustain lasting reform. Each capacity is necessary, but not sufficient on its own. It is the powerful combination of these capacities that result in dramatically different results. These include:

1. Teachers' knowledge, skills and dispositions
2. Professional community
3. Program coherence
4. Technical resources
5. Leadership (Fullan, 2001, p. 64)

Summarily, the development of individuals is necessary, but not sufficient; relational trust and learning (as developed in professional learning communities) are crucial, but only if they work at establishing greater program coherence and the addition of resources; and leadership is critical in facilitating greater capacity in the organization (Fullan, 2001).

One method for identifying valid leading outcome measures is to examine what research has found to be strong predictors of the ultimate outcome measure (Bryk et al., 2015). As has been established, the dependent variables in this study- teacher expectations, self-efficacy, and collective efficacy -are strong predictors of student achievement- stronger than socio-economic

status or prior achievement (e.g. Albanese, 2015; ASCD, 2005; Donohoo et al., 2018; Hattie, 2009; Hattie, 2012; “Hattie effect size list- 256 Influences Related to Achievement, n.d.; Kleinsasser, 2014; Rube-Davies et al., 2006; TNTP, 2018c; Varghese, et al., 2016). In addition, these mindsets have been positively correlated with commitment, perseverance, and resilience in teachers, key factors to achieving sustainable reform (e.g. Albanese, 2015; ASCD, 2005; Chesnut & Burley, 2015; Donohoo et al., 2018; Dweck, 2006). These variables are interdependent in that high expectations and increased teacher self-efficacy are positively related to the development of collective efficacy, the strongest predictor of student success (Donohoo, 2017). High expectations have also been significantly related to improved student outcomes, which contribute to mastery experience, which is critical in developing increased self-efficacy and collective efficacy (Albanese, 2015). This increased efficacy results in increased motivation and effort, which leads to greater achievement. This cyclical pattern makes these factors especially powerful in relation to increased student achievement (e.g. ASCD, 2005; Donohoo et al., 2018; Goddard et al., 2000, 2007; Hoy & Miskel, 2013; Stein, 2012; TNTP, 2018c; Tschannen Moran & Hoy, 2001, 2007). Therefore, these outcomes could be logically expected to be predictors of future student achievement and considered valid leading outcome measures in the literacy work in Tennessee.

Chapter Summary

Chapter 2 included a review of the literature related to the topics of literacy achievement and instruction in Tennessee as well as the independent and dependent variables explored in this study. Data related to Tennessee’s student performance in literacy and the results of studies of Tennessee literacy instruction was explored to provide context for the study. The three networks

providing teacher support for literacy reform in Tennessee, RTBR, TELN, and LIFT were thoroughly discussed. This discussion included a description of the work of the network as well as research findings related to the models of support provided by each network. The history, impact on student achievement, and factors that lead to the development of the dependent variables- teacher expectations, teacher self-efficacy, and collective teacher efficacy- were thoroughly described. Finally, research that supports the use of the dependent variables as leading indicators of successful reform and student achievement is presented.

CHAPTER 3

RESEARCH METHODOLOGY

This study sought to examine if structures of support provided through the three literacy networks in Tennessee are associated with teacher expectations, teacher self-efficacy, and collective teacher efficacy. This study employed a quantitative cross-sectional research design with one independent variable (support from TN literacy network) with three levels (RTBR-coaching support; TELN- improvement science/ NICs support; LIFT- leadership and curriculum implementation support) and three dependent variables (teacher expectations, teacher self-efficacy, and collective teacher efficacy). The main purpose of this study was to examine potential outcome differences in the dependent variables in relation to the independent variables (type of support provided by network). A secondary purpose was to examine potential correlations between the dependent variables for each network. The results also describe where the mean score for each dependent variable falls within established scales for each measure for each network. This chapter includes a description of the participants, instrumentation, procedures, data analysis, and limitations of this study.

Research Questions and Null Hypotheses

This study explored the following research questions in order to examine differences between teacher expectations, teacher self-efficacy in literacy, and collective teacher efficacy among the three literacy networks in Tennessee (RTBR, TELN, and LIFT) as well as possible correlations between these dependent variables for each network.

1. Are there any significant differences in the mean scores for teacher expectations among

members of TELN, RTBR, and LIFT networks?

H₀1: There are no significant differences in the mean scores for teacher expectations among members of TELN, RTBR, and LIFT networks.

2. Are there any significant differences in the mean scores for teacher self-efficacy among members of TELN, RTBR, and LIFT networks?

H₀2: There are no significant differences in the mean scores for teacher self-efficacy among members of TELN, RTBR, and LIFT networks.

3. Are there any significant differences in the mean scores for collective teacher efficacy among members of TELN, RTBR, and LIFT networks?

H₀3: There are no significant differences in the mean scores for collective teacher efficacy among members of TELN, RTBR, and LIFT networks.

4. Is there a significant correlation between teacher expectations and teacher self-efficacy for each of the three networks?

H₀4a: There is not a significant correlation between teacher expectations and teacher self-efficacy for TELN.

H₀4b: There is not a significant correlation between teacher expectations and teacher self-efficacy for RTBR.

H₀4c: There is not a significant correlation between teacher expectations and teacher self-efficacy for LIFT.

5. Is there a significant correlation between teacher expectations and collective teacher efficacy for each of the three networks?

H₀5a: There is not a significant correlation between teacher expectations and collective teacher efficacy for TELN.

H₀5b: There is not a significant correlation between teacher expectations and collective teacher efficacy for RTBR.

H₀5c: There is not a significant correlation between teacher expectations and collective teacher efficacy for LIFT.

6. Is there a significant correlation between teacher self-efficacy and collective teacher efficacy for each of the three networks?

H₀6a: There is not a significant correlation between teacher self-efficacy and collective teacher efficacy for TELN.

H₀6b: There is not a significant correlation between teacher self-efficacy and collective teacher efficacy for RTBR.

H₀6c: There is not a significant correlation between teacher self-efficacy and collective teacher efficacy for LIFT.

Sample

The study population included Kindergarten through 3rd grade teachers employed by school districts involved in one of the three literacy networks (RTBR, TELN, or LIFT). RTBR included 92 potential school districts, TELN included 21 school districts, and LIFT included 15 school districts, therefore each network had the potential for hundreds of teacher participants representing districts from various parts of the state. Due to the large number of school districts involved in RTBR, some LIFT and TELN districts also employed RTBR coaches. Potential participants included any teachers who are employed by districts involved in one of the three literacy networks and who were active in the support or work of the network such as teachers who received coaching through RTBR, were members of school improvement teams or

implemented improvement science through TELN, or implemented an aligned curriculum pilot through LIFT. Participation in the survey was voluntary for all participants, responses were anonymous, and the study included little to no risk or ethical considerations for participants. The sample was obtained through a purposeful, convenience sampling method. The researcher attempted to survey all potential participants through an online survey which was sent to all school districts involved in one of the three networks, however the sample included those who voluntarily participated in the survey.

The sample included 56 respondents from LIFT, 58 respondents from RTBR, and 47 respondents from TELN for a total of 161 participants. Of the participants, 93 percent indicated that they had received professional development in literacy in the last three years, 74 percent reported that they had received coaching in literacy instruction in the last three years, 55 percent indicated they had served on a school or district improvement team for literacy, 24 percent participated in improvement science methods such as completing PDSA cycles or inquiry, and 63 percent piloted or implemented a new English language arts curriculum. Of the participants who reported piloting or implementing a new English language arts curriculum, 54 respondents (34 percent of the sample) piloted or implemented a published high quality curriculum through their work with LIFT, and 45 respondents (29 percent of the sample) piloted or implemented a RTBR unit starter.

Instrumentation

This study utilized a survey that included a combination of items from three established surveys that measure each of the dependent variables (teacher expectations, teacher self-efficacy, and collective teacher efficacy). Each instrument has been published for public use and is

described as follows.

Teachers' Expectations Survey

The *Teachers' Expectations Survey* was designed by TNTP for use in their national study, which resulted in their report, *The Opportunity Myth*. TNTP created a toolbox to accompany the release of their study, in which they published the *Teachers' Expectations Survey* with scoring guidance for public use (LIFT Education, 2018a; Tennessee Early Literacy Network, n.d.b; TN Department of Education, 2018). The *Teachers' Expectations Survey* was designed because unlike existing instruments that tended to measure overall job-satisfaction, TNTP sought to explicitly measure the extent to which teachers' expectations aligned the state standards to their beliefs about teaching and learning and their views of the appropriateness of these standards for students. The survey was used in their research project and administered to 252 teachers including teachers at various grade levels and content areas (LIFT Education, 2018a; Tennessee Early Literacy Network, n.d.a; TN Department of Education, 2018).

The survey was designed as an 11-item survey with some additional demographic information in which each item was measured on a six-point Likert scale ranging from “strongly disagree” to “strongly agree”. Factor analysis split the items into two groupings with the 1st grouping labeled as support for the standards and the second grouping labeled as teacher expectations. A Rasch measurement process was used to establish reliability and fitting. The grouping labeled, support, had a reliability measure of 0.89 and the grouping labeled, expectations had a reliability measure of 0.84. Both groupings were found to have proper fitting (TNTP, 2018b).

This survey may be administered to teachers in written form or electronically. Teachers

are instructed to select the response that indicates how they feel in response to each question. The scoring guidance that is published with the survey indicated that four specific items should be scored in order to obtain a measure of teacher expectations. These included the items found in factor analysis to measure teacher expectations. According to the scoring guidance, each teacher's response was assigned a score value: 0 for "Strongly Agree", 1 for "Agree", 2 for "Somewhat agree", 3 for "Somewhat Disagree", 4 for "Disagree", and 5 for "Strongly Disagree". The scores should then be summed to create a total score. Total scores on these four items ranged from 0 to 20, with any total score that is at least 11 out of 20 classified as "high expectations" and any score that is less than 10 out of 20 classified as "low expectations" (TNTP, 2018b).

This study utilized the same scoring procedures that were employed in the TNTP study because they were found to be reliable with a similar population and found to be a valid measure of the understanding of teacher expectations that this study seeks to examine. Only the four items scored in the TNTP study found to reliably measure teacher expectations were utilized in the survey and the items measuring support of standards were eliminated.

Teacher Sense of Efficacy Scale

Tschannen- Moran and Woolfolk Hoy (2011) developed the *Teacher Sense of Efficacy Scale* (TSES), originally named the *Ohio State Teacher Efficacy Scale* (OSTES). The instrument was examined in three separate studies. Through factor analysis, three factors were identified: efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement. The scale was reduced by selecting the eight items with the highest loadings on each factor. Reliabilities for the teacher efficacy subscales were 0.91 for instruction, 0.90 for

management, and 0.87 for engagement (Tschannen-Moran & Woolfolk Hoy, 2011). Based on the high reliabilities of the three scales, Tschannen-Moran and Woolfolk Hoy further reduced the scale by selecting the four items with the highest loadings on each scale. The factor structure remained intact, and reliabilities continued to be high: 0.86 for instruction, 0.86 for management, and 0.81 for engagement. The intercorrelations between the short (12 item) and long (24 item) forms for the total scale and the three subscales were high, ranging from 0.95 to 0.98. Further analysis demonstrated that both the 24 and 12- item scales could be considered to measure the underlying construct of efficacy and that a total score as well as three subscale scores could be calculated reliably. Construct validity was examined by assessing the correlation of the new measure with other existing measures of teacher efficacy. Tschannen-Moran and Woolfolk Hoy found that this scale was both reliable and valid.

Teacher self-efficacy is context-specific, meaning that a teacher may feel efficacious in one teaching context and not in another (Hoy & Miskel, 2013; Tschannen-Moran & Johnson, 2011). Because this study sought to examine teacher self-efficacy as it relates to literacy instruction, it utilized only the items for the subscale for efficacy in instructional strategies from the short form of the TSES. This included four items that were measured on a 9-point scale, with responses ranging from 1 (none at all) to 9 (a great deal). Reliability for this subscale was found to be 0.86 (Tschannen-Moran & Woolfolk Hoy, 2011). The survey and scoring guidance is published online by the author for public-use, and the researcher obtained permission from the author to use the instrument. Each response was scored 1-9 based on the Likert-scale response and the scores were summed for a total Teacher Self-Efficacy score. For the purpose of the descriptive findings of this study, the total possible score of 36 was divided into thirds to represent low (0-12), average (13-24) , or high (25-36) levels of teacher-self efficacy.

Collective Teacher Efficacy Scale

Goddard (2002) developed and tested a short scale to measure Collective Teacher Efficacy. A prior 21- item scale had previously been validated and found to be reliable (Tschannen-Moran & Johnson, 2011). One goal of the development of the short scale was to develop a measure of collective efficacy that did not weight group competence and task analysis unevenly (“Research Tools - Megan Tschannen-Moran’s Web Site,” n.d.). Criterion-related validity on the 12- item scale was tested with a Pearson product-moment correlation; predictive validity was tested using hierarchical linear modeling. Results indicated that the 12 items in the short form reflected all dimensions of the original *Collective Efficacy Scale*, but in equal proportion. Scores from the 12-item scale and the 21- item scale were highly correlated ($r = .983$) (Goddard, 2002).

Factor analysis indicated two moderately correlated factors including Instructional Strategies and Student Discipline. In addition to the overall collective teacher efficacy score that can be computed by taking a mean of all 12 items, subscale scores can be computed for collective efficacy in instructional strategies and collective efficacy in student discipline by computing the mean score of the six items that relate to each factor (Goddard, 2002). In a study conducted by Tschannen- Moran and Barr (2004), the researchers found significant correlations to both the overall collective efficacy score and the individual subscale scores to student achievement (Goddard, 2002). Reliability for the 12- item scale was $N = 49$ schools, Cronbach’s $\text{Alpha} = .97$. Reliability for the 6 item instructional strategies scale and the 6 item student discipline scale was .96 and .94 respectively (“Research Tools - Megan Tschannen-Moran’s Web Site,” n.d.; Tschannen-Moran & Barr, 2004).

This study aimed to measure collective efficacy in relation to instructional strategies in

regard to literacy instruction. Because this six-item scale was found to be a reliable measure of collective efficacy and correlated to the overall score of collective efficacy and because student discipline may be unrelated to a teacher's sense of collective efficacy in literacy instruction, this study utilized the six item instructional strategy scales to determine the collective efficacy measure. Teachers responded to the six items utilizing a nine point scale ranging from 1 (none at all) to 9 (a great deal). In addition, the study utilized the method suggested by the researcher to determine whether the total score indicated low (0-18) , average (19-36), or high (37-54) teacher collective efficacy according to the established norms (Tschannen-Moran & Barr, 2004).

Combined Survey

The three instruments for the dependent variables were combined to comprise three subparts of one electronic survey administered through Google Forms. The survey included minimal demographic data including which network the school or district was a part of; if the teacher worked directly with a literacy coach, was a member of a school or district team, participated in improvement science methods, and/or piloted or implemented an aligned curriculum such as CKLA, EL Education, Wit and Wisdom (the three curriculums that LIFT schools have piloted), or RTBR Unit Starters; and which curriculum was piloted or implemented. The demographic questions allowed the researcher to ensure responses were assigned to the appropriate level of the independent variable. The final survey included 18 items contained in 4 subparts including consent, 3 demographic items, 4 items measuring teacher expectations, 4 items measuring teacher self-efficacy and 6 items measuring collective teacher efficacy. The demographic items were selected response and the items measuring teacher expectations, collective teacher efficacy, and teacher self-efficacy in literacy were measured using the

respective Likert-type scales. It was estimated that the survey took participants approximately 10 minutes or less to complete.

Data Collection

The researcher initially contacted the superintendents via email in each school district to obtain permission to request participation in the study from teachers involved in the work of one of the literacy networks and to clarify procedures for sending the survey to teachers. With the superintendent's permission, the researcher proceeded with sending the survey to potential participants. This method varied from district to district according to superintendent preference. In some districts, the researcher contacted district leads from the networks. The link to the survey, an explanation of the research, and consent document was forwarded by email to potential participants by the superintendent or his/her designee, the RTBR district coaches, the TELN district leads, or the district leadership members in LIFT who identified teachers involved in the work of the network in their districts. The researcher obtained these district contacts from the leadership of the network organizations.

Teachers completed the survey anonymously online. Responses were automatically populated into a Google spreadsheet upon completion. The survey remained open for four weeks. At the conclusion of the survey window, the data were examined and it was determined that an appropriate sample had been obtained. Responses were transferred from Google Forms to an Excel Spreadsheet, numerical values were assigned for nominal data, responses to the items measuring expectations were scored according to the scoring guidance (TNTP, n.d.b), and a total score for each dependent variable (expectations, teacher self-efficacy, and collective teacher efficacy) was calculated. Data were then uploaded into SPSS statistical software for analysis.

Data Analysis

The data collected in this study included nominal demographic data and quantitative scores of teacher expectations, teacher self-efficacy in literacy, and teacher collective efficacy. Frequency was calculated for each nominal category. Means were calculated for each network sample for each of the dependent variables. These mean scores were used to compare to the normative scales for each measure to provide descriptive data for each network.

Statistical analysis utilizing the computer software program SPSS was employed to test the null hypotheses and the research questions. A series of one-way analysis of variance (ANOVA) was conducted for Research Questions 1-3 to determine if the mean score for each dependent variable (teacher expectations, teacher self-efficacy, and collective teacher efficacy) was significantly different among the three literacy networks (RTBR, TELN, and LIFT). Tukey post hoc analyses was conducted to evaluate pairwise differences among the means. Pearson correlation coefficients were computed for Research Questions 4-6 in order to determine if any significant correlations existed between the dependent variables (teacher expectations, teacher self-efficacy, and collective teacher efficacy) for each network. All data were analyzed at the .05 level of significance.

Chapter Summary

In this chapter the methodology of this study was presented. This study is a quantitative study that examined the differences in teacher expectations, teacher self-efficacy in literacy, and collective teacher efficacy among members of RTBR, TELN, and LIFT as well as correlations between the dependent variables for each network. The sample included 161 K-3 Tennessee teachers who were involved in the work of one of the networks, including 56 teachers from

LIFT, 58 teachers from RTBR, and 47 teachers from TELN. The instrument was a combined survey comprised of items from published instruments measuring teacher expectations, teacher self-efficacy in literacy, and collective teacher efficacy. Data were collected utilizing an online survey and was analyzed using a series of one-way analysis of variances (ANOVAs) and Pearson product-moment correlation coefficients with SPSS statistical analysis software.

CHAPTER 4
FINDINGS

The purpose of this study was to examine the differences in teacher expectations, teacher self-efficacy, and collective teacher efficacy among teachers involved in LIFT, RTBR, and TELN. Additionally, this study sought to determine if correlations existed between the dependent variables (teacher expectations, teacher self-efficacy, and collective teacher efficacy) for each network. Participants in the study included K-3 teachers involved in the work of one of the three literacy networks in Tennessee. The sample was comprised of 56 respondents from LIFT, 58 respondents from RTBR, and 47 respondents from TELN as shown in Figure 1.

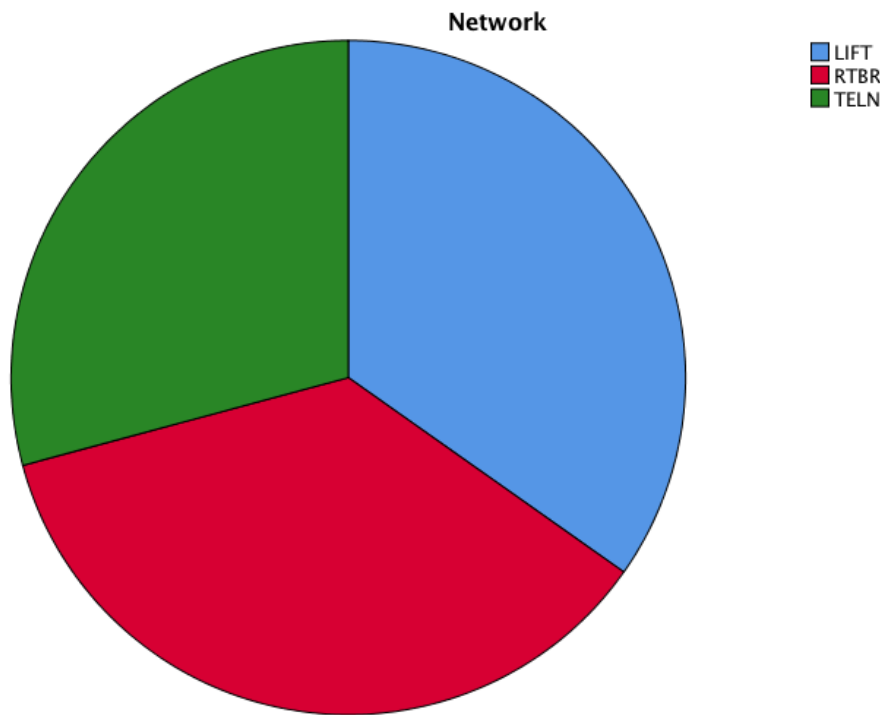


Figure 1. Sample by network

Of the 161 participants, 93% indicated that they had received professional development

in literacy in the last three years (see Figure 2), 74% reported receiving instructional coaching by a school or district literacy coach (see Figure 3), 55% indicated they had participated on a school or district improvement team for literacy (see Figure 4), and 24% reported having participated in improvement science methods such as completing PDSA cycles or inquiry (see Figure 5). Sixty-three percent of participants reported that they had piloted or implemented a new language arts curriculum in the last three years, including 54 respondents (34% of sample) who piloted or implemented a published high quality curriculum in coordination with LIFT and 45 respondents (29% of sample) who piloted or implemented RTBR unit starters as shown in Figure 6.

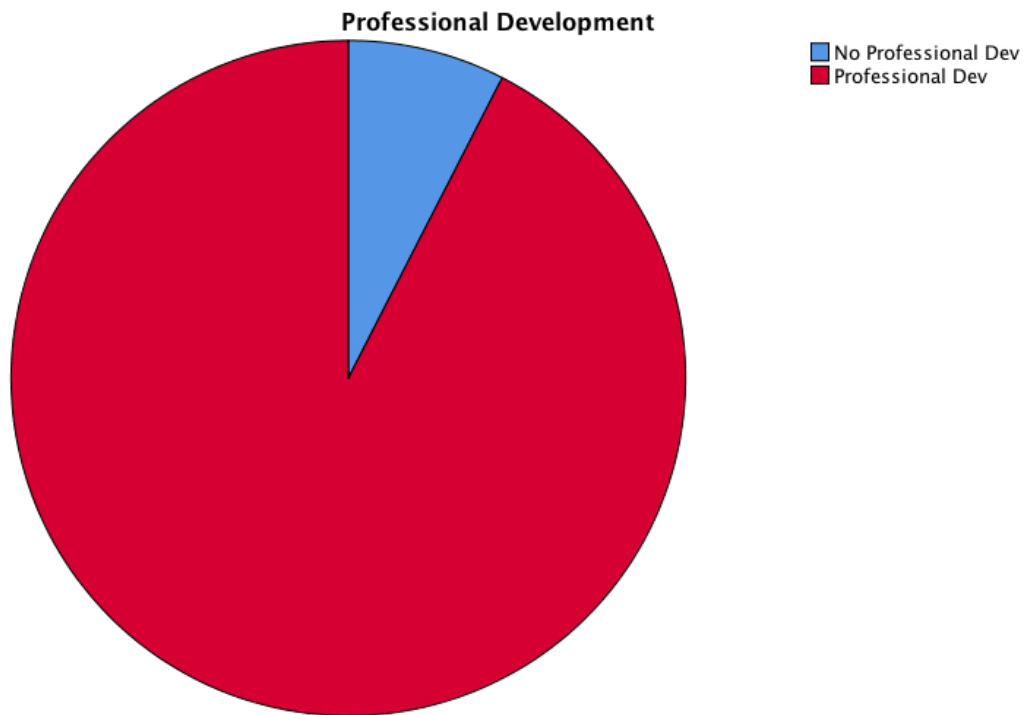


Figure 2. Professional development in literacy instruction

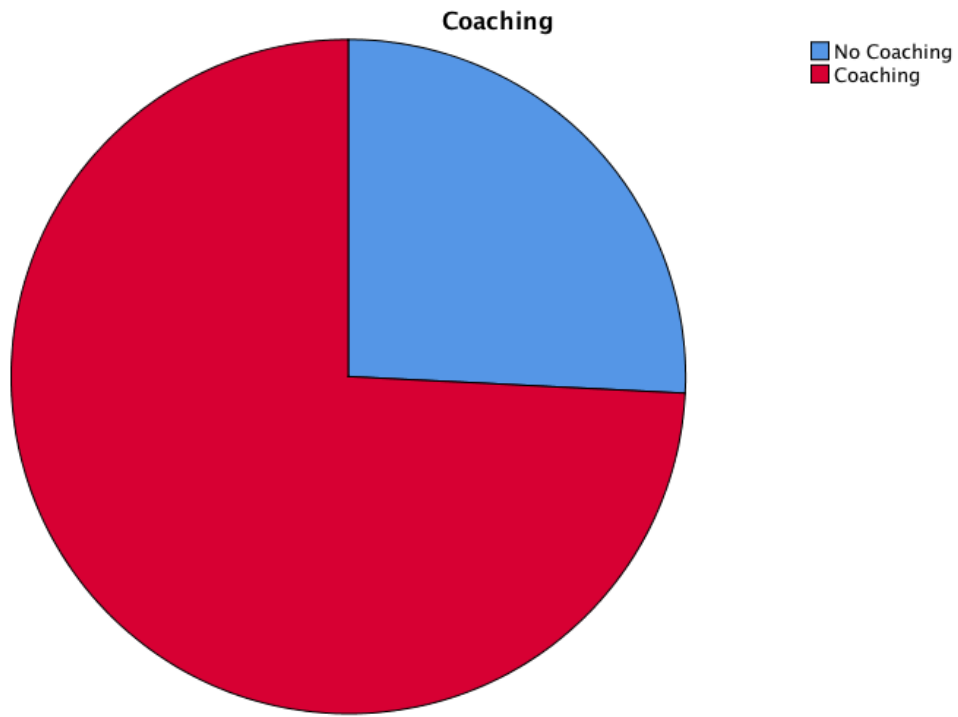


Figure 3. Instructional coaching in literacy

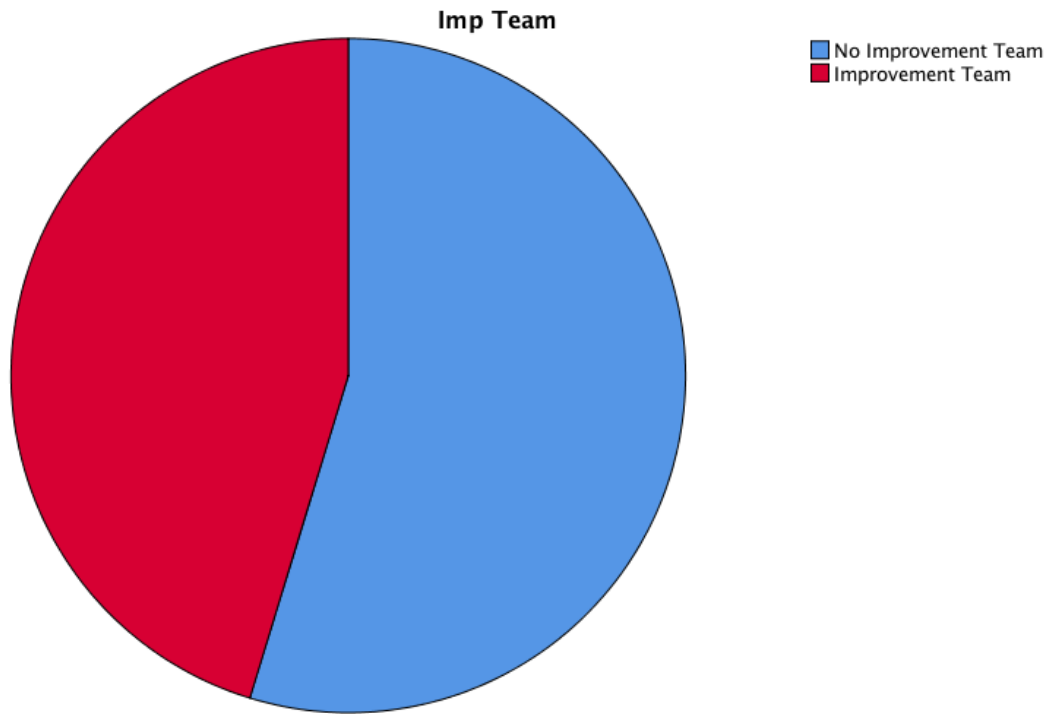


Figure 4. School or district literacy improvement team

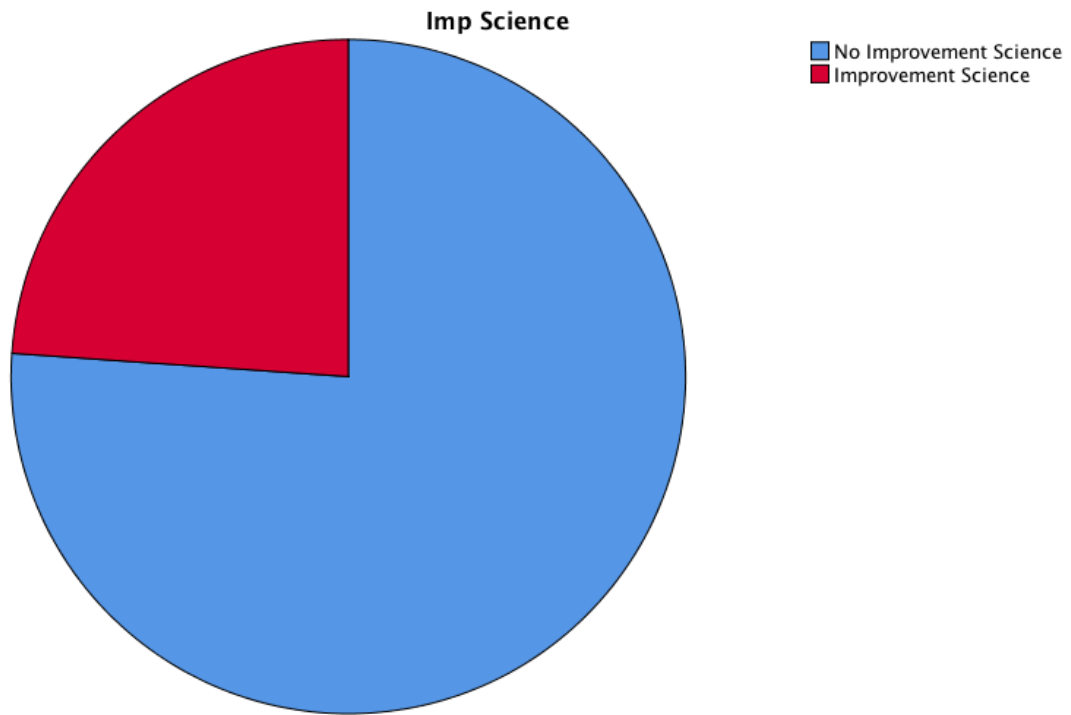


Figure 5. Participation in improvement science methods

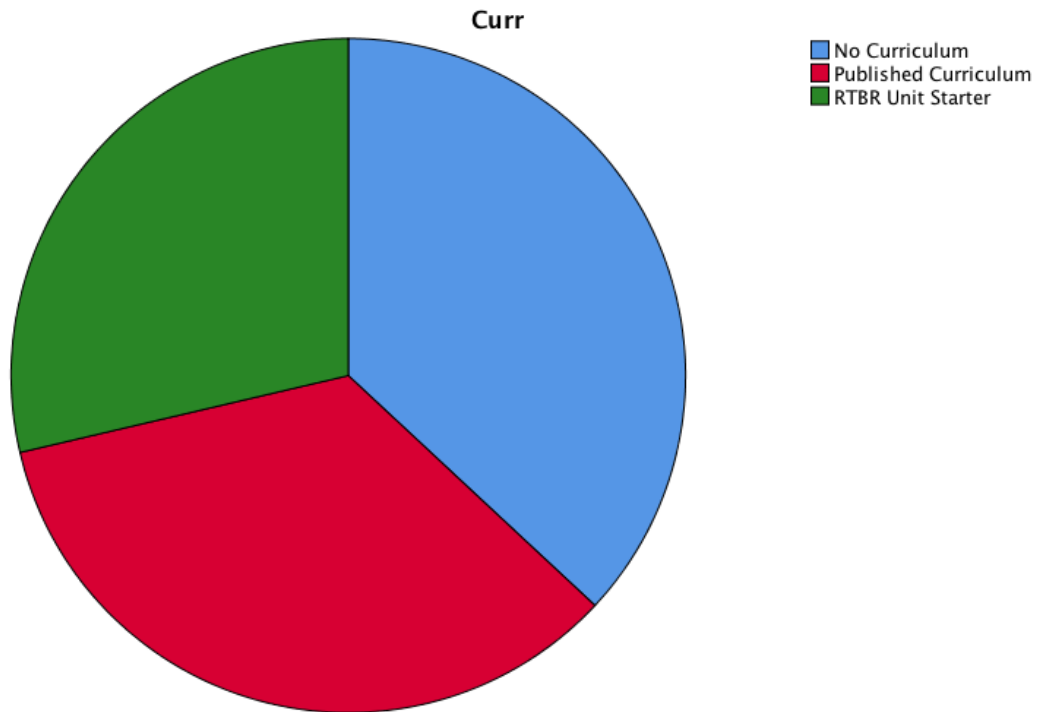


Figure 6. Curriculum pilot or implementation

In this chapter, data are presented and analyzed to address six research questions and test the associated null hypotheses. Data were comprised of responses from an online survey. The survey included demographic items including network involvement, teacher support activities, and curriculum implementation as well as items selected from published surveys designed to measure teacher expectations, teacher self-efficacy, and collective teacher efficacy using a Likert-type scale. Data were analyzed using a series of one-way analysis of variance and Pearson correlation coefficient.

Research Question 1

RQ 1: Are there any significant differences in the mean scores for teacher expectations among members of TELN, RTBR, and LIFT networks?

H₀1: There are no significant differences in the mean scores for teacher expectations among members of TELN, RTBR, and LIFT networks.

A one-way analysis of variance was conducted to determine if there were significant differences in teacher expectations among members of TELN, RTBR and LIFT networks. The dependent variable, network, included three levels: TELN, RTBR, and LIFT. The dependent variable was teacher expectations. The ANOVA was significant, $F(2, 158) = 31.23, p < .001$. Therefore, the null hypothesis was rejected. The effect size as measured by η^2 was large (.28), with network accounting for 28% of the variance of the dependent variable.

Post hoc comparisons using Tukey HSD were conducted to evaluate pairwise differences among the means of the three groups. Members of LIFT had significantly higher teacher expectations ($p < .001$) than both RTBR and TELN. However, there was no significant difference between members of RTBR and TELN ($p = .41$). The mean score for LIFT indicated

“high expectations,” while the mean scores for RTBR and TELN indicated “low expectations” according to the scoring guidance for the *Teacher Expectation Survey* (TNTP, n.d.b) as shown in Table 1. The 95% confidence intervals for the pairwise differences, as well as the means and standard deviations for teacher expectations scores by network are reported in Table 2. See Figure 7 for the boxplot of the three networks and their teacher expectations scores.

Table 1

Means and Scoring Guidance for Teacher Expectations

Network	n	M	SD	Classification
LIFT	56	13.23	5.38	“High” (11-20)
RTBR	58	5.88	4.672	“Low” (0-10)
TELN	47	7.30	5.65	“Low” (0-10)

Table 2

Teacher Expectations by Network with 95% Confidence Intervals for Pairwise Differences

Network	n	M	SD	LIFT	RTBR
LIFT	56	13.23	5.38		
RTBR	58	5.88	4.672	5.04-9.67*	
TELN	47	7.30	5.65	3.49-8.38*	-1.00-3.84

*The pairwise difference in means was significant at the .05 level.

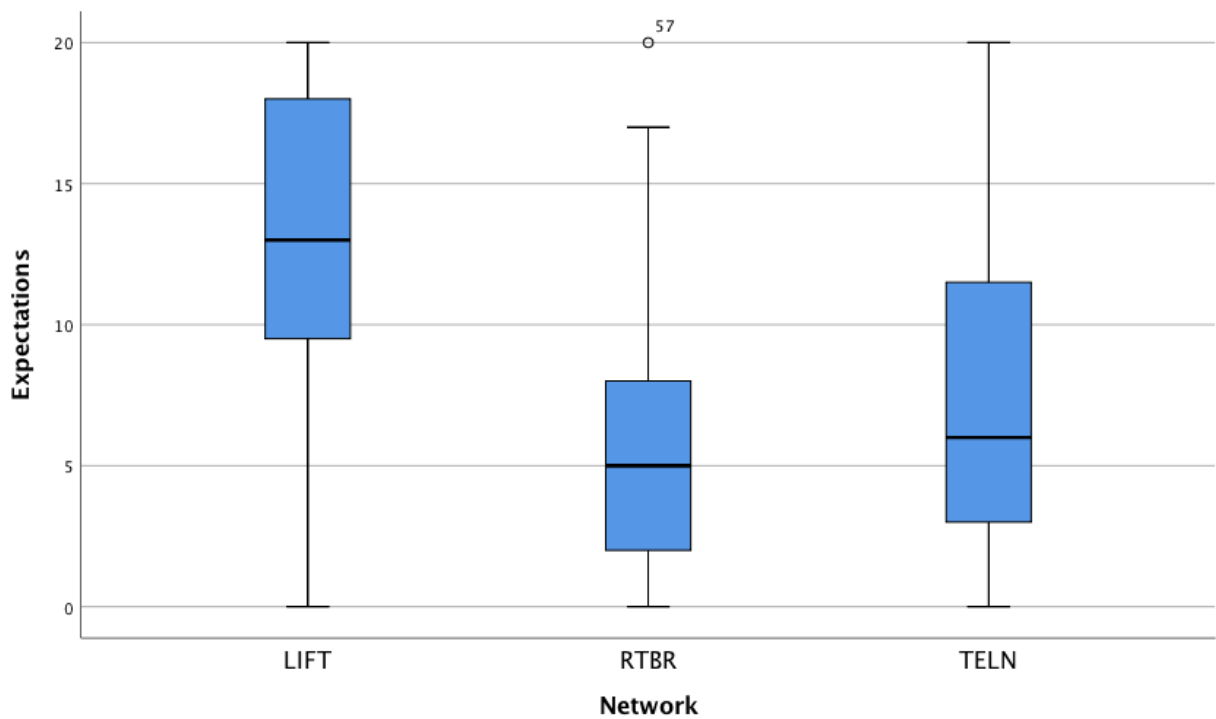


Figure 7. Teacher expectations by network

Research Question 2

RQ 2: Are there any significant differences in the mean scores for teacher self-efficacy among members of TELN, RTBR, and LIFT networks?

H₀2: There are no significant differences in the mean scores for teacher self-efficacy among members of TELN, RTBR, and LIFT networks.

A one-way analysis of variance was conducted to determine if there were significant differences in teacher self-efficacy among members of TELN, RTBR and LIFT networks. The dependent variable, network, included three levels: TELN, RTBR, and LIFT. The dependent variable was teacher self-efficacy. The ANOVA was significant $F(2, 156) = 8.594, p < .001$. Therefore, the null hypothesis was rejected. The effect size as measured by η^2 was moderate (.10), with network accounting for 10% of the variance of the dependent variable.

Post hoc comparisons using Tukey HSD were conducted to evaluate pairwise differences among the means of the three groups. Members of LIFT indicated significantly higher teacher self-efficacy than both RTBR and TELN ($p < .001$). However, there was no significant difference between members of RTBR and TELN ($p = .14$). The mean scores for teacher self-efficacy for all three networks were in the upper tercile and indicated “high” teacher self-efficacy (see Table 3). The 95% confidence intervals for the pairwise differences for teacher self-efficacy scores by network, as well as the means and standard deviations are reported in Table 2. See Figure 8 for the boxplot of the three networks and their teacher expectations scores.

Table 3

Means and Scoring Guidance for Teacher Self-Efficacy

Network	n	M	SD	Classification
LIFT	54	29.44	4.72	“High” (25-36)
RTBR	58	27.21	5.14	“High” (25-36)
TELN	47	25.36	5.19	“High” (25-36)

Table 4

Teacher Self-efficacy by Network with 95% Confidence Intervals for the Pairwise Differences

Network	n	M	SD	LIFT	RTBR
LIFT	54	29.44	4.72		
RTBR	58	27.21	5.14	.02-4.46*	
TELN	47	25.36	5.19	1.74-6.42*	-4.46-4.15

*The pairwise difference in means was significant at the .05 level.

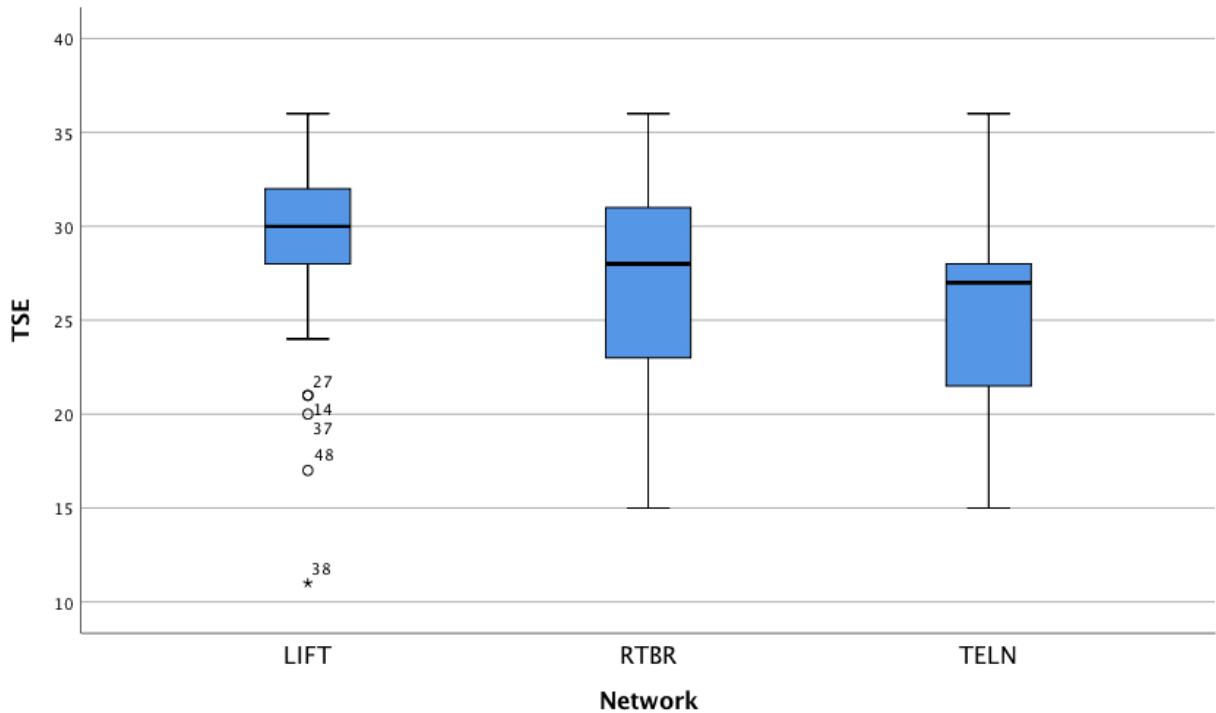


Figure 8. Teacher self-efficacy by network

Research Question 3

RQ 3: Are there any significant differences in the mean scores for collective teacher efficacy among members of TELN, RTBR, and LIFT networks?

H₀3: There are no significant differences in the mean scores for collective teacher efficacy among members of TELN, RTBR, and LIFT networks.

A one-way analysis of variance was conducted to determine if there were significant differences in collective teacher efficacy among members of TELN, RTBR and LIFT networks. The dependent variable, network, included three levels: TELN, RTBR, and LIFT. The dependent variable was collective teacher efficacy. The ANOVA was significant $F(2, 158) = 15.373, p < .001$. Therefore, the null hypothesis was rejected. The effect size as measured by η^2 was large (.16), with network accounting for 16% of the variance of the dependent variable.

Post hoc comparisons using Tukey HSD were conducted to evaluate pairwise differences among the means of the three groups. Members of LIFT had significantly higher collective teacher efficacy ($p < 0.001$) than both RTBR and TELN. However, there was no significant difference between members of RTBR and TELN ($p = .90$). The mean scores all three networks indicated “high” collective teacher efficacy according to the scoring norms, although the mean for TELN fell between 36 (the upper end of average) and 37 (the lower end of high) (Tschannen-Moran & Barr, 2004) as shown in Table 5. The 95% confidence intervals for the pairwise differences, as well as the means and standard deviations for collective teacher efficacy scores by network are reported in Table 3. See Figure 9 for the boxplot of the three networks and their collective teacher efficacy scores.

Table 5

Means and Scoring Guidance for Teacher Collective Teacher Efficacy

Network	n	M	SD	Classification
LIFT	56	45.04	8.87	“High” (37-54)
RTBR	58	37.03	5.14	“High” (37-54)
TELN	47	36.26	5.19	“High” (37-54)

Table 6

Collective Teacher Efficacy by Network with 95% Confidence Intervals for the Pairwise Differences

Network	n	M	SD	LIFT	RTBR
LIFT	56	45.04	8.87		
RTBR	58	37.03	9.28	3.95-12.05*	
TELN	47	36.26	9.92	4.51-13.05*	-3.46-5.02

*The pairwise difference in means was significant at the .05 level.

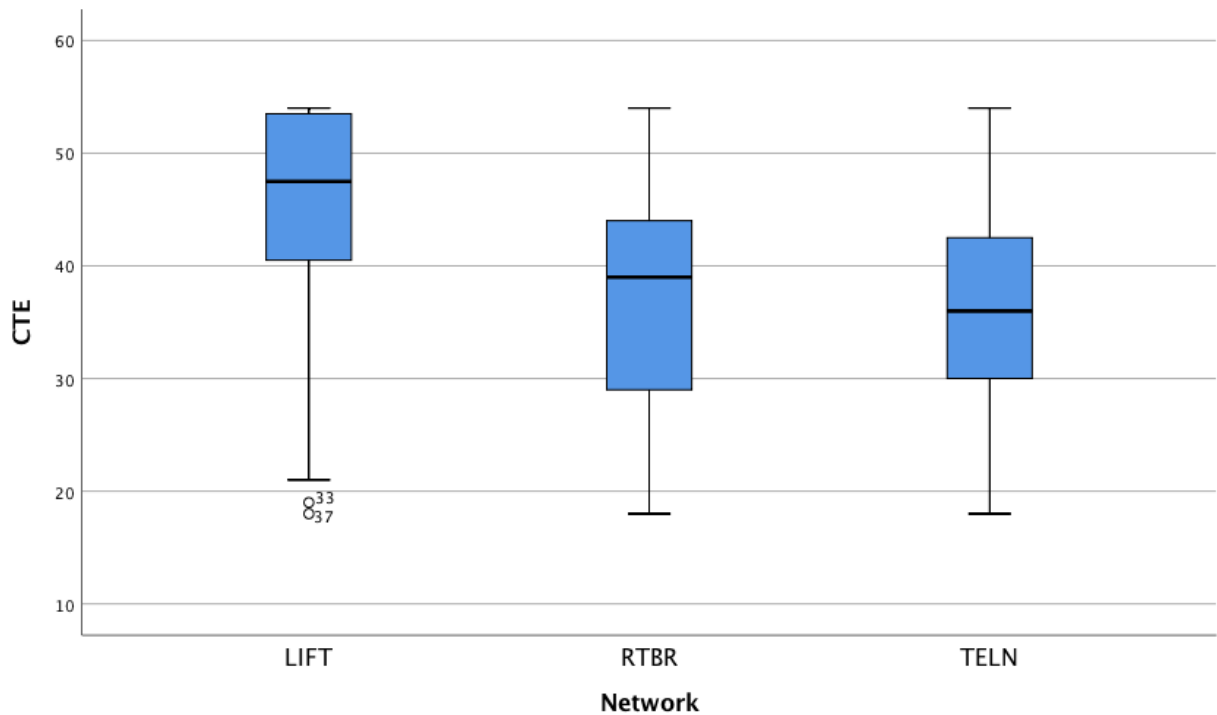


Figure 9. Collective teacher efficacy by network

Research Question 4

RQ 4: Is there a significant correlation between teacher expectations and teacher self-efficacy for each of the three networks?

H₀4a: There is not a significant correlation between teacher expectations and teacher self-efficacy for LIFT.

H₀4b: There is not a significant correlation between teacher expectations and teacher self-efficacy for RTBR.

H₀4c: There is not a significant correlation between teacher expectations and teacher self-efficacy for TELN.

A Pearson correlation coefficient was computed to assess the relationship between teacher expectations and teacher self-efficacy for each of the three networks.

The correlation between teacher expectations and teacher self-efficacy for LIFT was statistically significant. There was a positive correlation between the two variables for LIFT, $r(54) = .30, p = .03$. Therefore, the null hypothesis 4a was rejected. The coefficient of determination, r^2 indicated that 9% of the variance in teacher self-efficacy is shared with teacher expectations. Figure 10 shows a scatterplot summary of the results for LIFT. Overall, there was a significant positive correlation between teacher expectations and teacher self-efficacy for members of LIFT.

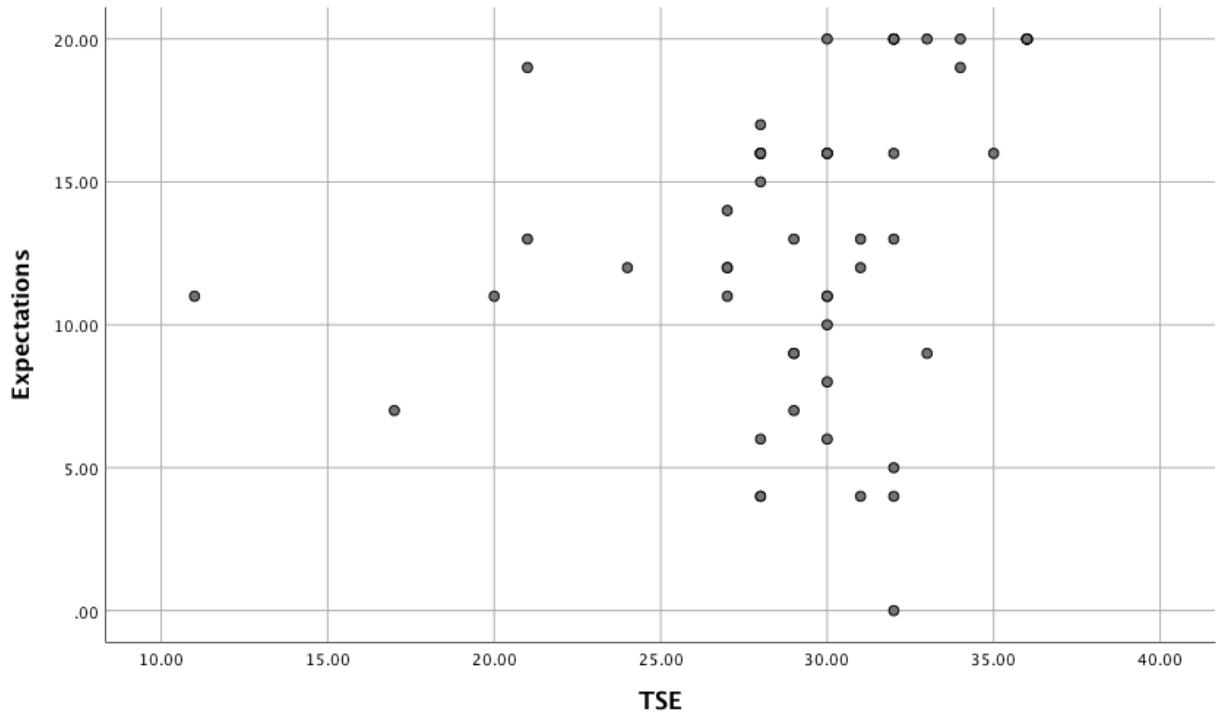


Figure 10. Teacher expectations and teacher self-efficacy for LIFT

The correlation between teacher expectations and teacher self-efficacy for RTBR was not statistically significant, $r(56) = -.05, p = .74$. Therefore, the null hypothesis 4b was retained.

There was not a significant correlation between teacher expectations and teacher self-efficacy for RTBR.

The correlation between teacher expectations and teacher self-efficacy for TELN was positive, but not statistically significant, $r(45) = .22, p = .14$. Therefore, the null hypothesis 4c was retained. There was not a significant correlation between teacher expectations and teacher self-efficacy for TELN.

Research Question 5

RQ 5: Is there a significant correlation between teacher expectations and collective

teacher efficacy for each of the three networks?

H₀5a: There is not a significant correlation between teacher expectations and collective teacher efficacy for LIFT.

H₀5b: There is not a significant correlation between teacher expectations and collective teacher efficacy for RTBR.

H₀5c: There is not a significant correlation between teacher expectations and collective teacher efficacy for TELN.

A Pearson correlation coefficient was computed to assess the relationship between teacher expectations and collective teacher efficacy for each of the three networks.

The correlation between teacher expectations and collective teacher efficacy for LIFT was statistically significant. There was a positive correlation between the two variables for LIFT, $r(54) = .44, p = .001$. Therefore, the null hypothesis 5a was rejected. The coefficient of determination, r^2 indicated that 19% of the variance in collective teacher efficacy is shared with teacher expectations Figure 11 shows a scatterplot summary of the results for LIFT. Overall, there was a significant positive correlation between teacher expectations and collective teacher efficacy for members of LIFT.

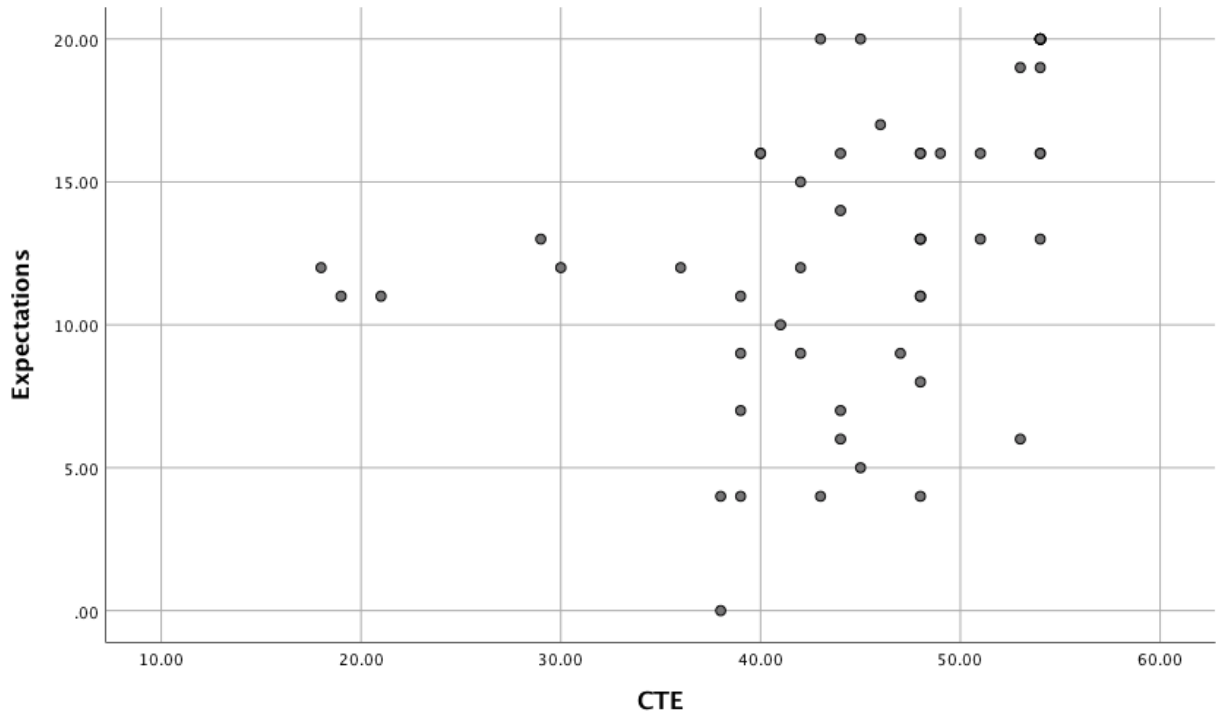


Figure 11. Teacher expectations and collective teacher efficacy for LIFT

The correlation between teacher expectations and collective teacher efficacy for RTBR was positive, but not statistically significant, $r(56) = .21, p = .12$. Therefore, the null hypothesis 5b was retained. There was not a significant correlation between teacher expectations and collective teacher efficacy for RTBR.

The correlation between teacher expectations and collective teacher efficacy for TELN was statistically significant. There was a positive correlation between teacher expectations and collective teacher efficacy for TELN, $r(.45) = .45, p = .002$. Therefore, the null hypothesis 5c was rejected. The coefficient of determination, r^2 , indicated that 20% of the variance in collective teacher efficacy is shared with teacher expectations. Figure 12 shows a scatterplot summary of the results for TELN. Overall, there was a significant positive correlation between teacher expectations and collective teacher efficacy for members of TELN.

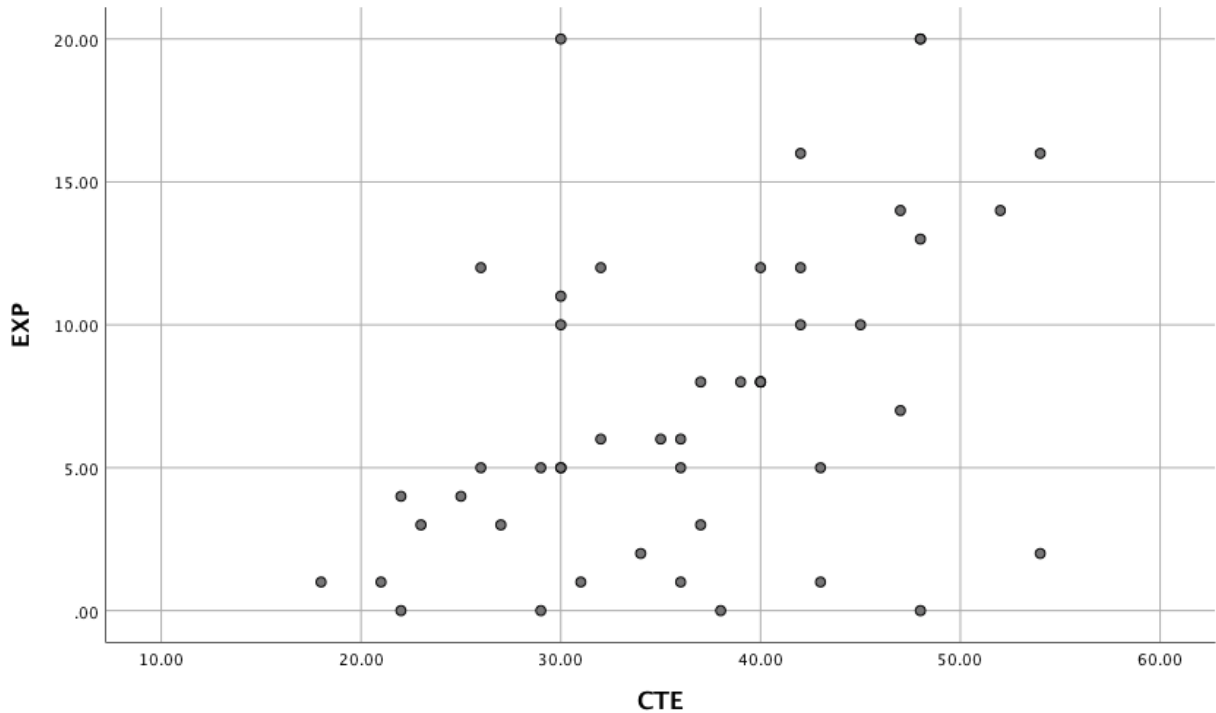


Figure 12 . Teacher expectations and collective teacher efficacy for TELN

Research Question 6

RQ 6: Is there a significant correlation between teacher self-efficacy and collective teacher efficacy for each of the three networks?

H₀6a: There is not a significant correlation between teacher self-efficacy and collective teacher efficacy for LIFT.

H₀6b: There is not a significant correlation between teacher self-efficacy and collective teacher efficacy for RTBR.

H₀6c: There is not a significant correlation between teacher self-efficacy and collective teacher efficacy for TELN.

A Pearson correlation coefficient was computed to assess the relationship between teacher self-efficacy and collective teacher efficacy for each of the three networks.

The correlation between teacher self-efficacy and collective teacher efficacy for LIFT was statistically significant. There was a strong positive correlation between the two variables for LIFT, $r(54) = .58, p < .001$. Therefore, the null hypothesis 6a was rejected. The coefficient of determination, r^2 , indicated that 34% of the variance in collective teacher efficacy is shared with teacher self-efficacy. Figure 13 shows a scatterplot summary of the results for LIFT. Overall, there was a significant, strong positive correlation between teacher self-efficacy and collective teacher efficacy for members of LIFT.

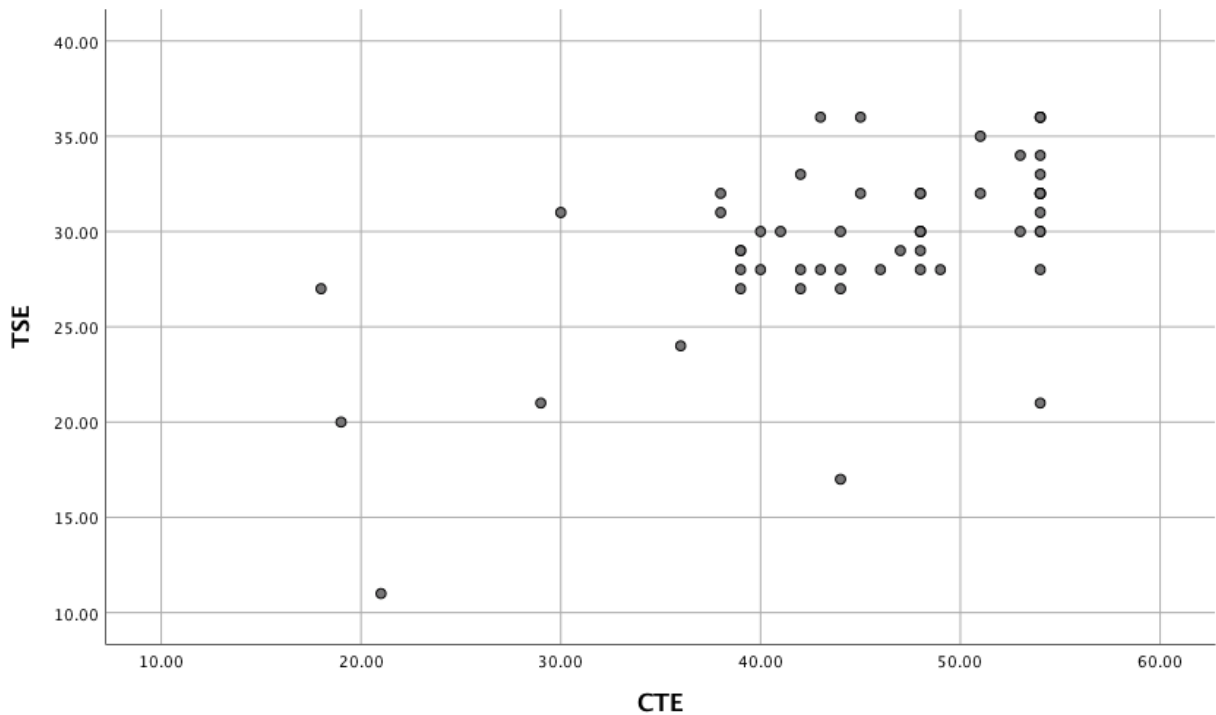


Figure 13. Teacher self-efficacy and collective teacher efficacy for LIFT

The correlation between teacher self-efficacy and collective teacher efficacy for RTBR was statistically significant. There was a strong positive correlation between the two variables for LIFT, $r(56) = .53, p < .001$. Therefore, the null hypothesis 6b was rejected. The coefficient of determination, r^2 , indicated that 28% of the variance in collective teacher efficacy is shared with

teacher self-efficacy. Figure 14 shows a scatterplot summary of the results for RTBR. Overall, there was a significant, strong positive correlation between teacher self-efficacy and collective teacher efficacy for members of RTBR.

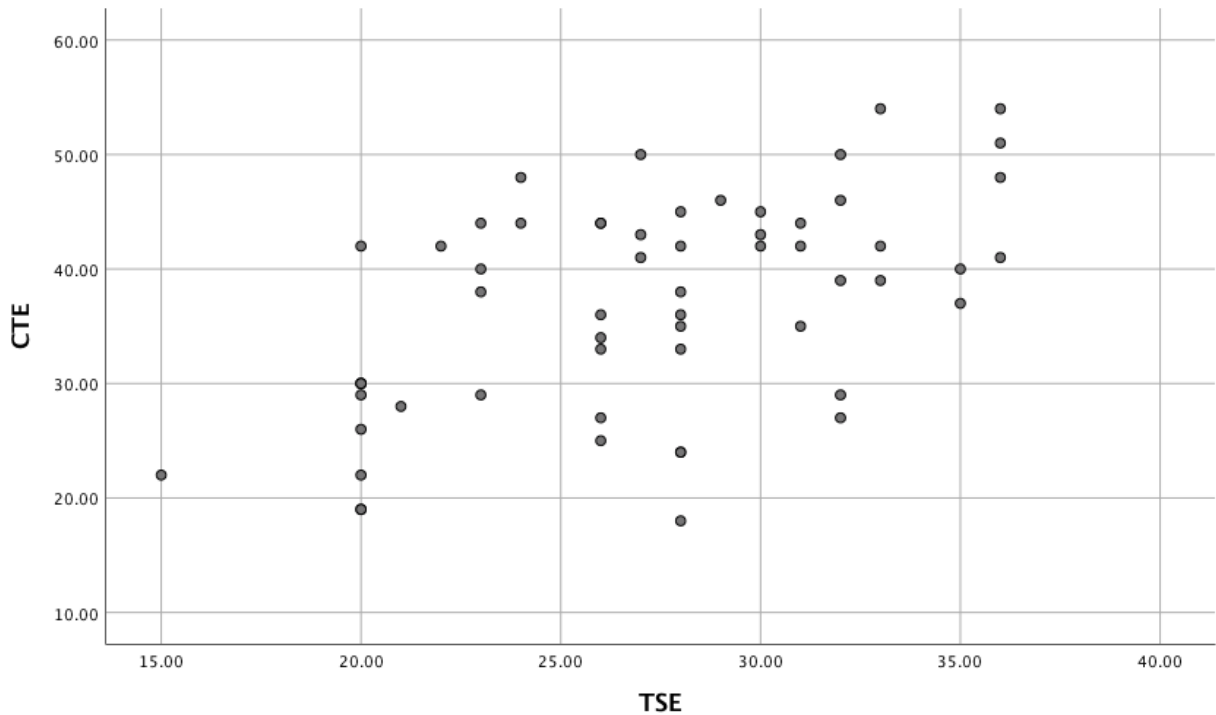


Figure 14 . Teacher self-efficacy and collective teacher efficacy for RTBR

The correlation between teacher self-efficacy and collective teacher efficacy for TELN was statistically significant. There was a strong positive correlation between teacher self-efficacy and collective teacher efficacy for TELN, $r(45) = .53, p < .001$. Therefore, the null hypothesis 6c was rejected. The coefficient of determination, r^2 , indicated that 28% of the variance in collective teacher efficacy is shared with teacher self-efficacy. Figure 15 shows a scatterplot summary of the results for TELN. Overall, there was a significant, strong positive correlation between teacher self-efficacy and collective teacher efficacy for members of TELN

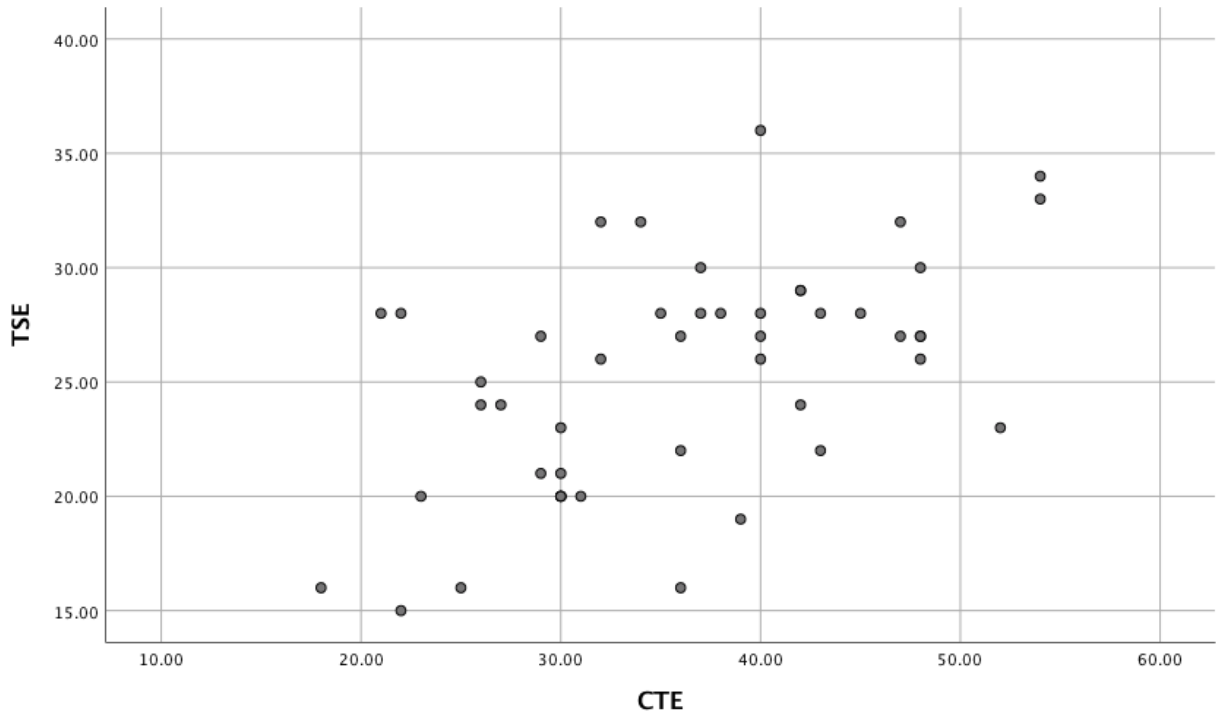


Figure 15. Teacher self-efficacy and collective teacher efficacy for TELN

Chapter Summary

In this chapter, the findings were presented from the analysis of data obtained from 161 participants from school districts in Tennessee who were involved in the work of LIFT, RTBR, or TELN. Data were collected from responses to an online survey which collected demographic data regarding literacy support and responses to items measuring teacher expectations, teacher self-efficacy, and collective teacher efficacy. The study examined differences in teacher expectations, teacher self-efficacy, and collective teacher efficacy among members of LIFT, RTBR, and TELN as well as correlations between the dependent variables in each network.

There were six research questions. Research Questions 1-3 and the corresponding null hypotheses examined differences between teacher expectations, teacher self-efficacy, and collective teacher efficacy among LIFT, RTBR, and TELN and were analyzed using a series of

one-way analyses of variance. The results indicated that members of LIFT had significantly higher expectations, higher teacher self-efficacy, and higher collective efficacy than members of RTBR or TELN. There were no significant differences in teacher expectations, teacher self-efficacy, or collective teacher efficacy between members of RTBR and TELN. Research Questions 4-6 examined correlations between teacher expectations and teacher self-efficacy, teacher expectations and collective teacher efficacy, and teacher self-efficacy and collective teacher efficacy in each network. Each question had three corresponding null hypotheses, which were tested by computing Pearson correlation coefficients. Strong positive correlations were found between teacher self-efficacy and collective teacher efficacy for each of the three networks. A moderate positive correlation was found between teacher expectations and collective teacher efficacy for LIFT and TELN, but there was not a statistically significant correlation for RTBR. A moderate positive correlation was found between teacher expectations and teacher self-efficacy for LIFT, but there were no statistically significant correlations for RTBR or TELN.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this quantitative study was to determine if there was a significant difference in teacher expectations, teacher self-efficacy, and collective teacher efficacy among members of three literacy support networks in Tennessee, LIFT, RTBR, and TELN. Additionally, the study examined potential correlations between teacher expectations and self-efficacy, teacher expectations and collective teacher efficacy, and teacher self-efficacy and collective teacher efficacy in each of the three networks. Responses to an online survey from 161 K-3 teachers from school districts across the state of Tennessee who had participated in the work of LIFT, RTBR, or TELN and received specific support in literacy instruction as a result of that work were analyzed using a series of one way analyses of variance and computing Pearson correlation coefficients. The results of this study concluded that there was a difference in teacher expectations, teacher self-efficacy, and collective teacher efficacy among members of LIFT, RTBR, and TELN. Members of LIFT scored higher in each of these measures than members of RTBR and TELN. Additionally, the research concluded that significant correlations existed between teacher expectations and teacher self-efficacy among members of LIFT, between teacher expectations and collective teacher efficacy among members of LIFT and TELN, and between teacher self-efficacy and collective teacher efficacy for all three networks.

Summary

Researchers have found teacher expectations, teacher self-efficacy, and collective teacher efficacy to be positively correlated with student achievement (e.g. Donohoo et al., 2018; Hattie,

2012; “Hattie effect size list- 256 Influences Related to Achievement”, n.d.; Rubie-Davies et al., 2006; TNTP, 2018c). Additionally, researchers have found these teacher mindsets to have an effect on the implementation, sustainability, and success of instructional reform (e.g. Fullan, 2001, 2012; George et al., 2006). Bryk (2015) and Fullan (2012) suggested that changing teacher mindsets such as teacher expectations, teacher self-efficacy, and collective teacher efficacy, could serve as leading indicators of successful change in the absence of more substantive lagging indicators such as student achievement. Researchers have determined that certain factors tend to lead to the development of teacher self-efficacy and collective teacher efficacy, including mastery experience, vicarious experience, social persuasion, and affective states (Bandura, 1977; Donohoo, 2017; Goddard, 2000). These factors are often influenced by methods of teacher support such as professional development, coaching, collaboration, inquiry, curriculum implementation, and leadership (e.g. Donohoo, 2017; Knight, 2009; Kunnari et al., 2018; Gallimore et al., 2019; Tschannen-Moran & McMaster, 2009; Voelkel, 2011). Additionally, teacher self-efficacy and teacher collective efficacy have been found to be strongly correlated and to be correlated with teacher expectations (Albanese, 2015; Brault et al., 2014; Donohoo, 2017; Harris, 2012).

This study examined differences in measures of teacher expectations, teacher self-efficacy, and collective teacher efficacy among members of three literacy networks of teacher support in Tennessee as well as correlations between these factors in each network. Each literacy network offered a combination of professional development and a unique model of teacher support. LIFT focused support in building capacity in school and district leaders to lead teachers through the change process involved in implementing a new vetted, high quality curriculum. RTBR trained district level and school-level instructional coaches to redeliver professional

development and provide job-embedded cognitive coaching around the implementation of instructional strategies and lesson development. TELN involved teachers in the implementation of improvement science methods such as inquiry and PDSA cycles to understand the problem, system, and test change ideas while collaborating in a networked improvement community (LIFT, 2018a; Tennessee Early Literacy Network, n.d.b; TN Department of Education, n.d.a).

The present study analyzed data generated from responses to an online survey of 161 K-3 Tennessee teachers who had been involved in the work of one of the literacy networks. Participants included 56 responses from teachers supported by LIFT, 58 responses from teachers supported by RTBR, and 47 responses from teachers supported by TELN. Each of the three networks offered professional development support and 93 percent of respondents indicated they had received professional development in literacy instruction in the last three years. RTBR offered the unique support of training literacy coaches to complete cognitive coaching cycles around instructional practices and lesson planning (TN Department of Education, n.d.a), however many districts from the other two networks also employed district or school-based literacy coaches and 74 percent of respondents reported they had received coaching from a district or school-based literacy coach in the last three years. TELN (n.d.b) involved teachers in a networked improvement community, however, schools and districts from other networks also developed school or district based teams for literacy improvement and 55 percent of respondents indicated they had served on a school or district-based improvement team in the last three years, while only 24 percent of respondents indicated they had actively participated in the improvement science methods such as conducting PDSA cycles or inquiry implemented in TELN. As previously mentioned, the theory of action for LIFT included school and district leaders selecting and intentionally leading teachers through the change process of piloting or implementing a

published, vetted, high quality curriculum, while RTBR released network-developed unit starters, which some teachers piloted as an example of the kind of instruction teachers should be designing (LIFT, 2018 a; TN Department of Education, n.d.a). Sixty-three percent of respondents indicated they had piloted or implemented new language arts curriculum, with 34 percent piloting or implementing published curriculum through LIFT and 29 percent piloting or implementing a RTBR unit starter.

Data from the present study could be utilized to demonstrate that members of LIFT had significantly higher scores in teacher expectations, teacher self-efficacy and collective teacher efficacy than members of either RTBR or TELN. There were no significant differences in teacher expectations, teacher self-efficacy, or collective teacher efficacy between members of RTBR and TELN. The mean score for teacher expectations for LIFT indicated “high expectations” according to scoring guidance for the *Teacher Expectations Survey* (TNTP, n.d.b), while the mean scores for RTBR and TELN indicated “low expectations”. The mean scores for all three networks fell into the upper tercile for both teacher self-efficacy and collective teacher efficacy scores, indicating “high” scores in these measures according to scoring guidance for the *Collective Teacher Efficacy Scale* (Tschannen-Moran & Barr, 2004).

A strong positive correlation was found between teacher self-efficacy and collective teacher efficacy in all three networks. A moderate positive correlation was found between teacher expectations and teacher self-efficacy for LIFT, but there was not a statistically significant correlation for RTBR or TELN. A moderate positive correlation was found between teacher expectations and collective teacher efficacy for LIFT and TELN, but there was not a statistically significant correlation for RTBR.

Conclusions

Members of LIFT had significantly higher scores for teacher expectations, teacher self-efficacy, and collective efficacy than either RTBR or TELN. LIFT operated under a unique theory of action compared to the other two networks. Specifically, LIFT engaged district and school leaders to set a consistent vision for instructional practice through the selection and implementation of a vetted, high quality curriculum. Additionally, school and district leaders implemented an intentional strategy to provide ongoing support to teachers during the change process.

The greatest difference in scores was for teacher expectations. The mean score for LIFT indicated “high expectations”, while the mean scores for the other two networks indicated “low expectations”. Recently researchers have found that more than 50% of teachers in Tennessee as well as nationally tend to hold low expectations of students’ ability to meet the rigor of the standards (e.g. Harris, 2012; TN Educator Survey, 2016; TNTP, 2018), but this trend did not bear out among teachers associated with LIFT in this study. The specific supports offered through LIFT may have affected teacher expectations. This conclusion is consistent with research regarding teacher expectations. Specifically, researchers have found that leadership styles such as achievement oriented, path-goal and transformational leadership affect teacher expectations by inspiring a shared vision and initiating a coherent plan of action (Fullan, 2001; Northouse, 2016); and that the implementation of aligned materials and assessments may affect teacher expectations by clearing up misunderstandings regarding the rigor of the standards (Troia & Graham, 2016; TNTP, 2018c). Additionally, research findings would support that student success with the aligned materials may have had a powerful effect on teacher expectations among members of LIFT (Timperley & Phillips, 2003; TNTP, 2018c).

This difference in teacher expectations among members of LIFT may have been related to higher levels of teacher self-efficacy and collective efficacy as well . The *expectancy theory*, coined by Vroom (1964), explains that motivation is influenced by a person's belief that he or she is capable of doing the work and that success will be noticed. The intense focus, involvement, and ongoing support in the work of curriculum implementation on the part of the district and school leaders associated with LIFT may have increased motivation among teachers in the implementation of the aligned material, and once teachers witnessed student success with the higher expectations, this mastery experience may have served to increase both self-efficacy and collective efficacy around the shared vision. This conclusion is consistent with the findings of Albanese (2015) that high expectations led to student success, which created mastery experience which in turn increased teacher self-efficacy and collective teacher efficacy. The significant positive correlational findings between teacher expectations and both teacher self-efficacy and collective teacher efficacy among members of LIFT in this study support this conclusion.

All three networks supported teachers with professional development in literacy instruction, the majority of participants indicated that they had received some form of instructional coaching in the last three years, more than half indicated that they had participated on a school or district improvement team, and all participants had participated in the work of a formal network of support. These common supports may explain the high mean scores for teacher self-efficacy and collective teacher efficacy in all three networks. This would be consistent with research that has found that modeling and vicarious experience experienced through professional development, instructional coaching, and collaboration in networks contribute to the development of teacher self-efficacy (e.g. Bandura, 1977, 1993;Kleinasser,

2014; Tschannen-Moran & McMaster, 2009; Tschannen-Moran & Woolfolk Hoy, 2007). Additionally, working in networks focused on solving a problem of practice (Kunnari et al., 2018), consensus on goals for improvement (Kurz & Knight, 2003; Leithwood & Sun, 2009), coherence among faculty through shared vision and common professional activities (Donohoo et al., 2018) and teacher empowerment through shared leadership (Derrington & Angelle, 2013; Donohoo, 2017) may have contributed to increases in collective teacher efficacy in all three networks. Because teacher self-efficacy has been shown to be closely related to collective teacher efficacy both in existing research (e.g. Bandura, 1997; Donohoo, 2017; Donohoo et al., 2018; Goddard et al., 2000) and in the correlational findings in this study, many of these common supports may have been effective in supporting the development of both teacher self-efficacy and collective teacher efficacy.

LIFT teacher self-efficacy and collective teacher efficacy scores were significantly higher than RTBR or TELN. The combination of the correlation between high teacher expectations and high self-efficacy and high collective teacher efficacy found in both existing research (Goddard et al., 2000) and in the findings of this study as well as the unique leadership and curriculum supports may explain the difference in self-efficacy and collective efficacy scores between LIFT and the other two networks. The difference in teacher expectations for LIFT may have led to a cycle of increased mastery experience through student success, which then led to increased teacher self-efficacy, which is consistent with existing research (Albanese, 2015). Due to the intentional plan of action developed and implemented by leaders and the implementation of a common curriculum, this cycle likely occurred as a faculty leading to increased collective teacher efficacy.

Research supports correlations between leadership behaviors and the perception of

adequate resources, time and ongoing support for reform implementation with increased levels of both teacher self-efficacy and collective teacher efficacy (Gregorie, 2013; Kleinasser, 2014). Because the development of leader capacity in both content knowledge, curriculum selection, and implementation strategy were key action steps for the LIFT network, this unique support may explain some of the difference in scores. Researchers have found that leaders are key in developing collective teacher efficacy through inspiring a shared vision (Kouzes & Posner, 2007), acting as a change agent (Fullan, 2012), controlling the narrative of the school to focus on high expectations and growth mindset (Donohoo et al., 2018), and making cause and effect relationship between effort and student success apparent (Reeves, 2010).

The other key action step for LIFT- the implementation of aligned high quality-curriculum materials may also explain some of the differences in teacher self-efficacy and collective teacher efficacy scores between the networks. Haney et al. (2007) and Timperley and Phillips (2003) found correlations between the implementation of new programs, especially when accompanied with student success resulting in mastery experience, and increases in teacher self-efficacy. Mastery experience has been found to be the most significant factor in increasing both self-efficacy and collective efficacy, specifically mastery experience that occurs as a result of overcoming difficulty through sustained effort (Bandura, 1977; Donohoo, 2017; Tschannen-Moran & Woolfolk Hoy, 2007). Donohoo (2017) found that when teachers experience success as a group, collective teacher efficacy increases. The implementation of a common curriculum may have led to greater school-wide success in LIFT rather than isolated teacher successes. This is consistent with the findings of Leithwood and Sun (2009) that common curriculum implementation resulted in greater consensus among faculty, which was correlated with higher levels of collective teacher efficacy. The consistent focus, clear plan of action, and ongoing

support through change management provided by district and school leaders while teachers worked to implement a common high quality curriculum with higher student expectations, may have contributed to this type of group mastery experience among LIFT members. This study found strong correlations between teacher self-efficacy and collective efficacy in all three networks, which is consistent with existing research (e.g. Bandura, 1993; Donohoo et al, 2018; Tschannen-Moran & Woolfolk Hoy, 2007).

In conclusion, the findings of this study are consistent with existing research on the relationship between teacher support and teacher expectations, teacher self-efficacy, and collective teacher efficacy. The strong positive correlations between teacher self-efficacy and teacher collective efficacy for each network are consistent with established research. The positive correlations found between teacher expectations and self-efficacy and teacher expectations and collective teacher efficacy for LIFT when considered in conjunction with the significant difference in teacher expectations, teacher self-efficacy, and collective teacher efficacy between LIFT and the other two networks could be used to support the conclusion that a cycle of high expectations, observed success, increased efficacy, increased coherent effort, and increased collective efficacy may be present in the work of the members of LIFT.

Recommendations for Practice

The overall high levels of teacher self-efficacy and collective teacher efficacy among the three networks point to promising practices for teacher support from each of the networks, however the significantly higher scores in teacher expectations among members of LIFT may serve to clarify how supports may be most effective in increasing teacher mindsets that have been positively correlated with student achievement and successful instructional reform. The

significantly higher scores in teacher expectations, teacher self-efficacy, and collective teacher efficacy among members of LIFT as well as the correlations between the three variables suggest a powerful positive cycle, which researchers have found to lead to successful instructional reform and increased student achievement (e.g. Albanese, 2015; Bandura, 1997; Fullan, 2012; Hattie, 2012; TNTP, 2018c). Although some common supports were implemented among the networks which likely led to high scores in teacher self-efficacy and collective teacher efficacy, leadership capacity and curriculum implementation appear to be unique teacher supports that may have influenced differences in teacher expectations, teacher self-efficacy, and collective teacher efficacy in this study. Therefore, based on the results of this study with support from existing research, the following nine recommendations for practice were made:

1. Leaders should establish a clear vision and take an active role as a change agent in instructional reform initiatives including evaluating and attending to teacher mindsets and controlling the narrative of the school to focus on high expectations and a growth mindset.
2. Leaders should work to build capacity in both content knowledge and leadership strategy, including capacity to observe aligned instruction and provide useful feedback in order to effectively lead instructional reform.
3. Leaders should understand change management and develop a clear strategy for supporting teachers through instructional reform as well as a system for monitoring teacher concerns and levels of implementation throughout the reform.
4. Leaders should ensure that teachers are provided with the resources needed to build knowledge, skills, and dispositions that will lead to successful reform as well the physical resources needed to implement the vision of instruction.

5. Leaders should carefully consider aligning the instructional vision with the implementation of vetted, high quality instructional materials in order to both clarify the vision and expectations for instruction and to unite the faculty under a coherent goal and plan of action.
6. Leaders should carefully consider aligning professional development and teacher support such as instructional coaching around the implementation of aligned instructional materials, in order to provide a clear purpose and path of action for these supports.
7. Leaders who employ instructional coaches should provide a well-defined coaching role including a strong partnership with the school leader and consider training the coach in cognitive coaching, which has been shown to increase teacher self-efficacy through teacher reflection.
8. Leaders should intentionally create a healthy environment for effective focused collaboration within networks on a common goal with a clear theory of action in order to accelerate learning.
9. Leaders who consider the use of improvement science methods should ensure there is a clear plan of action, common goal for improvement, and tools for measurement to effectively and efficiently complete inquiry cycles.

Recommendations for Further Research

While some aspects of the support offered by the networks overlapped, there were unique differences in philosophy and theory of action for each network. Overall, results showed a strong positive correlation between teacher self-efficacy and collective teacher efficacy for all three networks. LIFT had significantly higher scores in teacher expectations, teacher self-efficacy, and

collective teacher efficacy than either RTBR or TELN. There was no significant difference in any of the measures between RTBR and TELN. There was a positive correlation between teacher expectations and teacher self-efficacy and teacher expectations and collective teacher efficacy for LIFT, as well as a positive correlation between teacher expectations and collective teacher efficacy for TELN. The following eight recommendations are proposed for further research on both the support provided by the literacy networks in Tennessee and the teacher mindsets examined in this study:

1. Because some methods of teacher support overlapped between networks, the specific instructional supports identified by participants in this study- instructional coaching, improvement science methods, improvement team, and curriculum implementation- should be analyzed to see if differences exist in teacher expectations, teacher self-efficacy, and collective teacher efficacy- among specific types of teacher support versus network.
2. This study was specific to literacy support provided in the state of Tennessee; this study should be modified to examine differences in teacher expectations, teacher self-efficacy, and/ or collective teacher efficacy among teachers receiving specific supports such as coaching and/or high quality curriculum implementation nationally.
3. Further follow-up analysis should be conducted to determine if the differences in teacher expectations, teacher self-efficacy, and collective teacher efficacy found in this study translate into differences in student achievement among the three networks.
4. A qualitative study should be conducted to examine teachers' experiences in each literacy network and identify unique factors that may have contributed to the differences in teacher expectations, teacher self-efficacy, and collective efficacy found in this study.

5. A qualitative study should be conducted to examine teacher perceptions related to expectations, self-efficacy, and collective efficacy among members of each network.
6. A qualitative study should be conducted to examine teacher and/or leader perceptions about the implementation process of aligned curriculum materials among LIFT members.
7. A qualitative study should be conducted to examine leader perceptions and processes involved in building capacity for literacy content knowledge and change management strategy.
8. A qualitative study should be conducted to examine teacher perceptions of the coaching provided as a result of RTBR.
9. A qualitative study should be conducted to examine teacher perceptions regarding improvement science among TELN members.

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APPENDICES

Appendix A: Instrument

11/6/2019

Literacy Teacher Survey

Literacy Teacher Survey

Please continue to the next section for information about this research study and survey. Thank you for your consideration.

* Required

Please read and agree to continue.

Dear Participant:

My name is Amanda Tinker, and I am a doctoral student at East Tennessee State University. I am working on my dissertation in Educational Leadership and Policy Analysis. In order to finish my studies, I need to complete a research project. The name of my research study is Teacher Expectations, Self-Efficacy, and Collective Efficacy in Three Tennessee Literacy Networks.

The purpose of this study is to examine differences in teacher expectations, self-efficacy, and collective efficacy among the Tennessee Early Literacy Network (TELN), Read to Be Ready Coaching Network (RTBR), and Leading Innovation for Tennessee (LIFT) network. I would like to give a brief online survey to Kindergarten through third-grade English Language Arts teachers who have been involved in the work of one of the three literacy networks in Tennessee using Google Forms. It should only take about 10-15 minutes to finish. You will be asked questions about your perceptions regarding expectations for student success, teacher self-efficacy, and collective teacher efficacy. Survey responses are anonymous and there are no foreseeable risks to this study. This study may benefit you or others by adding to research regarding the relationship between structures of teacher support and the teacher mindsets most strongly correlated to student achievement and sustained successful reform and providing an additional lens to the work of the literacy networks in Tennessee.

Your confidentiality will be protected as best we can. Since we are using technology no guarantees can be made about the interception of data sent over the Internet by any third parties, just like with emails. We will make every effort to make sure that your name is not linked with your answers. Google Forms has security features that will be used: survey responses and data will be password protected and IP addresses will not be collected. The survey is anonymous and no identifiable information will be collected. Although your rights and privacy will be protected, the East Tennessee State University (ETSU) Institutional Review Board (IRB) (for non-medical research) and people working on this research can view the study records.

Taking part in this study is voluntary. You may decide not to take part in this study. You can quit at any time. You may skip any questions you do not want to answer or you can exit the online survey form if you want to stop completely. If you quit or decide not to take part, the benefits or treatment that you would otherwise get will not be changed.

If you have any research-related questions or problems, you may contact me, Amanda Tinker, at (865) 314-3490. I am working on this project with my faculty advisor, William Flora. You may reach him/her at (423) 439- 7617. Also, you may call the chairperson of the IRB at ETSU at (423) 439-6054 if you have questions about your rights as a research subject. If you have any questions or concerns about the research and want to talk to someone who is not with the research team or if you cannot reach the research team, you may call an IRB Coordinator at 423/439-6055 or 423/439-6002.

Sincerely,
Amanda R. Tinker

1. Clicking **AGREE** indicates: 1. I have read the above information. 2. I agree to volunteer 3. I am 18 years of age 4. I am currently a teacher in a kindergarten through 3rd grade class *

Mark only one oval.

I AGREE Skip to question 2.

I DISAGREE Stop filling out this form.

General Information

2. My school/district was a part of *

Mark only one oval.

- Read to Be Ready Coaching Network (RTBR)
- Tennessee Early Literacy Network (TELN)
- Leading Innovation for Tennessee (LIFT)
- I'm not sure.
- None of the above.

3. Please indicate which types of teacher support you have engaged in over the last three years. (Mark all that apply) *

Check all that apply.

- Professional development on literacy/ ELA instruction and/or instructional strategies
- Instructional coaching provided by a district-based literacy/ELA coach
- Instructional coaching provided by a school-based literacy/ELA coach
- Participation on a district-based improvement team for literacy/ELA
- Participation on a school-based improvement team for literacy/ELA
- Participation in Improvement Science Methods such as PDSA cycles or Inquiry
- Pilot or implementation of a new English Language Arts Curriculum

4. If you have piloted or implemented a new ELA curriculum, which curriculum?

Mark only one oval.

- Core Knowledge (CKLA)
- EL Education K-5
- Wit and Wisdom
- Other
- I have not piloted or implemented a new ELA curriculum

Literacy Teacher Survey

Please indicate your opinion about each of the questions below specifically considering Literacy/ English language arts instruction rather than teaching in general.

5. Students are overburdened by the demands of our state's standards.

1= Strongly disagree 2=Disagree 3=Somewhat disagree 4=Somewhat agree 5=Agree 6=Strongly Agree

Mark only one oval.

	1	2	3	4	5	6	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

6. My students need something different than what is outlined in our state's standards.

1= Strongly disagree 2=Disagree 3=Somewhat disagree 4=Somewhat agree 5=Agree 6=Strongly Agree

Mark only one oval.

	1	2	3	4	5	6	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

7. The standards make it difficult for students to learn basic skills in English language arts.

1= Strongly disagree 2=Disagree 3=Somewhat disagree 4=Somewhat agree 5=Agree 6=Strongly Agree

Mark only one oval.

	1	2	3	4	5	6	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

8. Our states standards are too challenging for my students.

1= Strongly disagree 2=Disagree 3=Somewhat disagree 4=Somewhat agree 5=Agree 6=Strongly Agree

Mark only one oval.

	1	2	3	4	5	6	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

9. To what extent can you craft good questions for your students?

1=None at all . 3= Very little . 5= Some degree . 7= Quite a bit . 9= A great deal

Mark only one oval.

	1	2	3	4	5	6	7	8	9	
None at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal

10. To what extent can you use a variety of assessment strategies?

1=None at all 3= Very little 5= Some degree 7= Quite a bit 9= A great deal

Mark only one oval.

	1	2	3	4	5	6	7	8	9	
None at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal

11. To what extent can you provide an alternative explanation or example when students are confused?

1=None at all 3= Very little 5= Some degree 7= Quite a bit 9= A great deal

Mark only one oval.

	1	2	3	4	5	6	7	8	9	
None at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal

12. How well can you implement alternate teaching strategies in your classroom?

1=None at all 3= Very little 5= Some degree 7= Quite a bit 9= A great deal

Mark only one oval.

	1	2	3	4	5	6	7	8	9	
None at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal

13. How much can teachers in your school do to produce meaningful student learning?

1=None at all 3= Very little 5= Some degree 7= Quite a bit 9= A great deal

Mark only one oval.

	1	2	3	4	5	6	7	8	9	
None at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal

14. How much can your school do to get students to believe they can do well in schoolwork?

1=None at all 3= Very little 5= Some degree 7= Quite a bit 9= A great deal

Mark only one oval.

	1	2	3	4	5	6	7	8	9	
None at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal

15. How much can teachers in your school do to help students master complex content?

1=None at all 3= Very little 5= Some degree 7= Quite a bit 9= A great deal

Mark only one oval.

	1	2	3	4	5	6	7	8	9	
None at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal

16. How much can teachers in our school do to promote deep understanding of academic concepts?

1=None at all 3= Very little 5= Some degree 7= Quite a bit 9= A great deal

Mark only one oval.

	1	2	3	4	5	6	7	8	9	
None at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal

17. How much can teachers in your school do to help students think critically?

1=None at all 3= Very little 5= Some degree 7= Quite a bit 9= A great deal

Mark only one oval.

	1	2	3	4	5	6	7	8	9	
None at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal

11/6/2019

Literacy Teacher Survey

18. How much can your school do to foster student creativity?

1=None at all 3= Very little 5= Some degree 7= Quite a bit 9= A great deal

Mark only one oval.

	1	2	3	4	5	6	7	8	9	
None at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal

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 Google Forms

Appendix B: Email to Superintendents

Dear Superintendent:

My name is Amanda Tinker, and I am a doctoral student at East Tennessee State University. I am working on my dissertation in Educational Leadership and Policy Analysis. In order to finish my studies, I need to complete a research project. The name of my research study is *Teacher Expectations, Self-Efficacy, and Collective Efficacy in Three Tennessee Literacy Networks*.

The purpose of this study is to examine differences in teacher expectations, self-efficacy, and collective efficacy among the Tennessee Early Literacy Network (TELN), Read to Be Ready Coaching Network (RTBR), and Leading Innovation for Tennessee (LIFT) network. I would like to give a brief online survey to Kindergarten through third-grade English Language Arts teachers or supporters of teachers (admin, coaches, etc.) who have been involved in the work of one of the three literacy networks in Tennessee using Google Forms. **It should only take about 10-15 minutes to finish.** Teachers will be asked questions about their perceptions regarding expectations for student success, teacher self-efficacy, and collective teacher efficacy. Survey responses are anonymous and there are no foreseeable risks to this study. This study may benefit you or others by adding to research regarding the relationship between structures of teacher support and the teacher mindsets most strongly correlated to student achievement and sustained successful reform and providing an additional lens to the work of the literacy networks in Tennessee.

Taking part in this study is voluntary. Teachers may decide not to take part in this study and/or can skip any questions they do not want to answer or quit at any time.

If you have any research-related questions or problems, you may contact me, Amanda Tinker, at (865) 314-3490. I am working on this project with my faculty advisor, William Flora. You may reach him/her at (423) 439- 7617. Also, you may call the chairperson of the IRB at ETSU at (423) 439-6054 if you have questions about your rights as a research subject. If you have any questions or concerns about the research and want to talk to someone who is not with the research team or if you cannot reach the research team, you may call an IRB Coordinator at 423/439-6055 or 423/439-6002.

I have contacted you because your school district has been involved in one or more of the literacy networks in Tennessee. If you are willing to support me in my doctoral studies, **please forward this e-mail with the link to the survey to any Kindergarten through 3rd grade teachers or supporters of teachers (admin, coaches, etc.) who have been involved in the work of one or more of the three TN literacy networks.** Thank you for your time and consideration.

Sincerely,
Amanda R. Tinker

Please click on the following link to complete the online survey. Thank you for your participation.

<https://forms.gle/u9ZS2tRDuUFB6Qew5>

Appendix C: Email to District Leads

Dear (District Lead):

My name is Amanda Tinker, and I am a doctoral student at East Tennessee State University. I am working on my dissertation in Educational Leadership and Policy Analysis. In order to finish my studies, I need to complete a research project. The name of my research study is Teacher Expectations, Self-Efficacy, and Collective Efficacy in Three Tennessee Literacy Networks. I have received permission from your superintendent to invite teachers in your district who were involved in the work of one of these networks to participate in my research study. I am requesting your assistance by forwarding an invitation and survey link to teachers in your district.

The purpose of this study is to examine differences in teacher expectations, self-efficacy, and collective efficacy among the Tennessee Early Literacy Network (TELN), Read to Be Ready Coaching Network (RTBR), and Leading Innovation for Tennessee (LIFT) network. I would like to give a brief online survey to Kindergarten through third-grade English Language Arts teachers who have been involved in the work of one of the three literacy networks in Tennessee using Google Forms. It should only take about 10-15 minutes to finish. Teachers will be asked questions about their perceptions regarding expectations for student success, teacher self-efficacy, and collective teacher efficacy. Survey responses are anonymous and there are no foreseeable risks to this study. This study may benefit you or others by adding to research regarding the relationship between structures of teacher support and the teacher mindsets most strongly correlated to student achievement and sustained successful reform and providing an additional lens to the work of the literacy networks in Tennessee.

Taking part in this study is voluntary. Teachers may decide not to take part in this study and/or can skip any questions they do not want to answer or quit at any time.

If you have any research-related questions or problems, you may contact me, Amanda Tinker, at (865) 314-3490. I am working on this project with my faculty advisor, William Flora. You may reach him/her at (423) 439- 7617. Also, you may call the chairperson of the IRB at ETSU at (423) 439-6054 if you have questions about your rights as a research subject. If you have any questions or concerns about the research and want to talk to someone who is not with the research team or if you cannot reach the research team, you may call an IRB Coordinator at 423/439-6055 or 423/439-6002.

Please respond to let me know if I may proceed by sending you the invitation e-mail, informed consent, and survey link to forward to potential participants in your district. Thank you for time and consideration.

Sincerely,
Amanda R. Tinker

Appendix D: Email to Participants

Dear Teacher:

My name is Amanda Tinker, and I am a doctoral student at East Tennessee State University. I am working on my dissertation in Educational Leadership and Policy Analysis. In order to finish my studies, I need to complete a research project. The name of my research study is Teacher Expectations, Self-Efficacy, and Collective Efficacy in Three Tennessee Literacy Networks.

The purpose of this study is to examine differences in teacher expectations, self-efficacy, and collective efficacy among the Tennessee Early Literacy Network (TELN), Read to Be Ready Coaching Network (RTBR), and Leading Innovation for Tennessee (LIFT) network. I would like to give a brief online survey to Kindergarten through third-grade English Language Arts teachers who have been involved in the work of one of the three literacy networks in Tennessee using Google Forms. It should only take about 10-15 minutes to finish. You will be asked questions about your perceptions regarding expectations for student success, teacher self-efficacy, and collective teacher efficacy. Survey responses are anonymous and there are no foreseeable risks to this study. This study may benefit you or others by adding to research regarding the relationship between structures of teacher support and the teacher mindsets most strongly correlated to student achievement and sustained successful reform and providing an additional lens to the work of the literacy networks in Tennessee.

If you have any research-related questions or problems, you may contact me, Amanda Tinker, at (865) 314-3490. I am working on this project with my faculty advisor, William Flora. You may reach him/her at (423) 439- 7617. Also, you may call the chairperson of the IRB at ETSU at (423) 439-6054 if you have questions about your rights as a research subject. If you have any questions or concerns about the research and want to talk to someone who is not with the research team or if you cannot reach the research team, you may call an IRB Coordinator at 423/439-6055 or 423/439-6002.

If you would like to learn more about how you can participate in this brief survey, please click on the link below to access the Informed Consent Document and the Literacy Teacher Survey.

Sincerely,
Amanda R. Tinker

Click [HERE](#) to access the Literacy Teacher Survey

Appendix E: Permission Letter for Teacher Sense of Efficacy Scale



William & Mary School of Education

MEGAN TSCHANNEN-MORAN, PHD
PROFESSOR OF EDUCATIONAL LEADERSHIP

April 12, 2019

Amanda,

You have my permission to use the Teacher Sense of Efficacy Scale (formerly called the Ohio State Teacher Sense of Efficacy Scale), which I developed with Anita Woolfolk Hoy, in your research.

You can find a copy of the measure and scoring directions on my web site at <http://wmpeople.wm.edu/site/page/mxtsch> .

Please use the following as the proper citation:

Tschannen-Moran, M & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17, 783-805.

I will also attach directions you can follow to access my password protected web site, where you can find the supporting references for this measure as well as other articles I have written on this and related topics.

All the best,

Megan Tschannen-Moran
William & Mary School of Education

VITA

AMANDA R. TINKER

- Education: Ed.D. Educational Leadership, East Tennessee State University,
Johnson City, Tennessee, 2020
- Ed.S. Instructional Leadership, Tennessee Technological
University, Cookeville, Tennessee, 2010
- M.A. Instructional Leadership, Tennessee Technological
University, Cookeville, Tennessee, 2009
- B.S. Education, East Tennessee State University, Johnson
City, Tennessee, 2000
- Public Schools, Harriman Tennessee
- Professional Experience: Assistant Principal, Lenoir City Elementary School; Lenoir
City, Tennessee, 2012-2020
- Instructional Coach/Teacher/ Department Leader, North
Middle School; Lenoir City, Tennessee, 2006-2012
- Teacher, Loudon Elementary School; Loudon, Tennessee,
2003-2006
- Teacher, Fairmount Elementary School; Bristol, Tennessee,
2001-2003
- Presentations: Greenberg, S., Kavar, A, & Tinker, A. (2017). Using Student
Journey Maps to See the System. Carnegie Summit. San
Francisco, CA.

Fox, J. ,Leach, G., & Tinker, A. (2017). Using Improvement Science to Get Better at Getting Better. LEAD. Nashville, TN.

Bright, M. & Tinker, A. (2018). Ensuring Equity and High Expectations with Aligned Curriculum. LEAD. Nashville, TN.

Affiliations: Tennessee Early Literacy Network, District Lead, 2006-2009