2015

A Case Study of RTI Data Teams

William Lee Washington
Walden University

Walden University

COLLEGE OF EDUCATION

This is to certify that the doctoral study by

William Washington

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Jamie Jones, Committee Chairperson, Education Faculty
Dr. Beth Robelia, Committee Member, Education Faculty
Dr. John Hendricks, University Reviewer, Education Faculty

Chief Academic Officer

Eric Riedel, Ph.D.

Walden University
2015

Abstract

A Case Study of Response-to-Intervention Data Teams

by

William L. Washington IV

MEd, Virginia Commonwealth University, 2001

BSEd., Longwood College, 1994

Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

September 2015

Abstract

This qualitative case study addressed the persistent achievement gaps in annual measurable objectives (AMO) data at a public rural elementary school in the Mideast United States. Response to intervention (RTI) data teams from 2010 did not produce expected student gains after 5 years of implementation in the school under study. Based on Mandinach and Jackson's data-driven decision making conceptual framework, the purpose of this study was to examine the work of the RTI data teams as they attempted to improve student learning and close achievement gaps. A purposeful sample of 13 staff members involved in the RTI implementation process was interviewed. In addition, the RTI data team and student documentation were content analyzed for process and outcomes. Open coping and thematic data analysis of the interview transcripts revealed themes of fidelity, consistency, professional development, and data use in isolation. Findings suggested that the RTI teams lack sufficient time, professional development, and the capacity to address student learning gaps adequately. As an outcome, a guiding model for designing, implementing, and evaluating ongoing blended professional development was proposed. The intent of the project is to eliminate implementation barriers and establish effective data-driven decision making practices that improve instructional practice and student learning. This study has could assist educators in their efforts to implement RTI and build organizational capacity for data-driven decision making to address persistent achievement gaps effectively.

A Case Study of Response-to-Intervention Data Teams

by

William L. Washington IV

MEd, Virginia Commonwealth University, 2001

BSEd., Longwood College, 1994

Proposal Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

September 2015

Dedication

This dissertation is dedicated to my daughter Angelica Washington and my wife Sonivette Washington. Both are a constant source of encouragement, love, and support. My wife, whenever we discussed snippets of what I had written, pressed me to speak as if I had something to say and avoid saying something just to speak. My daughter couldn't wait to tell the world that her daddy is "a doctor." Words cannot express my appreciation for their seemingly endless supply of patience, understanding, and encouragement. I love them so much; I just wanted to make them proud.

Acknowledgments

Life is a process; learning is a journey. It is important is to have the wisdom to understand that you must not venture forth alone. I often sat and wrote alone. However encouragement from my wife, daughter, and countless members of our community provided the ongoing nudges that drove my efforts to see the process through to completion. Thank you.

A special thank you to three experts in the field of data-driven decision making: Dr. Amanda Datnow, Dr. Ellen Mandinach, and Dr. Edie Holcomb. They contribute amazing knowledge to research and practice in the field of educational data use, yet they took the time to answer my questions, offer suggestions, and render their thoughts about my work. A big motivator that drove the quality of this study was the fact that it was, in some small way, a representation of them; I had to get it right.

Thank you to the administration and staff in the host school district for this study. They opened their doors and offered their trust which made this study possible. Special thanks to Dr. Jesse Boyd and Dr. James Smith for their encouragement and support.

Thank you to my online CIA Study Group: Richard Campbell, Dr. Debbie Bennett, Sabrina K. Tanner, Debbie Robles, Julie Farias-Bollich, Anne Marie Harley, Dr. Anita Benson, Julie K. Washburn, La Tonya Eaford, and Amisi Bowe-Monfiston. Our collaborative efforts made the doctoral journey enjoyable and special.

Table of Contents

List of Tables

List of Figures

Section 1: Definition of the Problem

The reauthorization of the Elementary and Secondary Education Act of 1965 known as the No Child Left Behind Act (NCLB, 2002), requires all schools to provide a quality education regardless of the child's demographics or ability level (Rowley & Wright, 2011). A 2004 reauthorization of the Individuals with Disabilities Education Improvement Act (IDEA) includes a provision that requires early intervention services (EIS) for K–12 students who need additional developmental supports (Division for Early Childhood of the Council for Exceptional Children, National Association for the Education of Young Children, & National Head Start Association, 2014). Together, these legislative acts place a strong emphasis on grounding educational decisions in data and reducing achievement gaps. To successfully close achievement gaps, educators must have the capacity to positively impact diverse learners within diverse settings (Abbott & Wills, 2012; Fehr & Agnello, 2012). Effective data-driven decision making can provide the instructional differentiation necessary to produce positive gains for low-performing schools and remedy persistent achievement gaps (Datnow & Park, 2012; Duke, 2014; Love, 2009; Mandinach & Gummer, 2013b; Wayman, Cho, Jimerson, & Spikes, 2012). One strategy for addressing diverse needs of diverse learners while ensuring compliance with state and federal mandates is the implementation of RTI.

The implementation of tiered responsive prevention models for academic and behavioral support has occurred within schools across the United States (Kalberg, Lane, & Menzies, 2010). In recent years, RTI has become the most preferred tiered intervention model for the identification and treatment of learning problems (Berkeley,

Bender, Gregg Peaster, & Saunders, 2009; D. Fuchs & Fuchs, 2009; Gilbert et al., 2013). RTI originated from special education law as a legal alternative to the IQ-discrepancy approach for identifying students with learning disabilities (Nellis, 2012). The RTI framework has evolved into a general education early prevention system aimed at detecting and addressing learning gaps (Gilbert et al., 2013). One goal of RTI is to create and maintain an on-going process that uses student performance to guide implementation of high-quality instruction. Another goal of RTI is to match interventions to the needs of students. The use of data teams is an essential element in the design and implementation of the RTI process (Nellis, 2012). RTI data teams contain a multidisciplinary array of teachers, specialists, and administrators. Data teams are not unique to RTI; they are ubiquitous in schools as a widely accepted school improvement strategy. Despite their widespread use, problem-solving teams continue to be challenging for educators to establish and maintain (Datnow, Park, & Kennedy-Lewis, 2013; D. Fuchs, Mock, Morgan, & Young, 2003; Hamilton, 2011; Schwanenberger & Ahearn, 2013). The RTI model has the potential to address achievement gaps and promote differentiated instruction. However, the fidelity of the process hinges on the professional competencies of the individual educators who comprise the data team.

Rather than focus on the RTI process itself, this project study examined the work specific to data teams that were formed to implement the RTI framework within an elementary school in an effort to positively impact student achievement. Section 1 contains a definition of the problem; this section details the relationship of the problem to both the local and larger educational settings. The rationale for choosing this particular

problem is provided along with definitions of specific terms and jargon. The significance of the problem is discussed, along with guiding research questions that will be used to investigate the nature of the problem. Section 1 also contains a review of the professional literature related to the conceptual framework guiding the study and the characteristics of collaborative problem-solving data-teams. A discussion regarding implications for possible project directions based on anticipated findings of the study follows the literature review. This section concludes with a transition element that summarizes Section 1 and introduces Section 2.

Problem in Local Context

The problem in a small rural elementary school, located in the southeastern region of the United States, is that RTI data teams that were formed to comply with a state initiative to address achievement gaps have not produced expected student gains after 4 years of implementation. The school under study lacks a program evaluation specific to the implementation of the RTI framework. As a result, student learning problems are not being adequately diagnosed and addressed. Multiple years of AYP data and AMO data reveal persistent achievement gaps among students in the school under study. The purpose of this study was to investigate how RTI data teams use data to improve student learning and close achievement gaps within the school being studied. This problem affects student achievement because the current process has not been able to address a persistent achievement gap or produce expected student gains. Possible barriers to implementation are lack of shared vision for RTI, philosophical discrepancies among educators, entrenched norms and school culture, lack of appropriate professional

development, lack of conceptual framework for analyzing implementation fidelity, lack of capacity for collaborative inquiry and data-driven decision making, and conflicting attitudes or perceptions regarding data use among participants.

The assistant superintendent reported progress of RTI implementation during a public school board meeting on September 10, 2014. She provided an RTI implementation update nested within a presentation regarding an overview of 2014 state standardized test results and annual measurable objectives (AMO). Appendix B contains one of the PowerPoint presentations used for the meeting. A synthesis of data presented during the school board meeting revealed three key findings: (a) the majority of students who are moved into Tier 2 and Tier 3 are not progressing out of those categories, (b) the achievement gap between White students and other "gap" groups had not been closing over a 4-year period, and (c) there had been a state-wide trend of declining scores in math and reading since the state adopted RTI. The data also indicated that AMO targets for the school under study were not met for two out of three gap groups (see Table 1). However, district officials opted for a 3 year average result to meet AMO requirements. The school under study receives all RTI training and coaching through the state department. The findings presented by the assistant superintendent could indicate local implementation problems as well as issues with state-issued training and coaching. This study could have explored a gap in practice regarding training and coaching provided from the Department of Education as a significant barrier to RTI implementation. However, such an exploration would have extend beyond the scope of this study. For the purposes of this

project study, the scope will delimitate to the building-level of one school; this will enable a focus on implementation problems specific to the local context.

Table 1.

Proficiency Gap Dashboard for Federal Accountability

Proficiency Gap Dashboard for Federal Accountability

	Reading			Mathmatics		
	AMO Target	AMO Result	Met AMO Target	AMO Target	AMO Result	Met AMO Target
All Students	69	67	3 YR	66	72	YES
Gap Group 1 - Students with Disabilities, English Language Learners, Economically Disadvantaged Students (unduplicated)	59	59	YES	57	63	YES
Gap Group 2 - Black Students	57	49	3 YR	56	57	YES
Gap Group 3 - Hispanic Students	60	62	YES	60	74	YES

Key: YES = Met objective based on the current year result — 3YR = Met objective based on the 3 year average result

TS = Too small; objective not evaluated due to too few students — R10 = Met objective by reducing failure rate by at least 10 percent
NO = Did not meet objective — < = A group below state definition for personally identifiable results
- = No data for group — * = Data not yet available
N/A = Not applicable

Note. Annual measurable objective (AMO) results for 2013-2014.

The teachers in the school under study received a series of in-house professional development sessions that provided an overview of RTI. Problem-solving RTI models rely on the data literacy of data team members (Virginia Department of Education, 2013). Data-driven decision making is a critical component of the RTI framework because it is used to examine the trajectory of student performance (Ball & Christ, 2012; L. Fuchs, 2004). The RTI guide states that an interdisciplinary team makes all eligibility decisions; these decisions must be student-centered, data-informed, and based on student needs and strengths (E. Johnson, Mellard, Fuchs, & McKnight, 2006). Decision making is most effective when educators subscribe to the belief that data use is critical for decision

making (Lange, Range, & Welsh, 2012). At the school under study, administrators and teachers rely on consultation services provided by the Department of Education to inform their RTI problem-solving practices. Relying on consultants could be an implementation barrier because teachers and administrators may want to do only what they are told rather than think critically about solutions. Mandinach, Gummer, and Muller (2011) stated that educators receive little or no training in methods of using externally validated data or how to develop their own capacities for effectively using data. An overdependence on external expertise can be an indication that the educators participating in the RTI data team process have underdeveloped capacities for working with data. The staff must establish a requisite amount of internal expertise in order to create enough capacity to develop successful data-driven decision making processes. Research suggests that developing capacity for a data use culture is contingent upon several contributing factors: a focus on collective responsibility, the establishment of norms for teacher collaboration; the implementation of data discussion protocols; competent leadership, and professional capability of staff to engage in data-driven inquiry (Datnow et al., 2013; DuFour & Mattos, 2013). A comprehensive examination of the RTI problem-solving process is needed to help determine the specific needs of the local context for establishing an effective RTI problem-solving data team process.

Problem in Larger Context

To comply with special education legislation, many schools across the United States employ RTI models for both academic and behavioral student supports; it has become the most preferred tiered intervention model for identification and treatment of

learning problems (D. Fuchs & Fuchs, 2009; Gilbert et al., 2013; Kalberg et al., 2010). Successful problem-solving RTI models rely on the data literacy of data team members. Data-driven decision making is a critical component of the RTI framework because it is used to examine the trajectory of student performance (Ball & Christ, 2012; L. Fuchs, 2004; Hoover, 2011). RTI models are often challenging to implement because they require educators to be adept with data-driven decision making.

Standards-based reform legislation and performance accountability systems have increased the need for data-driven decision making in U.S. schools (Wayman et al., 2012). In recent years, more school leaders have been exploring ways to install more sophisticated systems of data use within their local contexts. Piety (2013) suggested that legislative imperatives to integrate processes of data use in schools have led to an educational data movement. Despite this heightened interest, educators' understandings of how data lead to improvement are underdeveloped (Goren, 2012). A common result among school districts nationwide is that educators collect an abundance of data, yet struggle to develop the capacity to effectively use these data in a manner that informs and guides educational decisions (DuFour & Marzano, 2011; Huguet, Marsh, & Farrell, 2014; Ikemoto & Marsh, 2007; Kerr, Marsh, Ikemoto, Darilek, & Barney, 2006). More specifically, the literature suggests that educators, as a whole, are ill-equipped to generate questions from data, select appropriate metrics, analyze results, and create actionable solutions for addressing gaps in learning and instructional practice (Datnow & Park, 2014; Jacobs, Gregory, Hoppey, & Yendol-Hoppey, 2009; Little, 2012; Mandinach & Gummer, 2013a). Consequently, there is increased importance for school leaders to

create collaborative data use cultures among teachers as a facet of their respective school improvement processes.

Teachers have difficulty determining an appropriate response to problems that are indicated by student performance data (Huguet et al., 2014). Cosner (2012) suggested that educators need explicit knowledge of diagnostic factors and interventions specific to continuous development of collaborative data practices. Teachers cannot learn or develop these skills in isolation; they must learn to engage in collaborative inquiry that lends itself to the development of practice (Kohler-Evans, Webster-Smith, & Albritton, 2013). In this regard, guiding documents, best practice literature, and empirical findings suggest that the use of data teams facilitates the creation and maintenance of data-driven cultures (Hamilton et al., 2009; Schwanenberger & Ahearn, 2013). Collaborative data teams discover specific needs of students and produce knowledge from data that helps them to effectively plan curricula, differentiate instruction, evaluate teaching, and drive instruction (McMaster, 2013). However, the efficacy of the data team is dependent upon the extent to which individual team members are data literate (Mandinach & Gummer, 2013a). The educators at the school under study understand that effective data use has potential in diagnosing and addressing student learning gaps; this is evidenced by the high percentage of teachers who participate in existing data teams and attend voluntary professional development. However, the team meetings are not progressing beyond mere reporting of assessment scores; they are not transitioning the data into actionable knowledge. The study identified factors that influence the functioning of the data teams and explore how these factors interact with the data team implementation process.

Rationale

The following section substantiates a local problem within the school under study. Student achievement data, federal legislation, and program implementation are among several aspects of the situation explained. However, the most significant characteristic that warrants examination is an achievement gap that persists despite corrective efforts by educators over a span of time within the school under study.

Evidence of the Problem at the Local Level

The school under study lacks a program evaluation specific to the implementation of the RTI framework. As a result, student learning problems are not being adequately diagnosed and addressed. State report card data reveal AYP and AMO gaps between White students and other student groups (Black, economically disadvantaged, and special education) all ranging from 12%–16% from 2010–2014. In 2010, the school under study was identified as a school in need of improvement (SINI) in reading based on No Child Left Behind (NCLB) criteria. To comply with state and federal mandates, the leadership team elected to implement an RTI framework at the school under study as a turnaround strategy for improving practice and student learning. Students who move into Tiers 2 and Tier 3 are not progressing out.

Effective use of an RTI problem-solving model generates solutions to student problems by evaluating student responsiveness to a four-stage process: problem identification, problem analysis, plan implementation, and problem evaluation (D. Fuchs et al., 2003). In the school under study, a gap in practice lies between the four-stage RTI process and the generation of solutions (or interventions). Consequently, many students

who are moved into Tier 2 and Tier 3 do not progress out of those classifications. The Tier 2 and Tier 3 intervention levels are where data-driven decision making is essential (National Center on Response to Intervention, 2010). The assistant superintendent provided this project study with a chronological account of school improvement efforts from 2010-2015 including professional development opportunities for teachers. According to the descriptive listing, teachers have not received professional development for collaborative inquiry or data-driven decision making skills (personal communication, January 5, 2015). At the classroom level, teachers must recognize the connection between assessments and the design of effective instruction in order to target specific needs of their students (Prasse et al., 2012). The RTI process from 2010 to date has not contributed to the closing of achievement gaps or produced expected student gains over a 4-year period. However, the lack of progress has not been due to lack of effort. This section provides a detailed description of teacher's and administrator's school improvement efforts from 2010 to the present.

Persistent achievement gaps. Achievement gap is the name given to trend data that reveal how differences in average scores between White students and minority students are statistically significant (Burchinal et al., 2011; Mark, 2013). Multiple years of standards of learning (SOL) data, AYP data, and AMO data reveal persistent achievement gaps among students in the school under study. In 2014, AMO targets were missed for two out of three gap groups (see Table 1). These groups were Black students, English language learners (ELL), and special education students. However, district officials opted for a 3-year average result to meet AMO requirements. Table 2 reveals a

trend of state standardized test scores for students over a 3-year period. These data also indicate a trend of the gap increasing over time. These results are significant for state and federal policy. NCLB legislation requires all schools to provide a quality education regardless of the child's demographics or ability level (Rowley & Wright, 2011). There is a strong emphasis within this legislation on reducing the achievement gap. It is possible to address and remedy achievement gaps. According to Love (2009), persistent achievement gaps are symptoms indicative of an absence or lack of effective data use practices.

Table 2.

State Accreditation Results for All Students

State Accreditation Results for All Students

Subject	Accreditation Benchmark	2011 - 2012	2012 - 2013	2013 - 2014
English	75			
White		84	91	87
Hispanic		80	95	75
Black		84	81	57
Math	70			
White		90	80	83
Hispanic		95	62	78
Black		88	51	57
Science	70			
White		86	89	89
Hispanic		73	67	100
Black		79	76	64

Note. Percentage of students passing the state test over a 3-year period. The Hispanic population is >10 students per grade level. Attendance rate of all students is 95%.

The intentions of implementing an RTI process was to provide a data-based foundation for planning a systematic set of research-based interventions at each of three

increasingly intensive instructional tiers (E. Johnson et al., 2006). In the 4 years to follow, the leadership team demonstrated support for installing a successful RTI program through a variety of professional development sessions, policies, and program accommodations. Gaps between White and Black students persist despite many implementation efforts. The implementation efforts are evidenced through publically available school board minutes from 2010–2015, artifacts from a public presentation by the assistant superintendent, and state report cards for the school under study. Also, following a brief conversation regarding the purpose of this study, the assistant superintendent volunteered an email that chronicles the school improvement process at the school under study from 2010–2015. The email will be cited as "personal communication, January 5, 2015."

School improvement efforts 2010 – 2011. The Department of Education (DOE) of the state launched an RTI initiative in 2007. According to former State Superintendent of Instruction, Patricia Wright (2010), DOE formed invitational regional cohorts as a strategy to facilitate statewide implementation of RTI. DOE pledged to provide professional development and technical support to each division enrolled in the RTI cohorts (Wright, 2010). The school under study was enrolled into a DOE RTI cohort in response to being identified as SINI in the spring of 2010 based on NCLB criteria. The division's assistant superintendent took responsibility for spearheading and overseeing RTI implementation and improvement of the school under study. The central office leadership subscribed to Indistar® school improvement software and organized monthly school leadership meetings to better align division wide improvement efforts (assistant

superintendent, personal communication, January 5, 2015). The DOE assigned improvement coaches to the school under study. One coach helped to inform the school improvement plan while another provided periodic professional development sessions. District and building administrators were required to attend numerous RTI workshops in accordance with requirements of the DOE RTI initiative program (Wright, 2010). Teachers explored interactive achievement software for purposes of benchmark testing, but full building-level RTI implementation did not occur during the 2010-2011 year (see Appendix B).

School improvement efforts 2011– 2012. Public school board meetings (online recordings) and minutes for July–September 2011 reveal several efforts by the school board to establish capacity for RTI implementation for the school under study. The assistant superintendent arranged to have only one DOE consultant serve as the school improvement and RTI coach. According to public record of 2011 meeting minutes, the school board approved the acquisition of several components of the Fountas and Pinnell guided reading system including book rooms Levels A–Q; Scholastic classroom libraries leveled on the F and P system; the Fountas and Pinnell Benchmark Assessment System 2 (BAS) from Heinemann; and a guided reading consultant. A guided reading consultant trained and coached teachers to use the Fountas and Pinnell literacy system. In the spring of 2012, the director of special education, assistant superintendent, principal and assistant principal divided the staff and conducted in-house RTI professional development of teachers (assistant superintendent, personal communication, January 5, 2015). Existing grade level groupings were used to form RTI problem-solving data teams.

Discipline data revealed that teachers issued more than 400 office referrals by December 2011. School officials elected to explore the use of Positive Behavioral Interventions and Supports (PBIS). PBIS is a state DOE initiative managed by Old Dominion University. Personnel from Old Dominion University provided workshops and follow up visits to the school under study. Discipline numbers decreased dramatically following full implementation of PBIS. School officials later abandoned PBIS upon adopting a dual RTI model for discipline and academics.

The SINI designation was lifted from the school in the 2011-2012 year. State-level officials implemented NCLB waivers that transitioned the accountability metric from AYP to AMO. The school under study made both AYP and AMO targets. However, the state report card data revealed persistent achievement gaps between White students and other groups at the end of the 2011-2012 school year (see Appendix B).

School improvement efforts 2012 – 2013. The focus of this year was Tier 1 RTI instruction, universal screening, and guided reading instruction. RTI and guided reading coaches continued to visit the school under study. The principal changed the master schedule to introduce intervention and enrichment periods (I/E). A new RTI coach suggested the purchase of AIMSweb software and professional development related to this software. According to the assistant superintendent, AIMSweb provided more information and functioned as a better mechanism for universal screening than solely using Fountas and Pinnell (personal communication, January 5, 2015). A new RTI coach supplemented the efforts of the existing one. Together, they provided professional development regarding intervention meetings and Tier 1 RTI implementation. At this

point in time, 2 years have passed since school leaders adopted RTI as a turnaround strategy for school improvement. There is no evidence that the school under study received professional development on Tier 2 or Tier 3 interventions from 2010-2013. District and building-level administrators invested effort, expenses, and professional development to establish a foundation for Tier 1 RTI implementation. The school under study made AMO targets, but achievement gaps remained in all core subjects (math, reading, social studies, and science) at the end of the 2012-2013 academic year (see Appendix B).

School improvement efforts 2013 – 2014. Many of the efforts associated with school improvement during 2013-2014 involved implementation of RTI Tier 2. School leadership stopped using Indistar® school improvement software because AMO targets had been met the year before. The assistant superintendent arranged for the contracting of a university-based literacy coach to provide professional development to classroom teachers regarding reading interventions. The workshops resulted in the development of a reading intervention tool kit; more books were added to the leveled reading library. Building-level reading intervention teachers were reduced from two to one.

The RTI implementation effort moved forward with the introduction of universal screening in mathematics. The school under study did not meet AMO targets for gap groups; district leadership elected to use the 3-year average option in order to meet state defined accreditation targets. Achievement gaps between White students and other student groups remained at the end of the 2013-2014 school year (see Appendix B).

School improvement efforts 2014 – 2015. School leaders returned to the use of Indistar® school improvement software and resumed school improvement team meetings because AMO targets were not met in the 2013-2014 school year. The school improvement team elected to employ two new software solutions to function as Tier 2 and Tier 3 interventions. Read 180 provides Tier 3 intervention for students in Grades 4-6 and 9-12. Leveled Literacy Interventions (LLI) provides Tier 2 intervention for students in Grades 1-3 during I/E time. Math software was not purchased to assist with screenings or remediation.

It is important to note that educators within the school under study rely solely on computer software to provide interventions to students across all RTI tier levels. To date, there has been no evidence of professional development on professional learning communities, collaborative inquiry, effective data use, or data-driven decision making.

Administrative support. In the initial stages of implementation, district and building-level administration supported RTI integration through scheduling and fiscal allocation. The assistant superintendent, building-level specialists, and building administrators attended RTI workshops in order to become in-house coaches. The next step was to form RTI problem-solving teams using grade level groupings. Administrators divided the responsibility of providing professional development at the school level; each took a portion of grade level staff groupings. Teachers received professional development on writing specific, measurable, attainable, results oriented or relevant, and time-bound (SMART) goals for themselves and their students. The principal scheduled common planning times so that data teams could meet during the

school day. A data use component was added to the teacher evaluation. To date, a building administrator has attended each data team meeting. A data coach visits the school two to three times each year to observe meetings and provide consultation to the administration. Currently, district and building administrators continue to support for RTI implementation.

RTI problem-solving data teams. Meeting for the purpose of collaborative decisions that are grounded in data is something foreign to many school contexts. RTI requires a shift in school culture and a change in how educators instruct, develop themselves, and interact with others (Bean & Lillenstein, 2012). Educators within the school under study grapple with integrating data teams into their existing school improvement process.

Team composition. The conceptualization and composition of the data team have changed over the years at the school being studied. For example, the special education child study was once renamed "the problem-solving committee"; this name was rescinded less than a year later. This problem-solving committee was reinvented to include a single teacher from each grade level, reading and math specialists, and building-level administrators. Meetings for the committee were difficult to schedule and had to occur after-school. After adoption of RTI, the problem-solving committee was reorganized to several grade-level data teams that consist of teachers grouped by grade level, a reading specialist, a math specialist, a building administrator, and the assistant superintendent. It is important to note that this school resides within a very small rural school district with several staff and resource limitations. In the school under study, the

intervention specialist title is synonymous with the teacher who resides in the math or reading center. Therefore, when educators within the school under study refer to a math specialist, they are also denoting the math interventionist. Larger school divisions typically employ district-level supervisors or directors who supervise and coordinate program implementation and professional development for specific areas of content across the entire school division. District-level content specialist positions do not exist within the school under study. The absence of district-level content specialists within the school under study demands a high-level of competence from building-level specialists who often function as sole sources of support for students who struggle with core instruction.

Collaborative problem-solving. The literature concerning collaborative problem-solving suggests that the work of data teams should occur within the context of a collaborative inquiry process (M. Burns, Pierson, & Reddy, 2014; Collay, Winkleman, Garcia, & Guilkey-Amado, 2009; Holcomb, 2004, 2012; Kimmel, 2012; Kise, 2012; Love, 2009; Love, Stiles, Mundry, & DiRanna, 2008; Sinnema, Sewell, & Milligan, 2011). At the school under study, programs from 2010 to date have not offered teachers professional development specific to collaborative inquiry, data-driven decision making, or professional learning communities. A resulting condition is that teachers are charged with employing data-driven decision making with a set of established norms for collaborative problem-solving. Consequently, treatment integrity and data use across tiers remain inconsistent and ineffective. Despite numerous professional development initiatives, teachers and administrators continue to struggle to develop capacity for

making data use central to improving and planning instruction. The superintendent has expressed concern about exceedingly low scores and achievement gaps; particularly, among low socio-economic status, minority, and special education students.

Data literacy among team members. After 4 years of implementation, achievement gaps among subgroups persist and data team work has not moved beyond mere reporting of student achievement scores. The literature suggests that the practice of presenting data without using a problem-solving process is incomplete for the following reasons: Teachers may not be able to interpret school assessment data (Chick & Pierce, 2013), the data themselves do not inform or improve practice (Schaffhauser, 2011), people will view the data through the lens of personal assumptions or beliefs and fail to be informed otherwise (Coburn & Turner, 2011b), and data use must be an ongoing collaborative process geared toward continuous improvement (DuFour & Marzano, 2011; Hamilton et al., 2009; Holcomb, 2012). Effective data use can inform teachers about the needs of each student in order to effectively plan curricula, differentiate instruction, evaluate teaching, and drive instruction (Anderson, Leithwood, & Strauss, 2010; Datnow et al., 2013; Jacobs et al., 2009; Kerr et al., 2006). Action planning does not occur as a result of the RTI team meetings. If the educators within the RTI problem-solving data teams develop new skills for creating action plans that are grounded in student data, successful Tier 2 and Tier 3 intervention solutions could emerge from the process. These skills involve collecting, analyzing, interpreting, and transforming data into actionable knowledge that informs decisions about improving student learning and professional practice (Datnow & Park, 2014; DuFour, DuFour, Eaker, & Many, 2010; Mandinach &

Jackson, 2012). Data-driven decision making improves instructional practice and is commonly attributed to academic improvement.

The purpose of this study is to investigate how RTI data teams use data to improve student learning and close achievement gaps within the school being studied. Without an extensive examination of existing data use practices, teachers and administrators may fail to diagnose and correct problems that hinder successful program implementation. A comprehensive study of the school's existing data use process is needed to understand how closely current practices are aligned with those that offer the extent of differentiated instruction needed to address the persistent achievement gap.

Evidence of the Problem From the Professional Literature

Reform efforts specific to the use of data-driven practices in American education, became an emphasis following the reauthorization of the Elementary and Secondary Education Act of 1965 known as the No Child Left Behind Act ("NCLB," 2002). This legislation required educators to provide evidence that students in all groups were learning reading and math; the policy placed a newfound focus on eliminating achievement gaps among student subgroups. Further promoting the use of data to drive education practice was the passing of subsequent legislation, the Individuals With Disabilities Education Act ("IDEA," 2004). Specifically, this legislation called for "incentives for whole-school approaches, scientifically based early reading programs, positive behavior interventions and supports, and early intervening services to reduce the need to label children as disabled in order to address the learning and behavioral needs of such children" (p. 4). To meet the collective imperatives of NCLB and IDEA, many

schools have embraced RTI models that focus on the school as the change agent (Jacobs et al., 2009; Kalberg et al., 2010). Most states are in some phase of RTI development, but many struggle to determine an approach to implementation (Berkeley et al., 2009). The uncertainty stems from the multiple dimensions of the RTI framework, the numerous ways in which it is implemented, and a lack of a common definition of RTI among scholars and practitioners (Bean & Lillenstein, 2012). One factor that influences implementation of the RTI framework is the context in which the process is situated.

Rural Context

The school under study possesses limitations that are characteristic of schools situated within a small rural context. Educators within small rural schools encounter implementation limitations specific to the context in which they are situated (Hardre, 2012; Robinson, Bursuck, & Sinclair, 2013). Findings in the literature regarding systemic implementation of RTI cite conditions that may impede fidelity of model implementation such as assessment administration, process implementation, or whether the educators follow an explicit decision making model (Robinson et al., 2013). Professional development (PD) of administrators and teachers is limited by the rural context in a variety of ways:

- A limited number of teachers within the school district, travel distances and expenses, and little or no connection to higher education institutions make it difficult to access effective ongoing staff development (Clarke & Wildy, 2011).

- It is difficult for many rural schools to leverage funds to recruit a suitable candidate pool for support positions necessary for implementation such as intervention specialists, instructional coaches, program coordinators, school psychologists, and speech and language pathologists (Robinson et al., 2013).
- Lack of turnover creates a condition in which rural educators may not be familiar with current research and methods (Werts & Carpenter, 2013).
- Professional learning community development is limited by small staff sizes and teacher isolation (Shymansky, Annetta, Yore, Wang, & Everett, 2013).

Initiatives tend to trickle down to rural districts that implement programs only when mandated. Davis, Barnard-Brak, and Arredondo (2013) conducted a study of compliance with assistive technology mandates. The authors found that rural districts had fewer assistive technology devices in comparison to suburban and urban schools. New innovations can be fiscally disruptive to rural school districts; funding from one enterprise is sometimes sacrificed in order to fund another.

Leadership of the school under study set up logistical capacity supports for the RTI implementation to occur (time, place, professional development, and money). However, building teacher capacity to engage in data-driven decision making and collaborative inquiry was underemphasized. Schools are most effective in meeting reform demands when educators subscribe to the belief that data are critical for decision making (Lange et al., 2012). It is common for educators within small rural areas to be left to their own devices in developing their professional competencies for using data.

Teachers' abilities to meaningfully analyze student data may be linked to effectiveness of addressing gaps in student achievement.

A resulting effect of evidence-driven federal and state mandates is that teachers are expected to know how to collect, analyze, interpret, and present data in the service of making decisions in all aspects of teaching and learning (Hamilton et al., 2009; Murray, 2014). Historically, data collection has been the concern of state and district-level officials, whereas implementing effective data use at the classroom level has been largely underdeveloped or ignored (Rose & Fischer, 2011). Consequently, teachers face many barriers to implementation of data-driven decision making at the classroom level to including (but not limited to) educator's level of data literacy, lack of time to effectively engage in data work, quality of professional development, building-level leadership, and collaborative culture (Dunn, Airola, Lo, & Garrison, 2013; Mandinach & Gummer, 2013a). It is difficult to turn to research into guidance to improve classroom-level data use. There is a lack of research that examines actual practices teachers employ as they engage in the enterprise of using data in learning community and classroom contexts (Little, 2012). Spillane (2012a) argues that research on data use should examine how practitioners use various types of data.

Achievement Gaps

Achievement gap is the name given for trend data that reveal how differences in average scores between White students and minority students are statistically significant (Blackford, 2013). Multiple years of SOL data, adequate yearly progress AYP data and AMO data reveal persistent achievement gaps among student groups in the school under

study. Discrepancies, particularly between White and Black students, persist despite a 4-year span of RTI implementation. In 2014, AMO targets in the school under study were missed for two out of three gap groups (see Table 1). These groups included black, English language learners (ELL), and special education students. District officials have the option of choosing standardized test results from the previous year or a 3-year average of scores for school state accreditation ratings (Beaver & Weinbaum, 2015). For the school under study, district officials opted to use a 3-year average result to meet AMO requirements to maintain accreditation. Table 2 reveals a trend of state standardized test scores for students over a 3-year period. These data also indicate a trend of the gap increasing over time. These results are significant to state and federal policy. NCLB legislation requires all schools to provide a quality education regardless of the child's demographics or ability level (Rowley & Wright, 2011). There is a strong emphasis within this legislation on reducing the achievement gap. It is important to remedy learning gaps for the developmental (academic and mental) health of students affected. The achievement gap is an equity issue that has been established in the literature as a major influence on behaviors, expectations, and accomplishments of minorities in society (Mark, 2013; Rojas-LeBouef & Slate, 2011). National Assessment of Educational Progress (NAEP) studies identify and report long-term achievement gaps but do not explain why these gaps exist in every U.S. state (Vanneman, Hamilton, Anderson, & Rahman, 2009). It is possible to address and remedy achievement gaps. According to Love (2009), persistent achievement gaps are symptoms indicative of an absence or lack of effective data use practices.

Torff (2014) used folk belief theory to explain the existence of persistent achievement gaps. This theory suggests that educators withhold rigorous curriculum and instruction for disadvantaged students due to a culturally conditioned predisposition to believe that they are less capable of succeeding academically than high-advantage students. A similar premise is applicable to the impact of school cultures on minority student outcomes. A synthesis of the literature would suggest that cultural conditioning plays a role in shaping a condition where instructional practices provide minority and disadvantaged students with limited access to rigorous curriculum and instruction (Moller, Mickelson, Stearns, Banerjee, & Bottia, 2013; Torff, 2014). Efforts to change belief systems among staff may be necessary in order to address achievement gap problems within schools.

Shift to Hybrid Model at the State Level

Perhaps one confounding variable to successful development of RTI problem-solving teams in the school under study is the adoption of a new model at the state level. The Virginia tiered System of Supports (VTSS) is a hybrid model of RTI that uses curricula protocol and problem solving in the planning of instruction (Virginia Department of Education, 2013). The guiding document, *Virginia tiered System of Supports (VTSS): A Guide for School Divisions*, describes the VTSS model as concerned with decision making at all levels. However, there is an extreme emphasis on top-down reform. The guide is a 68-page document that refers to "the leadership team" 96 different times and mentions the "problem-solving team" 6 times (Virginia Department of Education, 2013). The document places an extreme locust of control on administrators

and administrator appointed leadership team members to influence and dictate the direction of the process. This is a shift away from the 2007 RTI document which incorporated more professional learning community (PLC) theory; the current model abandons the notion of distributed leadership. The VTSS document mentions data-driven decision making as a necessary process component, but leaves much of the decision making in the hands of the leadership team. A lack of specific guidance regarding the use of data-driven decision making could create confusion about the purpose of the teacher RTI team meetings that still occur at the school under study.

Data-driven decision making improves instructional practice and is commonly attributed to academic improvement in schools and districts (Huguet et al., 2014; Supovitz & Tognatta, 2013). In order to meet the expectations of the federal and state educational policies, educators must possess the skills to engage in data-driven decision making. These skills involve collecting, analyzing, interpreting, and transforming data into actionable knowledge that informs decisions about improving student learning and professional practice (Datnow & Park, 2014; DuFour et al., 2010; Mandinach & Jackson, 2012). Without an extensive examination of existing data use practices, teachers and administrators may fail to diagnose and correct problems that hinder successful program implementation.

The purpose of this study was to investigate how RTI data teams use data to improve student learning and close achievement gaps within the school being studied. Without an extensive examination of existing data use practices, teachers and administrators may fail to diagnose and correct problems that hinder successful program

implementation. A comprehensive study of the school's existing data use process is needed to understand how closely current practices are aligned with those that offer the extent of differentiated instruction needed to address the persistent achievement gap.

Special Terms

Achievement gap: An achievement gap occurs when one group of students continually disproportionately outperforms other groups of students on achievement tests; the achievement gap is noticeable among student grades, standardized achievement scores, and other measures of academic success (Blackford, 2013).

Adequate yearly progress (AYP): Yearly improvement of each school receiving Title I funds that is sufficient to achieve the goal of all children served under Title I, particularly economically disadvantaged and limited-English proficient children, meeting the state's proficient and advanced levels of performance (U.S. Department of Education, 2012).

Annual Measurable Objectives (AMO): The minimum required percentages of students determined to be proficient in each content area (Virginia Department of Education, 2014).

Assessment – A test or other method for measuring achievement (Virginia Department of Education, 2014).

Corrective action plan: A plan outlining methods to improve teaching, administration, or curriculum that a school or school division classified as "in improvement" undertakes to improve student achievement (Virginia Department of Education, 2014).

Curriculum-based measurement (CBM): An evidence-based assessment protocol that uses short and valid measures to monitor development and progress of student skills (Dennis, Calhoon, Olson, & Williams, 2013).

Data literacy of educators: The knowledge and skills of educators that supports their effective use of data by working individually and collectively to collect and examine outcomes, trends, performance, and other indicators based on diverse sources of data such as achievement data, formative assessment measures of student performance, students' work products, and other forms of data (e.g., demographic, affective, process, attitudes, behavioral), and to develop strategies for school and student improvement based on these data (Mandinach & Gummer, 2013a, p. 9).

Data literacy of students: Data literacy requires that students investigate authentic problems; use data as part of evidence-based thinking; use appropriate data, tools, and representations to support this thinking; develop and evaluate data-based inferences and explanations; and communicate solutions (Vahey et al., 2012, p. 181).

Data-driven decision making (DDDM): Data-driven decision making is an iterative or cyclical process in which data must be transformed into information and, ultimately, actionable knowledge through a set of cognitive skills and processes (Mandinach et al., 2011).

No Child Left Behind (NCLB): The Elementary and Secondary Education Act (ESEA) is the primary federal law affecting K-12 education. The most recent reauthorization of the law is also known as the No Child Left Behind Act of 2001 (Virginia Department of Education, 2014).

Process of data use: What happens when individuals interact with assessments, test scores, and other forms of data in the course of their ongoing work (Coburn & Turner, 2011b, p. 175).

QSR NVivo10: Qualitative research software that enables researchers to store, organize, sort, code, and analyze qualitative data documents for emerging themes and patterns (QSR International, 2015).

Response to intervention (RTI): A student-centered framework that uses problem-solving and research-based methods to identify and address learning difficulties in children. Core components of the framework include, providing high-quality instruction and interventions that are matched to students' needs; universal screening; progress monitoring; and research-based tiered interventions (Berkeley et al., 2009; Erickson, Noonan, & Jenson, 2012). The name has been changed at the state level to VTSS, but the participants in the school under study continue to refer to the process as RTI.

Student progress monitoring: Iterative measurements of student performance to inform general and special education instruction (National Center on Response to Intervention, 2010).

Small rural school context: Rural schools are those that reside within communities of low population density, that are remote from large metropolitan areas, and have a primarily agriculture-based economy, where most area family incomes are of low social economic status (Hardre, 2012).

Significance

The school division's vision statement asserts that all students can learn and should have an opportunity to realize their optimal academic potential. The vision statement also suggests that the educators within this school division place an emphasis on differentiated instruction and continuous improvement of student learning. Philosophically, this vision is supported by the implementation of a RTI model at the elementary level. The premise of an RTI problem-solving model is that all student problems are identified and addressed on an individualized, case-by-case basis. The RTI problem-solving model uses a four-stage process: problem identification, problem analysis, plan implementation, and problem evaluation (D. Fuchs et al., 2003). In the school under study, a gap in practice lies between the four-stage RTI process and the generation of solutions (or interventions). If properly installed, a data-driven decision making processes could address the gap between the RTI process and solutions. Results of this study could provide a basis for future evaluation of the existing RTI program.

Effective data-driven decision making. One effect of No Child Left Behind (NCLB) legislation is that educators are asked to use data for the purpose of continuous improvement; this introduced a function additional to those of compliance and accountability (Mandinach & Gummer, 2013a). Accountability trends have created phenomena whereby data are more available in schools, but educators struggle to determine how to use data effectively (Ball & Christ, 2012; Hamilton et al., 2009). It is difficult to turn to research for answers concerning implementation. In order to establish effective data teams, the data literacy of each participating member must be developed

(Jacobs et al., 2009; Mandinach & Gummer, 2013b). Developing each educator's capacity to use data would enable the data teams to identify learning gaps, differentiate instruction, and improve learning for all students. Effective data-driven decision making empowers teachers to develop their own practice and improve student learning (Mandinach & Jackson, 2012; Means, Padilla, & Gallagher, 2010). A better understanding of teachers' strengths and weaknesses in understanding data can inform the prioritization and planning of teacher professional development within the local context.

Philosophical barriers. Philosophical barriers could impede problem-solving practices. Nellis (2012) stated that a conflict occurs when teachers believe that students are better served in special education when they are difficult to teach. Some teachers' beliefs promote a perception that the problem-solving teams are in direct contention with the special education referral process. Slonski-Fowler and Truscott (2004) reported findings that teachers felt marginalized by their problem-solving data team process. The teachers in the study had very little influence in the process, so they disengaged the process altogether and stopped referring students. Educators may have varied definitions and perceptions of the process that impede process implementation. Findings from this project study could contribute additional knowledge to the literature regarding philosophical barriers to establishing effective RTI problem-solving teams.

Implications for Social Change

The purpose of this study was to investigate how RTI data teams use data to improve student learning and close achievement gaps within the school being studied. The significance of the knowledge contributed from this study will extend to all students, educators, school districts, and researchers. Findings from this study could contribute additional knowledge to the literature regarding philosophical barriers to establishing effective RTI problem-solving teams; inform prioritization and planning of teacher professional development; and provide a basis for future evaluation of the current RTI process within the local context.

On a broader scope, there is a gap in the literature that explores the data use process within contexts that are similar to the school being studied. Wayman et al. (2012) explained that the literature regarding data practice has largely been created through studies that examine contexts chosen for exemplary conditions. A smaller amount of literature addresses the affordances and barriers associated with RTI implementation processes that are in beginning stages. Also underrepresented in the literature is an examination of the roles and characteristics of individual teachers that participate in the RTI problem-solving data use process. The findings from this study contribute knowledge to these gaps in the literature. Additionally, the findings could be useful to small rural elementary schools with similar implementation problems and non-exemplary conditions.

Research Questions

This study examines data teams that were formed to comply with a state initiative to implement RTI within an elementary school. The initial review of the literature, presented in this section, and state report card data from the school under study helped to guide development of the research questions for this study. The overarching question for this study was "How are the RTI data teams using data to improve student learning and close achievement gaps within the school being studied?" The literature concerning RTI implementation provides several potential causes of persistent achievement gaps; the two most prominent are poor fidelity of implementation and ineffective data-driven decision making practices. Findings that inform these questions will provide a deeper understanding of RTI implementation; this is particularly relevant in small rural school contexts. The following research questions were created to inform the overarching question:

1. How do educators within the RTI data teams use data to inform their instructional decision-making?
2. How is the RTI process used to assist low-performing and at-risk students in the school being studied?
3. What are affordances and barriers to establishing effective RTI problem-solving data teams within the school being studied?

The objectives of this study included examination of the following: (a) educators' perceptions of data team effectiveness, (b) data use practices used by RTI data team participants, and (c) perceptions of the skills needed for the successful deployment of

problem-solving processes within the RTI framework in the school under study. The methodological approach used to address these research questions is discussed further in Section 2.

Review of the Literature

The review of literature for this section begins with the conceptual framework used to analyze and interpret findings for this study. This study examined data teams that were formed to comply with a state initiative to implement RTI within an elementary school. The purpose of this study was investigate how RTI data teams use data to improve student learning and close achievement gaps within the school being studied. The strategy for gathering literature to inform this study involved an investigation of books, journal articles, and publication links on professional organization websites that inform data-driven decision making practices. The primary source of literature was peer-reviewed articles from the Walden Library and Google Scholar. Many of the articles were from research journals in the field of education. Resources were also drawn from a small number of reports and handbooks authored by subsidiaries of the U.S. Department of Education. A handful of leading authors in this subject are referenced as they have produced influential works on how to use educational data. In an effort to reach saturation in the literature review the following terms were searched: *data-based decision making, data-driven decision making, data-driven reform, data-based instruction, data-driven decision making, collaborative inquiry, data use, data teams, educational accountability, response to intervention, pre-referral intervention team, data inquiry, using data, collaborative professional development, teacher collaboration,*

teacher isolation, data coaching, professional learning communities, differentiated instruction, response to intervention, education reform, educational systems change, and effect of Sputnik on education.

Conceptual Framework Related to the Problem

The most critical and complex element within the RTI framework is data-based decision making (Ball & Christ, 2012). The conceptual framework chosen for this study focuses on data-driven decision making. Mandinach, Honey, Light, and Brunner (2008) created the first conceptual framework for understanding how data are processed and refined into actionable knowledge. The framework for data-driven decision making model illustrates the process by which data are transformed into actionable knowledge before it can be used to improve teaching and learning. There are three major components to the data-driven decision making process as shown: (a) data, (b) information, and (c) knowledge. Figure 1 illustrates the workflow of data in being refined and transformed into actionable knowledge. Essential to this framework is the step between analysis of information and creation of knowledge. In order to create actionable knowledge, the analysis of information must be combined with stakeholder understanding and expertise through a process of collaborative inquiry. A synthesis of the literature regarding data use would suggest that a lack of collective inquiry within this step of the process is often the source of a gap in practice regarding data-driven decision making. Mandinach et al. (2008) explained that the framework focuses on a total of six key skills; there are two skills that align with each of the points along the continuum. Two important skills needed at the data level are collecting and organizing. It is

important to note that this level calls for more than simply gathering and warehousing random data. In order to problem-solve, the educator must decide which data needed to be collected, whether or not more is needed, and if the existing data needed validation or clarification. Finally, the data must be sorted and categorized before they can be examined any further.

At the information level of the framework, the two important skills are analyzing and summarizing (Mandinach, Honey, & Light, 2006). At this level, the educator will look for trends, norms, and outliers that may help forecast a trajectory or explain past performance. The scope of this analysis will depend on the type of query or the role of the decision maker (Mandinach et al., 2008). Next, concise and targeted summaries of findings must be prepared to serve as basis for decisions.

Educators must be able to synthesize and prioritize information at the knowledge level of the framework (Mandinach et al., 2008; Mandinach & Jackson, 2012). After all of the information has been organized, analyzed, and summarized, the educators must identify and examine inferring relationships among the data. The post analysis stage is where the information is translated into meaning (or knowledge) where teams connect the dots. Information must be prioritized after it is transformed into parts of knowledge (Mandinach et al., 2008; Mandinach & Jackson, 2012). Once information is prioritized, teams make value judgments and select possible actionable solutions. Knowledge gained at this stage of the process takes the form of issues that are categorized as high and low priority.

Data-based decisions occur when determinations are made regarding prioritized issues. According to Mandinach and Honey (2008), this is the point in the process where educators know what they will do; they will attempt to implement their decisions. Implementation will yield an impact (or outcome), after which the implementation can be abandoned or the data generated from the impact may be reintroduced into the process, thus creating a phenomenon Senge (1990) referred to as a feedback loop.

A final note about Mandinach and Honey's (2008) framework concerns the manner in which the process has the potential to align across all levels: classroom, building, and school district. This model can be used to facilitate an innovation, monitor progress of an existing process, or to evidence negligence (Mandinach et al., 2006). This framework best aligns with the purpose and research questions for this study. Therefore, this framework was used to examine and interpret data collected for this study.

The analytic features of this framework had an impact on the selection of data collection methods to inform the research questions. Framework components were used to create the interview protocol and determined which documents would be reviewed. Ultimately, framework features helped to produce findings and implications for the study.

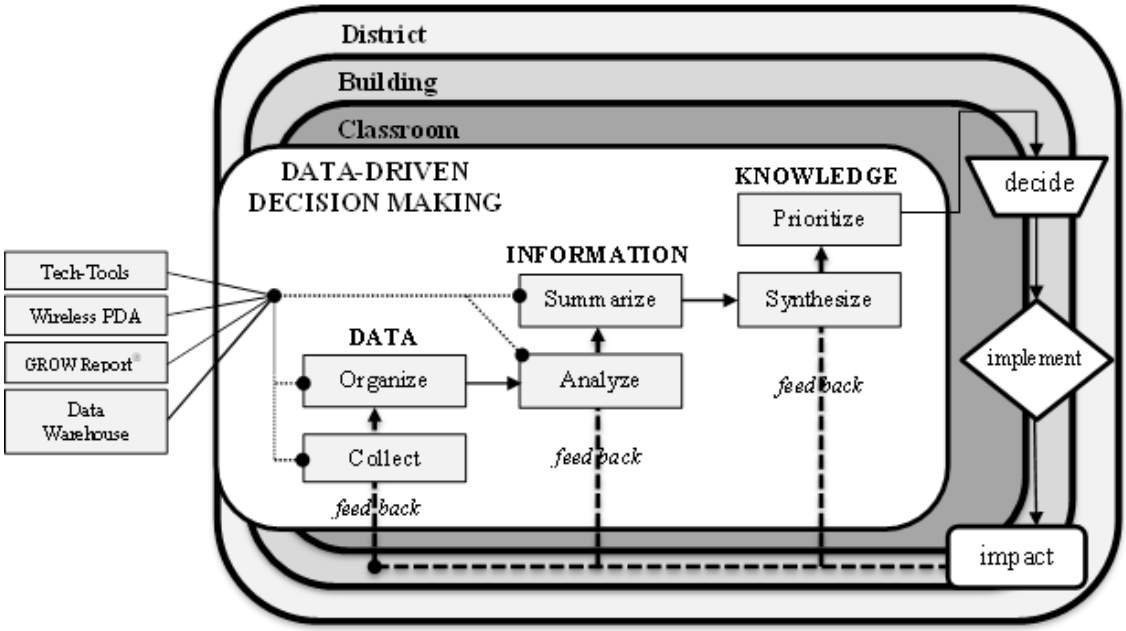


Figure 1. Framework for data-driven decision making. Adapted from Mandinach, E., Honey, M., Light, D., & Brunner, C. (2008). *Data-driven school improvement: Linking data and learning*. New York, N.Y.: Teachers College Press. This figure illustrates the conceptual framework for turning data into actionable knowledge. Adapted with permission (see Appendix H).

Socio-political landscape concerning data use.

There was a time when decisions about teaching and learning were assumed to be the sole right and responsibility of the educators within the school district; data played almost no part in their decisions (Earl, 2002; Mandinach & Gummer, 2013a; Mandinach et al., 2008; Mandinach & Jackson, 2012). The Soviet Union's launching of Sputnik I in 1957 escalated the issue of public education reform to the top of the national political agenda (Johanningmeier, 2010). Consequently, the U.S. Congress enacted the National Defense Education Act of 1958 to accommodate a public demand for an extended governmental role in public schooling. Further demand for educational reform followed a College Entrance Examination Board investigative report that revealed a decade-long

trend of declining SAT scores among American high school students (College Entrance Examination Board, 1977; Ravitch, 2010). The report fueled a climate of heightened public concern, which led to several federal reports; the most impactful of them all was the landmark publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983). This report provided explicit explanations regarding the shortcomings of American education and offered specific suggestions for remedying the problems (Steeves, Bernhardt, Burns, & Lombard, 2009). What followed were several restructuring initiatives throughout the 1990s that generated many efforts to explore the use of student learning data and other metrics of school improvement (Little, 2012). Restructuring initiatives set the stage for a succession of initiatives and policies that would result in an era of standards-based education, accountability, and high-stakes testing.

Legislation and data-driven decision making. Reform efforts specific to the use of data-driven practices in American education became an emphasis following the reauthorization of the Elementary and Secondary Education Act of 1965, known as the No Child Left Behind Act ("NCLB," 2002). The legislation ensures that school districts make AYP to meet academic standards as evidenced by state standardized test data. NCLB requires the use of data to evidence and improve school performance. NCLB policy placed a newfound focus on eliminating achievement gaps among student subgroups. Further promoting the use of data to drive education practice was the passing of subsequent legislation, the Individuals With Disabilities Education Act ("IDEA," 2004). IDEA legislation requires the use of a tiered model of identification and

intervention, such as RTI, to address learning disabilities and low-performing students (Robinson et al., 2013). State and federal legislation derived from these policies requires educators to use a range of local and broad-scale standardized data to inform their practices and decisions (Anderson et al., 2010; Hamilton et al., 2009; Mandinach, 2012; Wayman & Stringfield, 2006b). State policies were written with intentions of guaranteeing all students access to a quality education. Shortly after the enactment of NCLB, Spillane et al. (2002) wrote, "at the core of these initiatives is an attempt to fundamentally change authority and influence patterns in schools to motivate teachers to do a better job of educating America's children (p. 3). At the heart of the legislation, educators were being asked to provide evidence that all student subgroups received a quality education.

Politicians and education officials contend that it is essential for student performance data to be made publically available for the sake of transparency and accountability (Koyama & Kania, 2014). An implicit assumption of transparency policies is that educators will respond positively to accountability policy. One resulting effect of public consumption of annual achievement data is that it serves as a means to quantify the extent to which compulsory education provides students with knowledge and skills that are essential for full participation in a contemporary society (Chick & Pierce, 2013; Jacobs et al., 2009; Schlechty, 2009). A consequence of accountability policy is that educators are expected to use data to inform and initiate improvements in practice; however, these policies do not provide a blueprint for using data at the instructional level (Wayman et al., 2012). Public scrutiny of statistical results coupled with legislative

pressures to provide evidence of annual improvement has generated a data literacy imperative for educational leaders.

Implementation gaps associated with accountability policy. One assumption of evidence-driven federal and state mandates is that teachers already have the capacity to collect, analyze, interpret, and present data in the service of making decisions concerning all aspects of teaching and learning (Datnow & Park, 2012; Hamilton et al., 2009). Building-level educators generally do not have sophisticated knowledge of analytical data use. Historically, data collection has been the concern of state and district-level officials, whereas implementing effective data use at the classroom level has been largely underdeveloped or ignored (Rose & Fischer, 2011). District-level officials have been reliant upon annual standardized test data as a means to determine systemic fidelity. Some perceive districts as overly reliant on standardized test data used for multiple purposes including, school evaluation, curriculum planning, and assessing student performance (Mandinach et al., 2008; Mandinach & Jackson, 2012). Extreme emphasis placed on AYP results pressures teachers to focus on improving annual summative data by teaching solely material that is included on high-stakes assessments. Open access to annual student performance data have contributed to public scrutiny and an atmosphere of high-stakes accountability where the work of educators is greatly influenced by increasing pressures to improve standardized test scores and narrow gaps between student groups (Datnow, 2011; Koyama & Kania, 2014).

Schools are most effective in meeting reform demands when educators believe that data are critical for decision making (Lange et al., 2012). The literature suggests that

there are many barriers to the implementation of data-driven decision making at the classroom level including (but not limited to) the educator's level of data literacy, lack of time to effectively engage in data work, quality of professional development, building-level leadership, and collaborative culture (Chick & Pierce, 2013; Dunn et al., 2013; Mandinach & Gummer, 2013a). Researchers have studied how a data culture develops within schools; however, there is a lack of research on actual practices teachers employ as they engage in the enterprise of using data within their own classroom contexts (Little, 2012; Mandinach & Jackson, 2012). Spillane (2012a) argued that research on data use should include examinations of the manner in which practitioners routinely use various types of data. To this end, this study focused on how teachers grapple with developing data literacy while engaged with data-driven decision making skills.

The 21st-Century Learning Skills Imperative

The institution of education exists to convey the skills, values, and knowledge that are needed for successful life to the next generation (Partnership for 21st century skills, n.d.). Over the past decade, a quantum leap in digital technology has shifted the U.S. economy from industrial to global. This sudden change generates public concern about the ability of schools to prepare students for a future that is difficult to forecast (Anderson et al., 2010; Marx, 2006; Schlechty, 2009). Politicians and academics agree that present day American education is not aligned with skills and experiences needed by contemporary learners (Collay et al., 2009; Duncan, 2011; Fullan, 2007; Marx, 2006; Morrison, 2014). Wagner (2012) refers to this disparity as a global achievement gap. Specifically, this gap involves the discrepancy between what the best schools are doing

and the skills all students need to succeed in college, careers, and 21st-century citizenship (Tony Wagner, 2008; Tony Wagner & Compton, 2012). Education reform initiatives such as Common Core State Standards and Race to the Top promote the alignment of the tenets of 21st-century learning skills and the current enterprise of public education. Standards-based initiatives envision a skill-oriented education that is future-focused. However, a common response of public school systems has been to maintain a strong focus on standardized test data and test preparation (Koyama & Kania, 2014). Standardized test data only provided patterns of student achievement; they do not inform educators with explicit information about what they need to do differently (Datnow & Park, 2014; Datnow, Park, & Kennedy-Lewis, 2012; Mandinach, 2012). Contemporary students demand instructional practices that are differentiated to accommodate a wide array of specific interests, brain functions, skills, and learning needs (Gunn & Hollingsworth, 2013; Morrison, 2014). Teachers who use data to inform instruction understand what their students learn and the extent of progress students make toward meeting learning objectives (Farrell, 2014; Hamilton et al., 2009). To truly differentiate instruction and improve instruction for all students, educators must be able to use data for predicting, monitoring, and diagnosing gaps in practice and student learning; the process must be student-centered. In order to reach the mandated level of differentiated instruction needed to help each student, educators must develop capacity for engaging in collaborative data-driven decision making (Bernhardt, 2004; Mandinach & Jackson, 2012; Moss, 2013). RTI can be an effective strategy to integrate data into existing student-centered practices.

Response to intervention (RTI)

The RTI model emerged as an alternative to an IQ-discrepancy approach for identifying students with learning disabilities (D. Fuchs et al., 2003; Nellis, 2012). In 1977, the U.S. Department of Education created guiding documentation that stated that IQ and achievement should be used as the primary means of determining specific learning disabilities (SLD) among students (Division for Early Childhood of the Council for Exceptional Children et al., 2014). There are several concerns that led to dissatisfaction with the IQ-achievement discrepancy model such as (a) failure of the education community to arrive at a common definition of IQ-achievement discrepancy, (b) inadequate information for remediation planning, (c) alignment of legislative policies and, (d) resources needed to support implementation of research-based teaching practices (Berkeley et al., 2009). A significant deterrent for continued use of the IQ-achievement discrepancy model is that most children with learning disabilities are not identified and provided special education services until they are in the upper grades. The IQ-achievement discrepancy model is commonly characterized as a "wait to fail" model because students have to fail in order to be identified as at-risk (Berkeley et al., 2009; D. Fuchs & Fuchs, 2006b). The dissatisfaction of the IQ-achievement discrepancy model led to the increase attention of RTI as an alternative policy level mechanism for SLD identification.

Special language incorporated into the reauthorization of the Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004) indicates that determination of SLDs must be based on data regarding student response to scientifically-

based instructional interventions (Keller-Margulis, 2012). The legislation also includes specific provisions for early intervening services (EIS) of K–12 students who require additional academic and behavioral supports (Division for Early Childhood of the Council for Exceptional Children et al., 2014). The provision of IDEA allowed RTI to be incorporated into disability identification procedures. RTI not only provides a preferred alternative to an IQ-discrepancy approach for identifying students with learning disabilities (Nellis, 2012), but it affords general educators a systematic means of detecting and addressing learning gaps for all students (Gilbert et al., 2013). Five years after IDEA was reauthorized, a national survey found that 47 out of 50 states had already incorporated RTI into their school improvement processes (Hughes & Dexter, 2011). In recent years, RTI has become the most preferred tiered intervention model for identification and treatment of learning problems (D. Fuchs & Fuchs, 2009; Gilbert et al., 2013). Many schools across the United States employ RTI models both academic and behavioral student supports (Kalberg et al., 2010). RTI is comprehensive because it provides an instructional model with a philosophical base.

The RTI framework. Response to intervention (RTI) is a philosophical approach for providing early identification and interventions to struggling students. Proponents of the RTI model contend that the framework reduces unnecessary student referrals to special education through a systematic process of tiered interventions and high-quality general instruction. The philosophy underpinning the RTI framework is carried out through a multi-tiered instructional model of service delivery. Educators use data to identify at-risk students, monitor student progress, and provide evidence-based

interventions. The intensity, nature, and frequency of interventions correspond with student responsiveness (National Center on Response to Intervention, 2010). The RTI process systematically identifies students with learning difficulties. Figure 2 illustrates intervention levels and the manner in which instructional group size, intensity, and frequency of progress are matched to students' level of need. In the RTI approach, group size for Tier 1 is whole class, Tier 2 is small group, and Tier 3 is individual student.

The function of RTI is to establish an ongoing process for using student performance data to guide instruction and interventions that correspond to student needs (Abbott & Wills, 2012). Ideally, 80% of a student population would meet benchmarks while 20% would require interventions. The percentage of students that are classified within each Tier will vary among schools. At the heart of the framework is a goal of minimizing risks for long-term negative consequences associated with poor outcomes (Crawford, 2014; National Center on Response to Intervention, 2010). This philosophy aligns well with sociological rationales for eliminating achievement gaps. The three-Tier model of RTI is the most commonly used framework and many school use RTI for academics and behavior.

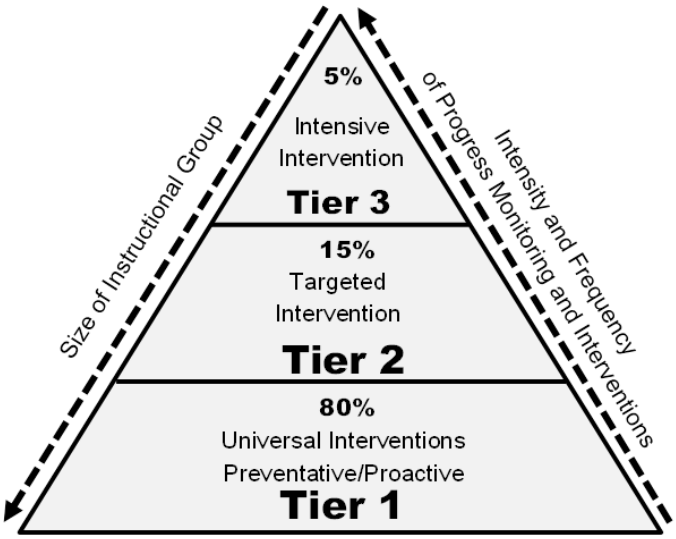


Figure 2. Response to intervention model. Tier percentages can vary ±5%. Group size for Tier 1 is whole class, Tier 2 is small group, and Tier 3 is individual student. Adapted from National Center on Response to Intervention. (2010). *Essential components of RTI–a closer look at response to intervention.* Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Center on Response to Intervention. Adapted with permission (see Appendix I).

Core components of the framework include, providing high-quality instruction and interventions that are matched to students' needs; universal screening; research-based tiered interventions; and progress monitoring (Berkeley et al., 2009; Erickson, Noonan, & Jenson, 2012). Proponents of RTI submit that these core components supplement or extend existing practices thus contributing additional supports for student learning.

There are different manifestations of the RTI model. The three-Tier model is most commonly used in the United States (Isbell & Szabo, 2014). However, some schools configure their RTI frameworks to use four or more tiers intervention. Regardless of the number of tiers, all models classify three levels of prevention: primary, secondary, and tertiary. For the purposes of this project study, there will only be three classification names to designate intervention levels: Tier1, Tier 2, and Tier 3.

Universal screening. Universal screening is the initial step for identification of students at risk for learning difficulties. The RTI framework borrows this prevention strategy from the public-health sector (E. Johnson et al., 2006). School-wide screenings of all students affords educators opportunities to detect and correct students who are at-risk of an adverse learning condition (specific learning disability or learning difficulties). Universal screenings use assessments consistent with the curriculum and are designed to measure specific skillsets that students are expected to have mastered in that point in time (National Center on Response to Intervention, 2010). After all students are screened, they either remain in Tier 1 to receive a high-quality core curriculum or they are moved into a secondary prevention level (Tier 2).

Research-based tiered interventions. An effective RTI model demands high-quality instruction for all students before individual student interventions begin. Tiers 1 and 2 instruction uses core curriculum with supplements as necessary to meet the needs of approximately 95% of students. At the Tier 1 level, all students receive high-quality core instruction within the general education classroom. The literature suggests that Tier 1 core instruction meets the needs of approximately 80% of the students (Hughes & Dexter, 2011). At this level, teachers generally administer a minimum of three established benchmarks assessments per school year (National Center on Response to Intervention, 2010). Students who do not respond to core instruction and cannot meet the benchmarks established Tier 1 will be moved into Tier 2. At the Tier 2 level, the general classroom teacher will provide targeted, supplemental, small-group instruction that is evidenced-based to accommodate the needs of most at-risk students. These sessions

generally involve 20 – 40 minute sessions that occur three or four times per week; the duration of the intervention period usually spans 10 – 15 weeks.

The third Tier of instruction in RTI models includes the use of intensive interventions to meet the most substantial needs of low-performing learners and students with disabilities (Hoover, 2011). Tiers 1 and 2 instruction are characterized by core curriculum supplemented as necessary, meeting the needs of approximately 95% of learners. Tier 3 uses highly frequent intensive interventions which are delivered in greater duration than Tiers 1 and 2; it meets the needs of approximately 5% of learners (Gilbert et al., 2013). This may include use of an alternate curriculum and/or individualized instructional interventions delivered in settings that contain very small numbers of learners (i.e., one to three students).

Progress monitoring. Progress monitoring is used to assess the trajectory of student performance over time (Ball & Christ, 2012). Student rates of improvement are collected and quantified to determine improvement or responsiveness to instruction and interventions. A common strategy is for the teacher to create a trend line by graphing each student's score onto a calendar; this represents weekly rate of improvement. Ideally, the educator uses a computer program to automate this part of the process. The trend line is the rate at which students are making gains in the grade-level curriculum. Educators formulate effective individualized programs for when measures indicate that students are not responsive to all three tiers of instruction.

The literature discusses a variety of methods used for progress monitoring: curriculum-based measurement (Dennis et al., 2013), computer adaptive testing

(Klinkenberg, Straatemeier, & Van der Maas, 2011), and single-skill assessment for younger students (Folsom-Kovarik, Wray, & Hamel, 2013). The school under study uses, curriculum-based measurement (CBM) and includes well-supported measures in the research base on progress monitoring (Hughes & Dexter, 2011). More than 200 empirical studies substantiate the validity and utility of CBM (D. Fuchs & Fuchs, 2006b). Several computer software packages offer CBM alternatives for progress monitoring.

Fidelity of implementation. School administrators should always plan to use mechanisms for monitoring implementation fidelity at all tiers of RTI to ensure the process is beneficial to student learning. Interventions will lose effectiveness as fidelity to implement plans deteriorate (M. K. Burns, Peters, & Noell, 2008). Fidelity refers to the extent of which the intended quality of implementation occurs within the target context (Castro-Villarreal, Rodriguez, & Moore, 2014; National Center on Response to Intervention, 2010). Fidelity of implementation is critical for RTI frameworks in that it determines effectiveness of instruction, screening, progress monitoring, and decision making. Implementation integrity is a particularly critical for problem-solving teams in RTI models (M. K. Burns et al., 2008). It is not enough to provide a general understanding or overview of the RTI framework. Spear-Swerling and Cheesman (2012) found that teachers were familiar with basic features of RTI but unfamiliar with research-based instructional approaches and interventions that were listed on the questionnaire. School leaders must ensure that teachers understand the particulars of the process to ensure each component is implemented as intended.

A possible confounding variable is the willingness of the educators to act on the data. M. K. Burns et al. (2008) found that problem-solving teams did not monitor student progress, determine intervention effectiveness, or consider feedback to measure the integrity with which interventions were implemented. The educators in the study simply applied interventions that they felt should be given. This could suggest that educators are entrenched in old practices. Schlechty (2009) suggests that school cultures that are entrenched in traditional approach tend to alter innovations to fit existing practices rather than engage in a change effort that would accommodate the innovation. The findings from M. K. Burns et al. (2008) would suggest that one barrier to RTI problem-solving is that the process is viewed as a series of isolated meetings rather than a continuous collaborative effort to seek ways to alter and improve practice.

Generating evidence of student performance is a peripheral benefit of ensuring fidelity of implementation. Continuous monitoring of implementation fidelity generates data that is necessary to improve implementation and student learning (Keller-Margulis, 2012). In this regard, fidelity of implementation is critical to avoid misdiagnosis of a specific learning disability (SLD). Proper identification of student learning problems relies on instruction and interventions that are delivered as intended; on appropriate administration of assessments; and on alignment between eligibility policies and school-wide practices (Castro-Villarreal et al., 2014). Treatment integrity and implementation fidelity are often monitored through measures completed by school leadership teams (Erickson, Noonan, & Jenson, 2012). It is important for administrators to develop procedures to monitor fidelity of implementation for all tiers to ensure alignment of

interventions and identifications; poor fidelity is a threat to the validity of the RTI model and could adversely affect the academic and emotion well-being of a student.

Two prominent models. There are two primary models of the RTI framework: standard treatment protocol and problem-solving protocol. The standard treatment protocol is primarily used by researchers while practitioners commonly employ the problem-solving model (D. Fuchs & Fuchs, 2006b; Gilbert et al., 2013). Determining the appropriateness of the model depends on context and needs; literature exists that promotes the benefits of each respectively.

The standard treatment protocol model, also called standard protocol, employs the same research-based intervention is administered to all children with similar difficulties in a given domain (D. Fuchs & Fuchs, 2006a; D. Fuchs et al., 2003). This approach relies on preconceived assumptions about how children learn (Kashima, Schleich, & Spradlin, 2009). This approach streamlines interventions and professional development because there are a very limited number of treatments and assessments required. These interventions may be selected from a bank of research-proven interventions based on school resources (Berkeley et al., 2009). One criticism of this method is the lack of differentiation to remediate those students who do not respond to the standardized interventions.

A problem-solving model uses interventions that are differentiated to an individual student by the RTI data team (Hughes & Dexter, 2011). In the problem-solving model, a student's deficits are addressed by implementing a research-based intervention that is specially designed for that individual student (E. Johnson et al., 2006).

Typically in this model, problem-solving teams follow a four-step process: (a) define the problem, (b) plan an intervention, (c) implement the intervention, and (d) evaluate the student's progress (D. Fuchs & Fuchs, 2006a). The problem-solving approach uses data-driven decision making to function as a generative process that has the potential to address specific needs of each student.

Both RTI models are effective if used in a suitable context and implemented with fidelity. Hughes and Dexter (2011) analyzed 13 studies that examined RTI implementation at the elementary level. They found that the impact of problem-solving and standard protocol approaches produced gains in academic achievement. The researchers found that contributing factors constant in most studies included: commitment to continuous and extensive professional development, administrative support, teacher commitment, and appropriate amounts of time for collaborative meetings.

RTI barriers and challenges. RTI initiatives must be engaged and sustained at the school level. School leaders adopting an RTI framework are confronted with an array of challenges that stem from an intentional process designed to enact transformative change upon the existing system (M. K. Burns et al., 2013). The literature concerning RTI implementation suggests several factors that serve as barriers and challenges to RTI implementation. These factors range from macro-process level issues (such as systems change) to micro-process considerations (such as quality of documentation practices of teachers). There are, however, barriers that are common across much of the literature. These common roadblocks and challenges will be discussed in this section.

Implementation integrity is a barrier that can threaten the validity of an RTI model. Hill, King, Lemons, and Partanen (2012) found that educators monitored Tier 2 implementation fidelity while neglecting to report fidelity of Tier 1. As a result, the alignment between the tiers could not be explicitly stated. E. S. Johnson, Pool, and Carter (2011) found that some of the barriers associated with implementation integrity can be avoided by expanding the current knowledge of personnel, streamlining processes, and establishing good communication systems between interventionists and teachers. The RTI framework is complex and requires a comprehensive approach. It is important to ensure that teachers receive adequate professional development and support to engage the process. It is equally important to gather perception data throughout the process to help maintain implementation integrity and fidelity of implementation.

Castro-Villarreal et al. (2014) surveyed 100 educators regarding their perceptions and attitudes about RTI. There were 185 barriers identified, but analysis revealed five major themes of the most mentioned barriers:

- Lack of adequate professional learning opportunities to provide better understandings of interventions, data collection, progress monitoring, and an overall understanding of the RTI process.
- Lack of time for instruction since much is lost to RTI interventions, collecting and recording data, and paperwork.
- Lack of resources and support; need more staff, strategies, supplies, and interventions.

- The RTI process itself is overwhelming and lengthy; the student may not receive additional help after all is said and done.
- The RTI process demands excessive documentation.

The same respondents provided suggestions for improving the RTI process: (a) more professional development, (b) more staff and intervention resources, (c) streamline the RTI process, (d) better communication among educators and administrators, and (e) more time to do RTI related work. The results from this study are closely aligned with much of the literature reviewed for this project study.

It is important to empower those teachers who are charged with implementing the components of the RTI process. Oftentimes, educators can feel devalued when their professional opinions are challenged or ignored (Pyle, Wade-Woolley, & Hutchinson, 2011). The feeling of powerlessness can occur from pressures to meet timely demands of the RTI process or conflicts that stem from philosophical differences. Slonski-Fowler and Truscott (2004) reported findings where teachers felt marginalized by their experiences in the problem-solving data team process. Those teachers were given very little influence in the process, so they disengaged the process altogether and stopped referring students.

A synthesis of the literature regarding implementation barriers would suggest that leaders engage the RTI process with patience and establish a shared vision for the framework. Perhaps many of the barriers could be remedied with established feedback loops and an authentic culture of collaboration where all actors within the process have an implicitly equitable degree of influence in the process.

Data-driven decision making in Schools

Standards-based reform legislation and performance accountability systems have increased the need for data-driven decision making in our nation's schools (Wayman et al., 2012). Without data use, educators would have to base their decisions on conjecture, anecdotes, intuitions, and personal preferences (Mandinach & Gummer, 2013a, 2013b). Prior to No Child Left Behind (NCLB) legislation, the literature regarding data use was focused on data for accountability; discourse about measurement driven instruction explored the use of assessment data to improve instructional decision making (Mandinach & Gummer, 2013a; Mandinach et al., 2006). Advances in technological systems have made it feasible to collect, store, manage, and use data in a timely manner. Today, the literature is focused on the role of data in stewarding organization change and improvements in student learning.

Federal and state legislative mandates require educators to make decisions that are grounded in student achievement data. However, a synthesis of the literature suggests that division and building- level educators did not possess the human capacity to embrace or implement data use imperatives generated from these legislative policies at the time they were enacted; many still do not have these capabilities (Anderson et al., 2010; Kereluik, Mishra, Fahnoe, & Terry, 2013; Mandinach & Gummer, 2013b; Mandinach & Jackson, 2012; Schaffhauser, 2012). Consequently, integrating effective data-driven decision making into existing practice has become a national priority among public K-12 schools and institutions of higher-learning within the United States (Jacobs et al., 2009; Mandinach & Jackson, 2012; Means et al., 2010). School leadership literature, such as

transformational leadership, suggests that the re-culturing and whole-school reform is the only way to establish data-driven cultures within contemporary schools.

Effective data-driven decision making requires a school culture that is oriented toward continuous improvement and student-centered learning. Shifting the educational paradigm away from one that is characterized by an entrenched culture of teacher-centered instruction and teacher isolation is a difficult challenge for school leaders. U.S. Department of Education Secretary Arne Duncan (2010) stressed that educators must shift their focus towards using data for the purposes of facilitating and maintaining continuous school improvement (Mandinach & Jackson, 2012). Effective data use is predicated on the notion that teaching and learning is driven by a cyclical process of gathering and acting upon evidence. Such a process demands continuous monitoring of student progress using a continuous series of formative and summative assessments (Colker, 2013; Jimerson, 2013). However, since student achievement scores remain a primary indicator of district and school effectiveness, formative types of data collection are deemphasized or left unexamined (Murray, 2014). Educators are able to make better decisions when informed by a variety of data gathered from several different sources.

The literature suggests that the practice of presenting data absent a problem-solving process is incomplete for the following reasons: teachers may not be able to interpret school assessment data (Chick & Pierce, 2013), data itself does not inform or improve practice (Schaffhauser, 2011), people will view the data through the lens of personal assumptions or beliefs rather and fail to be informed otherwise (Coburn & Turner, 2011b), and data use must be an ongoing collaborative process geared towards

continuous improvement (DuFour & Marzano, 2011; Hamilton et al., 2009; Holcomb, 2012). Effective data use can inform teachers about the needs of each student in order to effectively plan curricula, differentiate instruction, evaluate teaching, and drive instruction (Anderson et al., 2010; Jacobs et al., 2009; Kerr et al., 2006). Data-driven decision making improves instructional practice and is commonly attributed to academic improvement in schools and districts (Huguet et al., 2014; Supovitz & Tognatta, 2013).

There is not a problem with educators having access to data; rather, the problem lies with the extent to which organizations have the human and technical capacity to support data use processes. According to DuFour et al. (2010), the concept of data rich and information poor (DRIP) is adapted from (Waterman, 1987) and refers to "the problem of an abundance of data that does nothing to inform practice because it is not presented in context through the use of relevant comparisons" (p. 215). As a whole, educators struggle to become adept with using data to inform educational decisions that lead to improved student learning (Hagen & Nordmeyer, 2013). District officials indicate that they could better implement data use processes if provided with examples of good practice (Means et al., 2010). This could be an indication that school officials are motivated to install data use processes despite known roadblocks or barriers that prevent full implementation.

Wayman et al. (2012) conducted a study of how educators used data to inform practice. An exploration of three school districts focused on how educator attitudes toward data, building leadership, and digital data systems affect teaching and learning. The study concluded that several barriers impeded the progression of data use; many of

the barriers were associated with building leadership and technology. The authors noted that the educators perceived data use as something that could support classroom practice, but could not surmount the barriers created by educator ambivalence regarding data use (Wayman et al., 2012). Wayman's (2012) study suggests a need for systemic approach when implementing data-driven decision making. To this end, the U.S. Department of Education has commissioned several publications to assist school reform since the enactment of NCLB and IDEA (Colker, 2013). These guiding documents offer frameworks and detailed explanations of essential elements needed for effective data-driven decision making.

Guiding documents. The U.S. Department of Education, through the Institute of Education Sciences (IES), commissioned several studies and practice guides for implementing systemic data-driven decision making within schools. In 2004, Learning Point Associates published the *Guide to Using Data in School Improvement Efforts: A Compilation of Knowledge from Data Retreats and Data Use at Learning Point Associates* (Learning Point Associates, 2004). The guide is an outlined method of integrating data into a school improvement process. The target audience for the document is educators who are at the beginning stages of learning to use data for informing decisions. The document states that many educators lack experience with systematic uses of data to inform decisions. According to the authors, annual goals may have been set, but they are not driven by an examination of information that evidences student learning within their own contexts.

In subsequent pages, the authors offer a comprehensive understanding of both the philosophical underpinnings of data use and recommend specific steps for implementing effective data practices into a school improvement process. The intended result is that educators understand the value of using data and practical uses of data to inform decisions (Learning Point Associates, 2004). The guide is more than 10 years old but is often cited for the following components: focus on student learning, alignment to clear vision and mission statement, promotes the use of collaborative teams, use of school improvement cycle (plan, do, study, act), and the eight data use essentials.

The authors use eight data use essentials to guide educators through a process of creating collaborative data teams that engage in data-driven decision making. The eight areas for this process are as follows:

1. Develop a Leadership Team
2. Collect various types of data
3. Analyze data patterns
4. Generate hypotheses
5. Develop goal-setting guidelines
6. Design specific strategies
7. Define evaluation criteria
8. Make the commitment

Lists such as the above help to provide a process overview, but do not provide comprehensive guidance for establishing capacity to use data at the team level.

The Guide to Using Data in School Improvement Efforts (Learning Point Associates, 2004) contains clear and concise explanations for each area along with tables and charts that elucidate and demystify the process of installing data-driven decision making processes within the enterprise of schooling.

In 2009, the U.S. Department of Education commissioned a practice guide for data use entitled, *Using Student Achievement Data to Support Instructional Decision making* (Hamilton et al., 2009). To ensure validity and credibility, the Institute of Education Sciences (IES) formed a panel of experts consisting of Laura Hamilton (chair), Richard Halverson, Sharnell Jackson, Ellen Mandinach , Jonathan Supovitz, and Jeffrey Wayman to develop this comprehensive guide. Each member of the panel is a key contributor to the literature regarding data-driven decision making in education. The purpose of the guide is to provide guidance to educators about to the use of student achievement data to make instructional decisions that improve student achievement (Hamilton et al., 2009). The document offers school and district level best practices for implementing systemic data-driven practices including practical examples, scenarios, and suggested approaches for addressing roadblocks (which are based on practical experience from experts). In the overview section, the panel offers an explanation of the significance of data for educators:

> Data provides a way to assess what students are learning and the extent to which students are making progress toward goals. However, making sense of data requires concepts, theories, and interpretative frames of reference. Using data systematically to ask questions and obtain insight about student progress is a

logical way to monitor continuous improvement and tailor instruction to the needs of each student. (p. 5)

To date, these guides are often cited by recent sources and are commonly used in tandem with other resources to inform school improvement. Most of them are commissioned, in some form or another, by the U.S. Department of Education.

Commissioned data use studies. To gather an understanding of the nation's capacity to shift the paradigm towards a focus on data and learning, the U.S. Department of Education commissioned national studies of education data systems and decision making each year from 2006 through 2011. The most recent study published in is entitled *Teachers' Ability to Use Data to Inform Instruction* (Means, Chen, DeBarger, & Padilla, 2011). This report describes a mixed methods study that explores teachers' thinking about data. Researchers used hypothetical educational scenarios along with data displays to question teacher participants. These scenarios were presented to individual teachers as well as small groups of educators who commonly work together. Using this method enabled the researches to gather an understanding of how individual teachers reason about data in addition to how co-construction of understanding occurs within small group contexts. The study found that the extent to which teachers use data for making educational decisions is affected by how confident they feel about their own abilities to analyze and interpret data (Means et al., 2011). This study and others maintain that pre-service and in-service professional development programs have not addressed data literacy and data-driven decision making processes (Dunn et al., 2013; Jacobs et al., 2009; Mandinach & Gummer, 2013a; Mandinach et al., 2011; Van 't Hooft,

Vahey, Swan, Kratcoski, & Cook, 2012). It is not only important to recognize the benefits of data use, but an understanding of the nature of teachers' strengths and weaknesses in regards to data literacy will inform professional learning and support (Means et al., 2011). Desired outcomes of continuous and ongoing effective data use are teacher development, improved practice, and improved student learning.

Support systems for data use. Research related to implementation of student data and practices associated with the use of data to improve instruction suggests that the likelihood of teachers to employ data-driven decision making skills are greatly affected by school leadership and available technology (Duke, 2014; Ingram, Louis, & Schroeder, 2004; Lange et al., 2012; Mandinach & Gummer, 2013b; Miller, 2010; Schwanenberger & Ahearn, 2013; Wayman et al., 2012). Many school struggle to successfully implement effective data use practices despite the availability of supporting elements such as conventional research, practice guides, and reliable data use trade books. A synthesis of the literature would suggest the notion that conventional research does not sufficiently inform implementation of data use practices because it does not elucidate the complexity of mechanisms through which initiatives influence desired outcomes (Coburn & Turner, 2012; Colyvas, 2012; Little, 2012; Moss, 2012; Spillane, 2012a). Research also suggests that capacity building for data-driven decision making is a systemic undertaking (Cosner, 2012; Datnow et al., 2012; Farrell, 2014; Schwanenberger & Ahearn, 2013; Vanhoof, Verhaeghe, Verhaeghe, Valcke, & Van Petegem, 2011; Wayman et al., 2012; Wayman & Stringfield, 2006a). In this regard, the literature suggests that the building principal's role in developing and maintaining positive data cultures within schools (Datnow et al., 2012;

DuFour & Marzano, 2011; Erickson, Noonan, & Jenson, 2012; Gage & McDaniel, 2012; Holcomb, 2012; Huguet et al., 2014; Ikemoto & Marsh, 2007; Love et al., 2008; Mandinach & Gummer, 2013a; Mandinach & Jackson, 2012; Marx, 2006; Park, Daly, & Guerra, 2013). The principal's level of knowledge, involvement, and enthusiasm are all factors that can help or hinder a data-use process.

Shen et al. (2012) used literature to develop an instrument for measuring the extent to which school principals used research based strategies to engage data-driven decision making. The literature review within this study substantiates the claim that a principal's ability to create and use data dashboards as a means to monitor organizational integrity impacts student outcomes and school conditions. The authors posit the development of an instrument that measures the extent to which they use data-driven decision making enables principals to self-assess and improve their data use practices (Shen et al., 2012). Inadvertently, the study is offers confirmation for the value of reflective practice; there are empirical links between effective leadership and reflective practice.

Reliability and sophistication of computer data systems also affect data use (Means et al., 2010). Computer systems are used for a variety of data use functions including instructional management, data warehousing, assessment, accountability reporting, and student information systems (Farrell, 2014; Tucker, 2014) . Leadership, technology, and instructional practice are equally important for creating and maintaining an effective data-use process to improve student learning.

Types of data. Educators collect a variety of data types throughout the course of their work. The literature categorizes data into five types: achievement, instructional, program, perceptual, and demographic data (Bernhardt, 2004; Datnow & Park, 2014; Learning Point Associates, 2004). Achievement data (also called assessment data) is collected from summative and formative assessments. Demographic data is often grouped with behavioral data is gathered from attendance and discipline records. According to the Guide to Using Data in School Improvement Efforts (Learning Point Associates, 2004), demographic data that informs data-driven decisions include "gender, ethnicity, economic status, mobility of family, transportation needs, enrollment in special programs, neighborhood characteristics, parent involvement, behavior records, and social problems" (p. 11). Perception data is gathered from surveying stakeholder beliefs, attitudes, dispositions, values, and viewpoints (Datnow & Park, 2014). Program data applies to information regarding the quality of school programs and effectiveness of expenditures (Learning Point Associates, 2004). Program data that may inform data-driven decisions are participation and cost of events, special programs, and activities. Finally, instructional (also called process data) data includes information about the learning experiences of students. Instructional data used to inform data-driven decisions may include quality of curriculum, patterns of course enrollment, teacher uses of time, and student interventions (Datnow & Park, 2014). Understanding that there are many types of data available provides educators with more sources of information from which to identify and address gaps in learning and practice.

Review of Frameworks for Understanding Data Use Processes

A conceptual framework is something that explains key factors, concepts, and variables of the phenomena being studied and the presumed relationships among them (Miles & Huberman, 1994; Yin, 2014). Researchers and practitioners use framework models to understand processes of data use within organizations. The literature offers several systemic frameworks that can be used to understand educational data-driven decision making. These frameworks are lenses for viewing interactions among factors that influence process outcomes. Sense making or conceptualization of data is specific to the context in which the process is situated and the extent to which the school has developed capacity for using data (Datnow et al., 2013; Mandinach & Jackson, 2012). For this reason, a single theory or model cannot comprehensively explain data-driven decision making for every context. Reviewed in this section are frameworks that represent examples of how data use is understood within the context of education. In the interest of time, this project study could only rely on a single model for data analysis.

This section discusses a variety of frameworks that are also suitable lenses for examining data use in educational settings. All of these models and frameworks were reviewed in order to identify a model that best aligns to this project study. Each framework is unique and can be used to accommodate a particular emphasis, focus, or function. These frameworks are characterized by the manner in which they were generated; they are either based on empirical research or practical experience. A combination of these frameworks can produce a powerful tool for gaining a comprehensive understanding of data use process within specific contexts.

Conceptual Frameworks: Based on Practical Experience

The following frameworks were created by educator-researchers who, in their own right, led successful developments of a comprehensive professional development programs. These authors present heuristics for illustrating the basic processes or steps to be followed in implementing new strategies for improving data-use process. They apply extensive experiences with best practices for effective and collaborative use of school data toward generating these frameworks for understanding and using data within schools. These frameworks they have produced significant gains in student achievement in schools across the United States.

The Using Data Process framework (Love, 2009) is a lens through which data use can be understood at the school level. This framework focuses on the manner in which school-level data teams process student performance data. The Using Data Process of Collaborative Inquiry was developed through a joint project between TERC and WestEd; it is based on practice and practical experience. The author's intended purpose of the project was to create a model for school improvement focused on developing data coaches so they can lead a collaborative inquiry within school-based data teams. An overarching purpose for the model is to influence schools to develop a culture of continuous and collaborative data use that improves teaching and learning (Love et al., 2008). Figure 3 illustrates the five stages of the Using Data Process of Collaborative Inquiry model: (a) foundation building; (b) identifying student learning problems; (c) verifying causes of student learning problems; (d) generating solutions; (e) implementing

solutions. The data team must collect and examine data to transition between each of the stages.

Love (2008) explained the metaphorical bridge between data and results. The author posits that educators often collect and analyze data but may not understand how to it is used to improve student learning and achieve desired results. The framework uses collaborative inquiry to bridge the gap between data analysis and student achievement. Desired outcomes from applying this framework are closing the achievement gap, establishing a collaborative school culture characterized by collective responsibility for student learning, and increased student achievement.

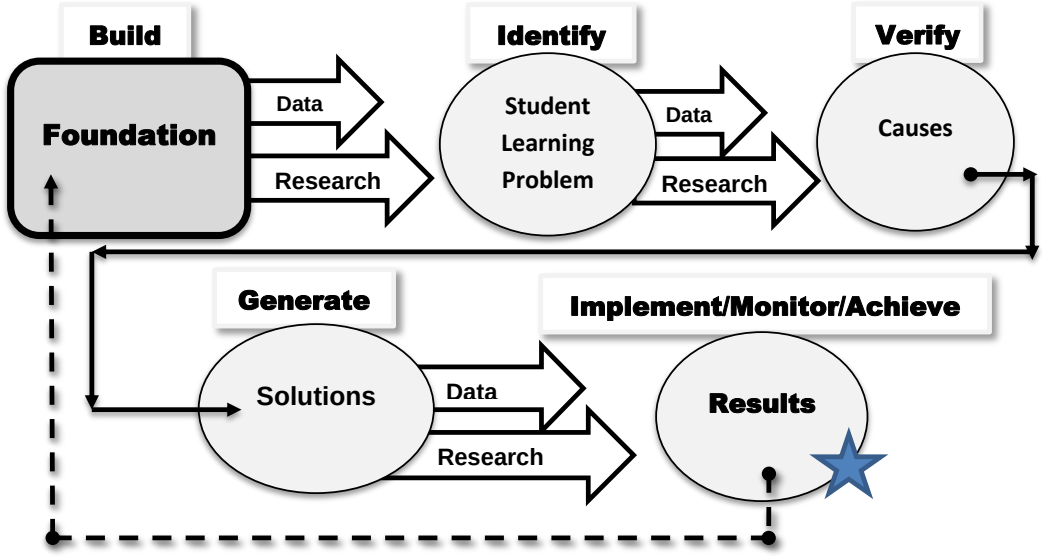


Figure 3. Using data process. Adapted from Love, N., Stiles, K., Mundry, S., & DiRanna, K. (2008). The data coach's guide to improving learning for all students: Unleashing the power of collaborative inquiry. Thousand Oaks, Calif: Corwin Press. This figure illustrates the conceptual framework for collaborative inquiry that is used to "bridge the gap" between data and results. Adapted with permission (see Appendix J).

Holcomb's (2004) Using Data for Alignment and Achievement is a framework for understanding how well the planned practice aligns with aligns with experienced

practice. School reform efforts, implementation processes, instructional efforts, learning experiences, and all other enterprise within the school comprise a portfolio of practice; these are things that have occurred. Educators within the school may begin with the mission in mind, but it is sometimes difficult to determine how closely the portfolio of practice aligns with the mission (the expressed intentions) of the school. The Using Data for Alignment and Achievement framework helps to gauge and monitor alignment between experienced practice (portfolio of practice) and intended practice (the mission). In this regard, Holcomb (2004) places a strong emphasis on the importance of creating a shared school mission and evidencing work towards accomplishing that mission through a portfolio of school-level data. The system integrity of a teaching and learning process can be assessed by "whether we do what we say we will do" (Holcomb, 2004, p. 5). Figure 4 illustrates how creating an achievement plan is a process comprised of a several checks for alignment which culminates into a large portfolio of evidence. The plan uses several feedback loops that ensure alignment: (a) alignment between mission and the school portfolio; (b) alignment between mission, portfolio, and concerns; (c) alignment between concerns and priorities; (d) alignment between priorities, study, and strategies; (e) alignment between priorities, strategies, and evidence; (f) alignment between strategies, evidence, and action plans (Holcomb, 2004). The process filters many concerns into a few key priorities which receive a strong focus and study. Strategies are determined and evidenced through formative assessments. Finally, action plans are created to ensure that map out the process so leadership and all stakeholders can understand and support the process. Ultimately, the mission and school portfolio must

evidence each other whereas the enterprise of the organization should be actions lead to actualizing the mission. Although presented as a linear process, ongoing data use populates the framework and makes it function as a cyclical ongoing school improvement process. This framework can be used as a tool for examining systemic data use at the school level and how the mission aligns with stakeholder actions.

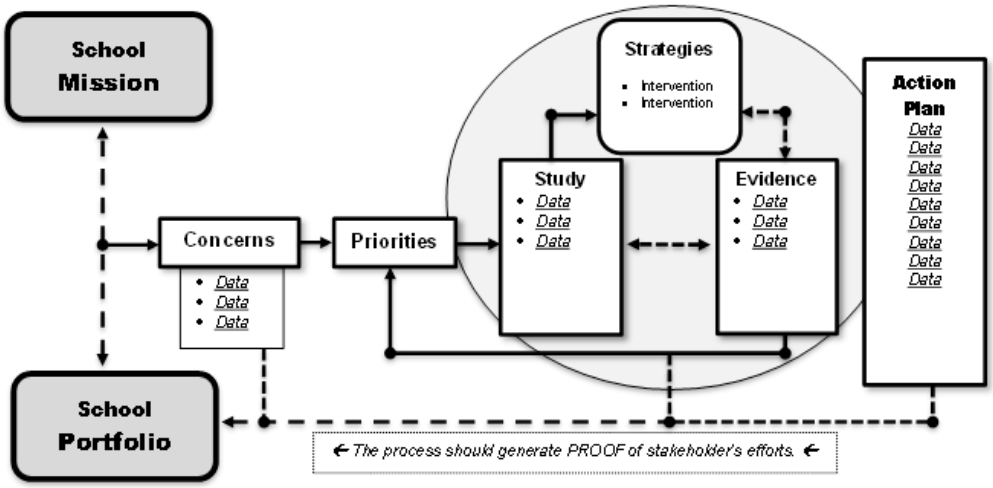


Figure 4. Using data for alignment and achievement framework. Holcomb, E. (2004). *Getting excited about data: Combining people, passion, and proof to maximize student achievement*. Thousand Oaks, Calif: Corwin Press. This figure illustrates the conceptual framework for aligning experienced practice with espoused practice. Used with permission (see Appendix K).

Datnow and Park (2014) contend that data use is complex because people, policies, practices, and patterns (the Four Ps) within a school create dynamic and unique contexts. The Four Ps framework inadvertently serves as a dashboard for examining school culture. Educators' actions, how they perceive their work, the extent of commitment, and motivational levels are all shaped by the Four Ps (Datnow & Park, 2014). The Four Ps Framework is a context-focused approach; it examines the people and conditions that shape the data use implementation process and potential

consequences (Datnow & Park, 2014). Figure 5 is an illustrated representation of the Four Ps Framework rendered for the purposes of this literature review study with permission from Datnow and Park. The figure depicts the manner in which data use process is made complex because "it is situated in a setting governed by long-standing people, policies, practices, and patterns" (Datnow & Park, 2014, p. 26). All of these system components interact and influence the data use implementation process.

The Four Ps Framework is the philosophy that underpins much of the work produced by Datnow and Park. The framework incorporates strong influences of sociological theory, specifically the work of James Spillane, and often refers to the manner in which interactions create context that influences process. Spillane (2012b) describes the distributed leadership perspective as collective interactions among leaders, followers, and their situation that generates leadership practice. The implication is that, over time, followers gain enough experience with leadership practice that they become leaders themselves; the process serves as an apprenticeship of sorts. Datnow and Park (2014) extend the concept of collective interactions to four aspects (people, patterns, policies, and practices) that comprise the context in which the process is situated. The interactions described in the Four Ps Framework are organic and ongoing. An overarching implication of the framework is that an understanding of organizational culture helps to predict process outcomes.

Perhaps, a synthesis of the research findings from Datnow and Park's studies would offer the following sentiment: it depends. Their studies (Datnow & Park, 2012; Datnow et al., 2012, 2013; Park et al., 2013) render consistent findings that data use

process is affected by, and is contingent upon, the manner in which its actors (or factors) interact with the one another; context is key. The Four Ps framework is the corner stone for the authors' more comprehensive Framework for Data-Informed Decision-making.

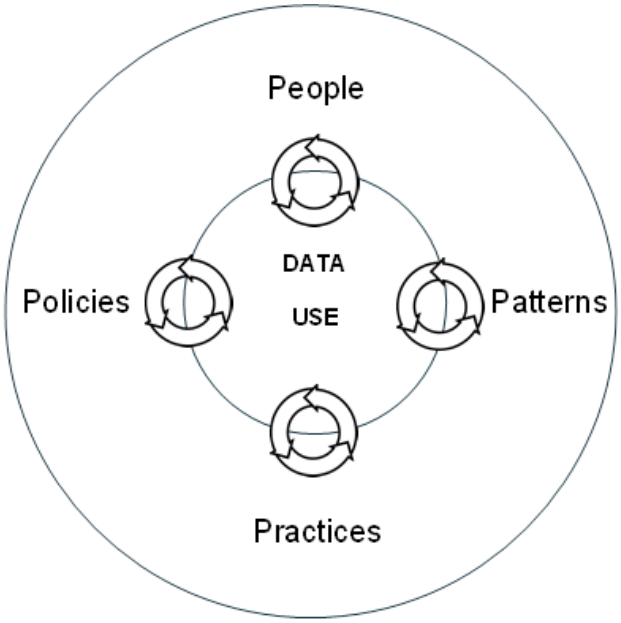


Figure 5. Four Ps framework. Datnow, A., & Park, V. (2014). *Data-Driven Leadership* (First edition ed.). San Francisco, Calif: Jossey-Bass. This figure was created by the author of this project study with permission by A. Datnow (see Appendix L). The figure illustrates the author's description of the four Ps framework which explicates the manner in which organizational factors interact with and influence data use.

This four Ps framework can be used to help educators understand the complexities of a collaborative data use process. The authors posit that it can be used to better predict the outcomes of reform efforts within the local context (Datnow & Park, 2014). This framework is more philosophical than heuristic. It is a suggestion of how process can be understood rather than a how-to model.

Conceptual Frameworks: Based on Empirical Research

The following frameworks are based on empirical research studies. Development begins with a review of related research and conceptualizations found in the literature. Research literature serves as a cornerstone for the construction of these process models. It is useful to consider a wide range of models as they offer a variety of ways to understand the manner in which contextual factors influence data use in schools (Datnow & Park, 2014). These frameworks are well-developed and have a strong empirical foundation.

Coburn and Turner (2011b) created the Framework for Data Use as a lens for understanding organizational data use through the context of data use interventions. The authors explain that research has identified a variety of factors that influence organizational data use; their framework examines the interactions among these factors along the pathway between data use interventions and outcomes (Coburn & Turner, 2011b). The authors explain that the process of data use is what results from individuals interacting with data in the course of their ongoing work. The framework illustrates the manner in which schools and districts are nested within organizational and political contexts. Data interpretation processes are impacted by organizational and political contexts; this relationship is represented by the two circles in Figure 6. The final component of the framework illustrates how interventions, interpretation processes, and influences of context work together to produce outcomes. The framework is substantiated by thorough analysis of the literature but considers all influences except the students themselves (Hamilton, 2011). According to Perkins and Engelhard (2011), the

framework brings awareness to the potential outcomes of data use including organizational change, change in the practices of educators, and improved student learning. The Framework for Data Use presents an important caveat to the academic discussion concerning the dynamic of data use within organizational and political contexts; it is a framework that can be used to examine macro-level data use.

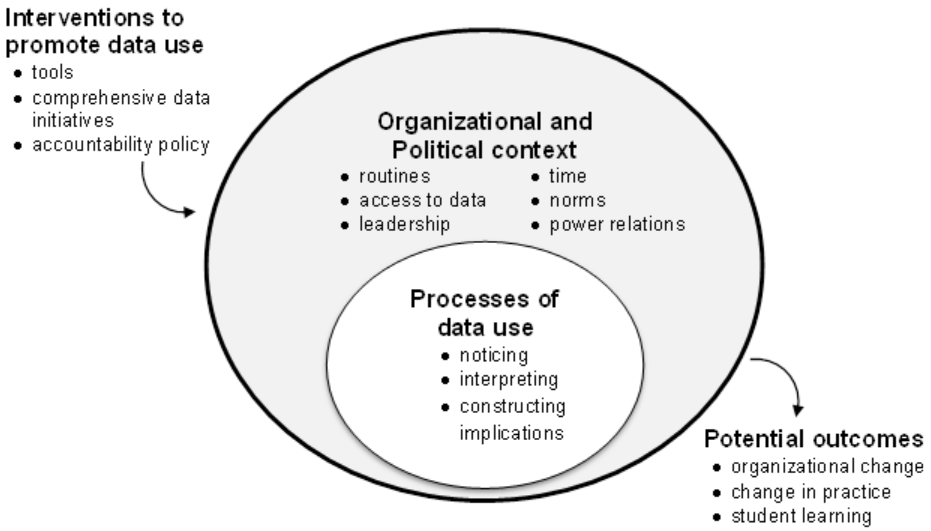


Figure 6. Framework for data use. Coburn, C. E., & Turner, E. O. (2011). Research on data use: A framework and analysis. *Measurement: Interdisciplinary Research and Perspectives*, *9*(4), 173-206. This figure illustrates the conceptual framework for understanding the pathway between data use interventions and outcomes. Used with permission (see Appendix M).

The Framework for Data-Informed Decision making was created from a two-phase case study where Datnow and Park (2014) examined high-performing data-driven schools the United States. The framework (Figure 7) is an illustration of an expanded systemic view of the Four Ps ideology. The framework illustration has been redrawn, with permission from the authors, to better illustrate the relationship of various contexts.

The original illustration lists all of the components that comprise each area of the framework.

The authors suggest that school level data use process is affected by site, district, state, and federal level contexts. The explicit consideration of how the socio-political landscape shapes micro-level process makes this framework a lens through which to examine complexities of reform processes. This is known as the co-construction perspective for understanding implementation (Datnow, Hubbard, & Mehan, 2002). The seminal Berman and McLaughlin (1978) RAND Change Agent studies suggested that implementation should be seen as a process of mutual adaptation; outcomes are dependent upon the way individuals within the local context interpret and enact policies (McLaughlin, 1987). The importance of context suggested by the mutual adaptation perspective greatly contributes to the co-construction perspective which explained shows how multiple levels of the educational system may constrain or enable implementation (Datnow et al., 2002; Levin & Datnow, 2012). The co-construction perspective provides the theoretical underpinnings of both the Four Ps framework and the Framework for Data-Informed Decision Making.

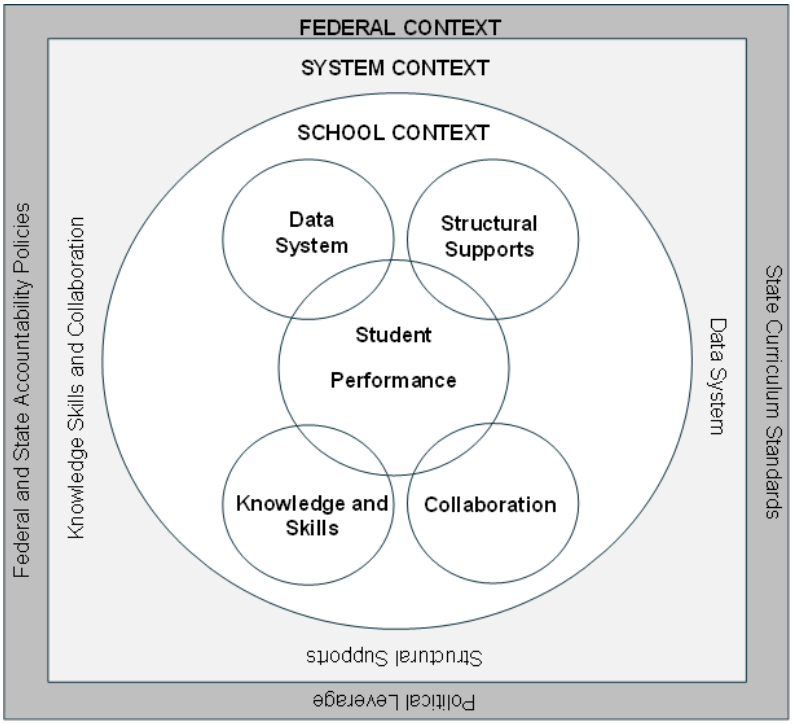


Figure 7. Framework for data-informed decision making. Datnow, A., & Park, V. (2014). *Data-Driven Leadership* (First edition ed.). San Francisco, Calif: Jossey-Bass. Adapted with permission (see Appendix L).

Datnow and Park (2014) list specific findings from their research that informed the creation of the framework:

- Student performance is at the heart of data-informed decision making.
- Numerous types of data can inform decisions
- Tools can aid educators in gathering, analyzing, and using data effectively.
- Leadership stretches across districts and schools and helps shape the knowledge, skills, and capacity building for reform.
- Data literacy is required at both the school and district and school levels.
- Accountability legislation can provide political leverage for district and school leaders to stimulate change, but they also serve as constraints.

Student performance is at the heart of the framework. The small circles represent factors that can be controlled at the individual or school level. The large circle and large squares represent the socio-political landscape that affects the educators' work with data. The authors explained that, in keeping with the conceptual framework, they first gathered qualitative data (interviews, documents, and observations), created transcripts, and analyzed the data for leadership and organizational factors that influenced data-driven decision making among educators (Datnow & Park, 2014). It is important to remember that this framework is used to demonstrate interactive relationships among factors.

Conceptualization of the Framework for Simple versus Complex DDDM emerged from two RAND studies conducted by Ikemoto and Marsh (2007). The authors conducted interviews, focus groups, and surveys to gather data about the manner in which educators conceptualize data-driven decision making (DDDM). Ikemoto and Marsh (2007) discovered that responses varied greatly among those who participated in the studies. However, they noted that educators tend to interpret and act on data in particular ways regardless of the type of data. Findings helped the researchers conceptualize that variations in data vary along two continua: (a) type of data and (b) nature of data analysis and decision making (Ikemoto & Marsh, 2007). With this notion, the researchers began to categorize organizational data use orientations into four quadrants (Figure 8).

The model is used to categorize the capacity of the school to engage in data-driven decision making and the range of processes associated (Datnow & Park, 2014). The continuous arrows indicate the strength of these tendencies. The variances in

educators' decision making are affected by the following dimensions: basis of interpretation, reliance on knowledge, type of analysis, extent of participation, and frequency (Ikemoto & Marsh, 2007). This model can be used to understand the sophistication of organizational capacity for data use.

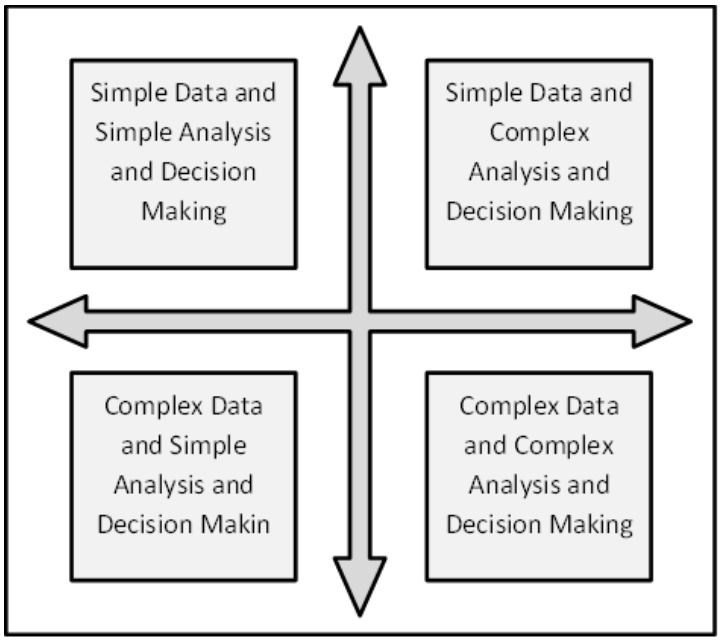


Figure 8. Framework for simple versus complex DDDM. Ikemoto, G., & Marsh, J. (2007). Cutting through the "data-driven" mantra: Different conceptions of data-driven decision making. *Yearbook of the National Society for the Study of Education (Wiley-Blackwell), 106*(1), 105-131. Adapted with permission (see Appendix N).

Sometimes frameworks can be used in combination. Jimerson (2013) incorporates the simple versus complex framework into an integrated model for understanding how educators create mental models for conceptualizing the manner in which data is used. In doing so, the author was able to examine both capacity for data use and structures for sense making.

Professional Learning Communities (PLC)

There are several types of team models for working with data to inform decisions about teaching and learning. The most preferred format of a collaborative data team is the professional learning community (DuFour & Fullan, 2013; Hoaglund, Birkenfeld, & Box, 2014; Owen, 2014). Characteristics of professional learning communities (PLC) align closely with the components of an effective RTI problem-solving framework. Effective implementation of these communities results in teacher development and improved student achievement. PLCs are comprised of a group of individuals who learn together through a continuous process of collaborative problem solving with the intentions of improving practice (DuFour, DuFour, & Eaker, 1998; Leclerc, Moreau, Dumouchel, & Sallafranque-St-Louis, 2012; Owen, 2014). In an effective PLC process, educators engage in an ongoing process of collective inquiry and action research in an effort to improve student learning (DuFour et al., 2010). Professional learning communities provides the structure needed for collaborative data team work to be effective. Data teams are one type of PLC that examines and analyzes student data; determines effective instructional strategies, develops common assessments, and designs lessons (Stewart, 2014). A PLC framework could enable data teams to engage in effective data-driven decision making processes.

Educators in an effective PLC share expertise and collaborate to determine plans of action for addressing gaps in practice. Peter Senge's work is often credited with bringing the concept of learning organizations to the forefront (Hord, 2004). Senge (1990) posited that people have an innate desire to learn and succeed as a group, but the

practices of the time encouraged individuals to work independently to complete tasks. People within a learning organization experience a transition of thinking where they start to think of themselves as connected to others and view problems as things that are solvable through collaborative practices (Senge, 1990). Educational researchers and theorists began to further develop the construct of the learning organization; the modified model was popularized into a transformed form currently referred to as the professional learning community.

McLaughlin and Talbert (2003) reported research findings that suggested common traits of PLCs: (a) shared norms and beliefs, (b) collegial relations, (c) collaborative cultures, (d) reflective practice, (e) ongoing technical inquiry regarding effective practice, (f) professional growth, (g) mutual support, and (h) obligation. DuFour and Eaker (1998) later contributed six essential characteristics of PLCs: (a) a focus on learning, (b) a collaborative culture stressing learning for all, (c) collective inquiry into best practices, (d) an action orientation (learning by doing), (e) a commitment to continuous improvement, and (f) a focus on results. In order to develop the capacity to transition from traditional schools to PLCs, DuFour and Fullan (2013) maintain that educators have a relentless focus on learning for all students, foster a collaborative culture and collective effort to support student and adult learning; and use a results orientation to improve practice and drive continuous improvement. This study explores affordances and barriers to implementation of RTI and to investigate how the RTI problem-solving data teams within the school under study use data to inform their instructional decision-making. Ultimately, the data teams within the school under study

will evolve into professional learning communities. For this study, tenets of PLCs will be used to examine the group dynamic and capacity for collaborative inquiry within the data teams.

Teacher Isolation and Collaboration

The professional isolation and alienation of teachers has been a major concern in the field of education (Snoek, 2013). Traditional models of schooling involve teachers who work in isolation within the confines of their own classrooms; these teachers do not engage in professional conversations or collaborations that result in modifying or improving practice to accommodate students' needs. The widely-held perception that teaching is an isolated and self-reliant profession can be partially attributed to the nature of the school's internal organizational structure (Fallon & Barnett, 2009). Dufour and Marzano (2011) state that it is difficult for school leadership to have direct influence on staff due to teacher isolation; the isolation is induced by the traditional structure and scheduling of schools. There may be teachers that function fine within isolation, but those small pockets of excellence seldom reach out to positively influence or drive whole school reform efforts.

In regards to the effects of teacher isolation, the most commonly cited studies are John Goodlad (1984), Lieberman and Rosenholtz (1987). The findings put forth the following notions regarding teacher isolation:

- Teachers who work in autonomous isolation are not interested in examining their own practices or participating in discourse regarding school-wide problems (Goodlad, 1984).

- Isolation does not lend itself to individual teacher growth or school improvement. Teachers were uncertain about what to do and how to do it. (Lieberman & Rosenholtz, 1987).

Teachers in isolation only tend access to data from their own students. They must, however, be able to gauge the extent to which their practices are effective; this is done through comparisons with the work of other teachers. DuFour et al. (2010); (Hoaglund et al., 2014) contend that data alone will not improve teaching and learning or become a catalyst for improvement unless those data are put in context to provide a basis for comparison. In this regard, the potential of even the most dedicated teacher can be stifled by a lack of a collaborative culture.

Collaboration is at the heart of most models of continuous school improvement that involves small group work (Dever & Lash, 2013; DuFour & Mattos, 2013). In a study of collaboration teams, Prytula, Hellste, and McIntyre (2010) suggested that educators needed a paradigm shift away from a knowledge-transmission toward a knowledge creation view of education. This shift would require teacher collaboration rather than isolation. However, gathering teachers and asking them to work in a collaborative context is not a silver bullet approach that ensures progress or productivity. Stanley (2011) states, “A group of teachers can work together to either reinvent and improve teaching practice or simply reinforce the status quo” (p. 73). The literature supports the notion that it is better to attempt the establishment of a collaborative culture than to allow teachers to experience the debilitating effects of teacher isolation (DuFour & Fullan, 2013; Fullan, 2007). Teacher collaboration is an attribute that contributes to

reducing achievement gaps (Moller et al., 2013). A synthesis of the literature would suggest that teacher development is an inductive process that must be nurtured by a positive school culture and is most effective when collaborative in approach.

Jacobs et al. (2009) conducted a qualitative study to understand various ways that classroom teachers used data to inform their instruction. The researchers created a ladder of sophistication to rank data literacy of the participants. One important implication from this study is that teachers involved in a collaborative cultures cultivated data competence through shared expertise and direct participation. The study found that teachers who had more support gained more experience engaging in data use.

Burn, Mutton, and Hagger (2010) conducted a longitudinal study which followed 17 teachers from postgraduate education through their third year of teaching experience. A series of classroom observations and interviews informed the study. The study validated the importance of teacher collaboration and environmental influences on teacher learning. The findings discussed important implications pertaining to co-construction and participation (community of practice) elements as well as ill-effects of teacher isolation. The authors constructed a table suggesting that teachers have three learning orientations: intentionality (extent to which learning is planned), frame of reference (extent to which teacher looked beyond their experience to develop self-efficacy), and aspiration (vision of improved student and self-learning) (Burn et al., 2010). The article briefly describes how some participants experienced an audit culture. Hodkinson and Hodkinson (2004) describes an audit culture as being obsessed with short term and quantifiable which tends to result in little or no professional learning.

Advances in technology make it possible for teachers in rural areas or isolated fields of study to form professional learning networks through internet-based bulletin boards and social media technology. The research suggests that online communities offer virtual spaces where teachers could have honest discussions, collaborate, explore ideas, and provide support for one another (Dodor, Sira, & Hausafus, 2010; Hur & Brush, 2009) The study suggested that virtual spaces for teachers could reduce isolation and the premature attrition rate of teachers.

Online professional development services such as Edivation (formerly PD 360) integrate elements of social networking to encourage global community learning. On a smaller scale, Francis and Jacobsen (2013) studied professional development for 13 educators from geographically scattered regions and found that the group was able to form a collaborative community. Researchers are beginning to populate the literature with discussions about the extent to which online collaboration can establish communities. Studies are currently exploring the viability of online professional learning communities (Blitz, 2013b). With the success of social networking sites such as Facebook, Twitter, and Pinterest, exploratory integrations of online communities are logical enterprises for the education community.

A review of the literature regarding teacher isolation will ultimately lead to the writing of Andy Hargreaves. In his seminal work, Changing teachers, changing times: Teachers' work and culture in the postmodern age, Hargreaves (1994) contributed a distinction between collaborative cultures and contrived collegiality. In collaborative cultures, working relationships between teachers tend to be organic, voluntary,

constructive, pervasive across time and space, and unscripted (Hargreaves, 1994). Collaborative cultures conflict with systems where decision making is highly centralized. In contrast, contrived collegiality is compulsory, anticipated, programmatic, implementation-oriented, regulated, and rigid in time and space. Contrived collegiality among teachers will not generate meaningful or sustainable change (Datnow, 2011). In the school under study, state initiatives and building level protocols appear to align with characteristics of contrived collegiality. The administration has invested time, effort, and money into establishing a culture for collaborative data use, but an examination of the implementation process is needed to determine the extent to which norms are consistent with collaborative cultures.

Collaborative Data Teams. Teams are a critical element of RTI and are the medium through which data-based decision making occurs on all levels of the process (Nellis, 2012). Despite widespread use of collaborative teams in education today, educators continue to struggle with using them effectively; this is particularly true for problem-solving teams (Nellis, 2012). Data teams are necessary to promote differentiation of practices needed to address individual needs of students and an increased demand for accountability (Nelson, Deuel, Slavit, & Kennedy, 2010). Educational researchers contend that collaborative inquiry approaches to data use are essential for schools that hope to improve student achievement and close achievement gaps among students (Dever & Lash, 2013; Francis & Jacobsen, 2013; Love, 2009). Effective data use often results in improved teaching practice such as collaboration, better knowledge of student needs, and efficiency of effort (Sinnema et al., 2011). Researchers

and national educational associations advocate the use of a systematic process for working with data, in collaborative contexts, is critical for making sound educational policy decisions (Little, 2012). Collaborative teams help to solve problems as well as offer an effective format of professional development.

Collaborative teams can be effective whether they are longstanding or temporary. Meirink, Imants, Meijer, and Verloop (2010) found that temporary and voluntary teams could develop cohesion if the members were focused on exchanging both ideas and experiences for shared problem-solving. Shared problem-solving and group cohesion among teachers helps to generate positive student learning. Mistretta (2012) studied eight teachers who participated in collaborative teams for professional development. The professional development involved a three step modeling technique: (a) brief, (b) observe, and (c) debrief. The group discussed a focus lesson, observed a facilitator deliver the lesson to students, and the group discussed their observations. Teachers documented further thoughts into a reflective journal. This collaborative exercise in reflective practice resulted in teachers continually adjusting their practices to improve student instruction (Mistretta, 2012). Ultimately, the teachers saw the value of collaboration and incorporated more student-to-student interactive activities within the classroom curriculum.

Research offers two branches of literature regarding the use of collaborative teams. One strand comes from the literature regarding group problem-solving models such as professional learning communities. The other strand derives from pre-referral intervention approaches associated with special education.

Prereferral teams. Prereferral teams are commonly associated with special education and were developed to offer instructional support for struggling students within the general education classroom. Nellis (2012) provides a chronological list of resources for each of these approaches: teacher assistance teams, child study teams, prereferral intervention teams, mainstream assistance teams, instructional consultation teams, and instructional support teams. Although the original intention of these teams is to assist general educators, they continue to specifically associated with referrals for special education evaluation (Nellis, 2012). Student learning gaps are not specifically addressed through this process; they are identified and prescribed a set of classroom accommodations that (a) raise teacher awareness about the student's disability and (b) work around the student's deficiencies in a manner that intends to reduce the frustration level.

Implications

The literature review established the importance of collaborative inquiry, effective data-driven-decision making, distributed leadership, and professional learning communities (PLCs) for successful implementation of RTI that positively impacts student learning. The staff has yet to receive professional development on data-driven decision making. Both old and new RTI models promoted by the state contain problem-solving components. The problem-solving component is heavily reliant upon the educator's ability to engage in data-driven decision making (Virginia Department of Education, 2013). Both models require that classroom teachers engage in the problem-solving process to determine interventions for students who do not respond to instruction

(Virginia Department of Education, 2013). In addition, educators do not receive professional development specific to collaborative inquiry or professional learning communities (PLCs). The current variation of teaming in the school under study does not meet the research-based attributes that qualify the groups as PLCs. Consequently, treatment integrity and data use across tiers remain inconsistent and ineffective, data-driven decision making within the existing problem-solving teams is needed, and explicit identifications of instructional interventions are lacking. Existing problem-solving data teams are functioning as obligatory committee delegations where teachers may lack influence in decision making. A project for this study must address a deficit in human capacity through a year-long series of professional development sessions dedicated to the implementation of PLCs and collaborative inquiry for teachers and administrators.

Historically, special education teams have been the only team model employed by the staff within the school under study. There may be a possibility that educators at the school confuse the intentions of the RTI team process with the function of a special education pre-referral team. Philosophical barriers may exist as a result of such confusion. For example, a predisposition to conduct meetings in a special education evaluation team format may be hindering the implementation of a true professional learning community process. That is, the process may be prescriptive in approach and the problem-solving component of data-driven decision making could be excluded altogether. A synthesis of the literature would suggest that the educators within the target school must begin to use formative assessments that inform instruction as an ongoing process. When this is done, the data teams will be able to understand where students are

and modify instruction to address their needs. Understanding both realms of teaming may help to interpret and analyze the data in later stages of this study.

Effective collaborative problem-solving processes must be ongoing throughout the year. A traditional professional development and implementation process may not be feasible due to the limitations associated with the small rural context. The project for this study must the barriers characteristic in traditional professional development through the use of a collaborative online professional development model. An online or hybrid framework will compensate for issues associated with time, space, and resources.

In the school under study, state initiatives and building level protocols appear to align with characteristics of contrived collegiality. Contrived collegiality is forced collaboration among teachers (Owen, 2014). It is compulsory, anticipated, programmatic, implementation-oriented, regulated, and rigid in time and space. Contrived collegiality among teachers will not generate meaningful or sustainable change (Datnow, 2011). In the school under study, state initiatives and building level protocols appear to align with characteristics of contrived collegiality. A paradigm shift to distributed leadership through effective implementation of professional learning communities is the key to turning around such a centralized model. The change would be too comprehensive and philosophically complex to address without fully informing the stakeholders within the local context.

The complexity and scope of the research problem called for a project that addresses systemic change within the school under study. A series of professional development sessions are insufficient to address the local problem. The project for this

study is a framework for blended professional learning. The intended audience of teachers, administrators, and policy makers can benefit from a comprehensive framework that incorporates evidenced-based characteristics of effective professional learning. If implemented with fidelity, the framework could ultimately lead to improved student learning and achievement.

This section explored several possible projects that would address a variety of implications derived from section one. Although it may appear that a white paper is the most suitable project for this study, a framework for professional learning was the determined research outcome for this study.

Summary

This section provided a review of literature associated with the local problem for this study. The literature review revealed several contributing factors that interact with implementation of the collaborative RTI problem-solving teams within schools. These factors were discussed in detail following an overview of RTI. These factors included the socio-political landscape, 21st-century learning, collaboration among teachers, data-driven decision making, achievement gaps, teacher isolation, teacher collaboration, teaming, and conceptual frameworks used for understanding data use were presented in Section one.

The next section provides a description of the methodology used to investigate the local problem using a qualitative case study design. Section 3 will outline a project that will be developed to address the problem; the project will be based on the findings of the

initial study. Section 4 will contain a final conclusion and reflections on the process of completing this study.

Section 2: The Methodology

The purpose of this qualitative case study was to investigate how RTI data teams use data to improve student learning and close achievement gaps within the school being studied. This study examined a local problem regarding RTI problem-solving data teams, formed to comply with a state initiative to close achievement gaps, which were not producing expected gains in student achievement. This section describes the research design and rationale for this project study. Discussion of participant selection methods and the role of the researcher is included. A variety of data collection methods are explained which include interviews, observations, and review of documentation. Efforts taken to ensure validity and reliability of the findings are also discussed.

The target school is following a RTI framework that heavily depends on the employment of an effective data-driven decision making process. This study examined the enterprise of individuals who participate in data teams that were formed to comply with a state initiative to implement RTI within an elementary school. An explanation of the process of choosing a qualitative case study design and the manner in which it was applied to exploring the data use process will be discussed within this section, followed by a summary of the research design used for this case.

Research Design and Approach

This project study used a qualitative research approach to understand participant experiences within RTI problem-solving data teams. The aim of qualitative research is to identify a problem based on a need to explicate occurrences (Creswell, 2012). In this project study, achievement gaps persist despite a lengthy implementation effort by educators to improve student learning. Qualitative research explores the meaning people create and identifies variables that cannot be measured (Creswell, 2013). This study explored the perspectives of educators who are involved in the implementation process of RTI data teams. Their articulated understandings, opinions, and attitudes regarding the implementation process contributed nuances about the case that could not have been gathered through quantitative means of data collection.

Rather than examining specific variables in the situation, this study was concerned with how all of the parts worked together. Qualitative studies derive from philosophical frameworks that explore views on the nature of reality and the manner in which people make sense of how something works (Lodico, Spaulding, & Voegtle, 2010). Quantitative methods do not allow for data collection that offers the depth of information required to address the research questions for this study (Creswell, 2012; Yin, 2014). The research questions aligned with qualitative case study research because they were oriented to explore participant perceptions and required an in-depth understanding of the problem (Lodico et al., 2010). Finding from this type of research provide the literature with understandings of participant experiences.

Justification for Qualitative Case Study Design

This study used a qualitative case study research design. According to Yin (2104), a case study is an in-depth investigation of a contemporary phenomenon within its real-world context. The case in this study was bound by the participants' common experience of participating in the data teams (Creswell, 2012; Lodico et al., 2010). Case study design is appropriate for gaining an in-depth understanding of the participant's situation through observation, examination of unobtrusive documents, and participant perspectives. Also, a case study uses a variety of sources for the sake of converging evidence and ensuring the validity of findings through data triangulation (Yin, 2014). In an earlier publication, Merriam (1998) stated that a case study design is employed to gain in-depth understanding of the situation and meaning for the participants. Case study research emphasizes process rather than outcomes, in context rather than a specific variable, in exploration rather than validation (Merriam, 2009). In this study, I sought to gain insight and an in-depth understanding of a situation: the failing enterprise of RTI problem-solving data teams within the local context. Qualitative case study research was appropriate for this study which explores a bound case within a local context.

The purpose of this study was to investigate how RTI data teams use data to improve student learning and close achievement gaps within the school being studied. The research questions required an examination of ongoing process, an observation of practice, and conversations with participants in an effort to gain a deeper understanding of the situation. A variety of other research approaches were reviewed to ensure that case study was the most appropriate design for this project study.

Other Approaches Considered

Creswell (2013) explained that there are five approaches to qualitative study: narrative, phenomenological, ethnographic, grounded theory, and case study. All five approaches were considered for this study. Narrative and ethnography were the first approaches removed from consideration. Narrative research is used for capturing the life experiences of a single individual; the focus is on the individual rather than a phenomenon (Lodico et al., 2010). Ethnographic research involves researcher immersion within the culture of the population being studied over an extended period of time (Merriam, 2009). Ethnography relies heavily upon field observations as a primary data collection method. The population being studied is usually not mainstream and may have been marginalized by society (Creswell, 2013). Neither narrative nor ethnography was a good fit for this study which used interviews of multiple participants as a primary source of data to inform research questions about a single phenomenon.

The intention of grounded theory research is to establish or discover a theory that is grounded in data (Creswell, 2013; Merriam, 2009). All of the participants in a grounded theory study have experienced the process (Creswell, 2013). Grounded theory studies produce findings that can be generalized to a larger population beyond the local context of the study (Lodico et al., 2010). The conditions of this project study did not lend themselves to grounded theory research. First, the participants were actors within a process that was still being established; it would have been difficult to establish a theory of practice if the process upon which the theory is based lacks refinement. Second, the intention of this project study was to address a problem specific to the local context and

offer a project that could result in positive social change within the confines of the research site.

A phenomenological study provides the shared experiences of several individuals regarding a single phenomenon (Creswell, 2013). This form of qualitative study isolates a phenomenon in order to comprehend its essence (Merriam, 2009). Merriam (2009) explained that the phenomenological approach is best suited for "studying affective, emotional, and often intense human experiences" (p. 26). The phenomenological approach would not have aligned with the research questions for this study. Rather than focus on a particular single phenomenon, this study examined an ongoing implementation process composed of multiple components, actors, and factors.

Population and Participants

The study was conducted in a small rural school district located in the mideastern region of the United States. The entire school district has a population of approximately 1,300 students among three schools. Individuals invited to participate in the proposed study were chosen from a participant pool of comprised of the 36 educators who participated in the RTI data teams. Grades K-3 had five teachers per level while Grades 4-5 have only four teachers per level. In addition to classroom teachers, other personnel are involved in the RTI process, including two specialists (one math and one reading), two building administrators (principal and assistant principal), two central office administrators (assistant superintendent and director of special education), and a visiting data coach (adjunct university faculty). Enrichment teachers in areas such as art, math, music, physical education, and library did not participate in the RTI process. The RTI

data teams were grouped by grade level; they were composed of teachers, on-site administrators, and central office administrators. Depending on the grade level, there could be four or five teachers per data team who served alongside a building and central office administrator. Special education teachers, specialists, and consultants may have participated in meetings on occasion. Each data team meeting was facilitated by the assistant superintendent. The facilitator scheduled meeting dates, determined the meeting agenda, created handouts, and led the discussion. The meetings were cancelled if the assistant superintendent could not be present.

Criteria for Selecting Participants

A criterion-based selection process, commonly referred to as *purposeful sampling*, was used to select participants for this study. The criteria established for the purposeful sampling process reflected the purpose of the study and guided identification of key informants (Merriam, 2009). In qualitative research, purposeful sampling is based on the assumption that the investigator must select a sample from which the most can be learned in order to gain deeper understanding and insight into a case (Creswell, 2013; Merriam, 2009). Ideally, key informants would have experience with the implementation process from inception to the present for a span of 4 years. For this reason, educators with less than 2 years of involvement in the RTI implementation process, at the school being studied, were not asked to participate in the study. A list of attributes essential to the study was compared against the attributes of potential participants in the population pool. The criteria for selection were (a) current participant in one of the six RTI problem-solving teams, (b) 2 years or more of experience in the process, and (c) current

educator in the school division where the school under study is situated. In addition, the most experienced respondent from each data team was chosen. Simply stated, the population of interest for this project study were educators who had participated in the RTI problem-solving data teams for more than 2 years in a small rural elementary school that failed to improve achievement gaps for 4 consecutive years.

Justification for the Number of Participants

Thirteen volunteer participants were purposefully selected from the participant pool to participate in the study. Representative members from each data team were interviewed to determine alignment across the grade levels and inform the research problem. The number of participants chosen was a reflection of what was needed to inform the questions at the beginning of the study (Merriam, 2009). The justification for a sample size of 13 educators was that this sample would yield detailed information from a cross-section of educators representing various grade levels and authoritative capacities. In the school under study, the participant pool was composed of 36 eligible participants who were distributed among six RTI problem-solving data teams. For this reason, interviewing eight elementary classroom teachers, one special education teacher, two peripheral teachers, and two administrators provided an appropriate cross-section of stakeholders involved in the process under study. NVivo10 computer software assisted with collecting, organizing, and analyzing the large amount of data collected from the large number of interview participants.

Procedures for Gaining Access to Participants

Following Walden IRB approval (approval number 04-30-15-0316567), expressed written consent to conduct research within the local site was granted by the superintendent of the division and the building principal. I informed the faculty about the study during a brief faculty meeting presentation supplemented by organizational email. I established a new Gmail account for the sole purpose of data collection for this study. All 36 target participants were invited to participate in the research study via email; 13 participants were selected from those who volunteered. Included in this communication were the purpose of the study, participant expectations (e.g., anticipated length of interview sessions), ethical considerations, contact information, and the voluntary nature of participation (Appendix G). Identities of participants were encoded and maintained confidentially during the reporting phase. In addition, demographic data such as gender, ethnicity, courses taught, and years of teaching experience were kept from the final report to avoid identification of participants within the very small local context.

Methods of Establishing a Researcher-Participant Working Relationship

A researcher–participant working relationship with the participants was established through a variety of measures. Each participant received an e-mail detailing the purpose of the study, the participant's role, and benefits of taking part in the study. The interviews began with an assurance that responses were voluntary and would remain confidential. Member checking enabled the participants to view transcripts of their interviews to assure accuracy of data. My role as the researcher and as interviewer and the participant's role as participant were explained prior to questioning. The participants

were informed that honest perceptions would provide credible data for the study. Participants were informed that all data gathered throughout the study would be used to create a final report and inform a project.

Measures for Ethical Protection of Participants

IRB approval preceded proper protocols for access and approval of the site. Prior to the study, consent to conduct research at the target setting was obtained from the superintendent and building principal and was submitted with the Walden University Institutional Review Board (IRB) application; this was done prior to data collection for this study. Written consent was obtained from all participants prior to the study to comply with Walden University's ethical standards and ensure the rights of participants. The informed consent document provided the purpose and voluntary nature of the study. Confidentiality serves to protect the case and the participants (Yin, 2014). All participants were assured of the voluntary nature of the study; they were also assured that their responses and identity would be confidential. I expressed the purpose and intentions of the research; data collection did not interfere with instructional responsibilities (Creswell, 2012). All recordings, unobtrusive documents, and data will be kept in a locked file in my home where they will be destroyed after 5 years.

Participants were invited to meet with me prior to the interviews to discuss the details of the study proposal, determine their willingness to participate, and reaffirm their consent. The principal authorized the use of the school building for interview; he did not limit data collection to specific locations. As a result, the teacher's had the choice to use their own classrooms or the music room. For the sake of discretion, all but one teacher

chose to have the interview take place in the music room. The music room was not being used throughout the course of data collection; it is an internal room with no windows and is sound proofed. Participants often voiced that it was a good choice to ensure their confidentiality.

It is critical to establish a trusting relationship between participants and researcher in order to obtain accurate and detailed information that informs the study (Yin, 2014). I had no supervisory authority over any of the participants in this study. The participants and I had a healthy pre-established level of trust given a longstanding working relationship; I had worked as a teacher in the school being studied for 20 years. I encouraged participants to ask questions, request clarifications, and voice their concerns during the interview sessions. Participants were assured that they could remove themselves from the study at any time without reason or risk of penalty of any sort. In regard to confidentiality, all identifying information was excluded from the final report. Risk was minimal in this study, with the probability and magnitude of harm of discomfort anticipated not being greater, in and of itself, than those ordinarily encountered in the daily routines or practice of the participants.

Data Collection

Approval from Walden University's IRB was obtained prior to collecting data. In qualitative research, validity is achieved through the use of multiple data sources (Lodico et al., 2010). Furthermore, examination of data from a variety of sources helps in finding evidence to support themes and validate the accuracy of findings (Creswell, 2013). This study relied on triangulation of a variety of qualitative data collection methods, including

interviews of individuals serving in a variety of capacities, observations of meetings, and a review of documentation. An interview and observation schedule was crafted to ensure that data collection was not disruptive to the instructional day.

Interviews were conducted using a semi-structured protocol focused on participant perceptions of RTI implementation and involvement in data teams within the local context (see Appendix C). Key informants were selected for one-on-one interviews using purposeful sampling as determined by criteria-based selection from respondents to an email invitation. The population of interest for this study was educators who have participated in the RTI problem-solving data teams for more than two years. The goal was to obtain one volunteer participant from each grade level, two administrators, and two peripheral members. Interviews allowed participants to contribute their unique perceptions and experiences to the study while responding to open-ended questions (Creswell, 2013). The inductive nature of this qualitative approach enabled knowledge to be constructed, by the participants, throughout the interview process; thus removing any perceptions of the researcher or past research findings (Creswell, 2012). Interviews were digitally audio-recorded and transcribed with permission from the participant. The informed consent document (Appendix G) allowed for follow-up interviews with participants in the event that responses warranted further explanation or clarification. Participants were offered an opportunity to engage in member checking with the researcher in an effort to ensure accuracy of transcripts and provide clarifications where necessary. All computer files were housed in the researcher's personal computer (the project computer) and backed up on an external hard-drive located in a secure location in

the researcher's home. All interviews were audio recorded using the Notability app on an iPad3. The recording were loaded into the project computer and deleted from the iPad3. The iPad3 and the application are both password protected. The iPad3 is not used by anyone other than the researcher; the data was not accessed by anyone other than the researcher. Interview transcripts were kept in the project computer that is not networked with any organizational, commercial, or public systems. All files and data were backed up on external hard drive that is stored in a secured place in the researcher's home. The project computer and external hard-drive were encrypted with password protection and was not accessed by anyone other than researcher.

Observations of RTI problem-solving data team meetings helped triangulate data and substantiate the claims of interviewees. In addition to corroborating previously collected data, observational evidence was useful in offering additional information about the case (Yin, 2014). For the school under study, direct observation of the RTI problem-solving team provided a deeper understanding of the context setting and a first-hand account of how data was used to address achievement gaps. Observations of meetings helped to provide a better understanding of experiences that were described in participant interviews. Gathering data from observations and interviews provided a comparison of espoused and experienced practices within the data team process. Each observation lasted 35 - 60 minutes. Many of them took place during a teacher's planning period; some teachers volunteered to conduct the interviews over two planning periods. This proved to be more valuable as participants reflected on their responses and provided more detail and clarifications during the second session of the interview. Observations were

conducted using a protocol focused on the conceptual framework for this study (see Appendix D). Field notes were taken on the protocol and saved as pdf documents. Interview and observation data were loaded into NVivo10 software and coded to inform the research questions.

RTI is a process that generates copious documentation. Documentation is likely to be relevant to every case study topic (Yin, 2014). Unobtrusive documents that could inform the research questions were sought and reviewed with permission from the administration and participants. Among these documents were RTI meeting agendas, an district-level RTI implementation log, an application packet for state-level RTI cohort division, a problem-solving training meeting agenda, assessment calendars, reading expectation charts, anecdotal notes created by the assistant superintendent from attending intervention meetings, PowerPoint presentations to school board regarding RTI implementation and school improvement, internal records, individual student performance data, standardized test data reports, RTI guiding documents, archival data, a needs assessment report for the school under study, and reading expectation charts.

Alignment of Data Collection Methods and Research Questions

It was important to align the appropriate data collection method with each research question in order to gain a deep and authentic understanding of the case. In essence, the research questions for this study was designed to explore the efforts of RTI problem-solving data teams within the school being studied. Participant perception data offer an understanding of both espoused and experienced practice. Table 3 provides an alignment of research questions, data collection method, and the format used for

reporting findings. A more comprehensive alignment organizer for this study is provided in Appendix F.

Table 3.

Research Question Alignment With Data Analysis Sources and Reporting

Research Question Alignment with Data Analysis Sources and Reporting Procedures

Research questions (RQ)	Data Source	Data analysis reporting
RQ1: How do RtI data team members use data to inform their instructional decision-making?	Interviews, observations, review of documentation	Qualitative narrative summary
RQ2: How is the RtI process used to assist low-performing and at-risk students in the school being studied?	Interviews, observations, review of documentation	Qualitative narrative summary
RQ3: What are affordances and barriers to establishing effective RtI problem-solving data teams within the school being studied	Interviews, observations, review of documentation	Qualitative narrative summary

Note: Alignment of Research questions to data collection methods.

Trustworthiness

Member checking, observations, peer debriefing, and data triangulation were used to ensure accuracy of the findings. Member checking involved segments of transcripts emailed to participants in to ensure, both, accuracy and reliability of participant responses. Peer debriefing is a strategy that uses a colleague who offers perspective so that the researcher's own bias does not influence the portrayal of the data (Lodico et al., 2010). For this study, peer debriefing was achieved with the cooperation of an administrator from a neighboring school who recently completed a doctoral program.

Data triangulation was achieved through a variety of data collection methods comprised of interviews, observations and a review of unobtrusive documents.

Role of the Researcher

I had been a classroom teacher in the school under study for 20 years and did not have any supervisory authority over the participants in this study. The local setting was selected because I was aware of the large amount of effort participants put into a process that had not addressed persistent achievement gaps. My role in this study was to collect, analyze, interpret, and report findings that were valid and reliable in order to inform the research problem. A certificate verifying that I had read and understood ethical considerations is shown in Appendix Q.

Personal interest in this topic originated from conversations with colleagues regarding a general dissatisfaction with the current state of RTI implementation. I had a desire to promote positive change through a thorough study that can provide the groundwork for program evaluation and improvement. I had not been a participant in the RTI process for two years. This absence from the process contributed an element of curious exploration whereas data collection was conducted in the spirit of discovery rather than confirmation of predisposed notions. Familiarity with the participant pool enabled the researcher to accurately select participants who can best inform the study with rich data.

I believe that RTI problem-solving teams should integrate principals of data-driven decision making and professional learning communities. Bias towards data-driven decision making may have influenced data collection and data analysis; these biases are

based on my beliefs rather than participant experiences. Triangulation of information for the study involved computer software queries (NVivo10), audio-recorded interviews, and used member checking to control against this bias.

Data Analysis

Qualitative data analysis is the process of making sense out of the data which involves combining, condensing, and interpreting that which the participants contribute to the study (Merriam, 2009). For this study, coding was used to organize the voluminous data into manageable specific segments. The data analysis method used for this study was an inductive process used to identify various segments of data that describe related phenomena; label those segments into broad category names; examine the segments of information for relationships; and abstracted connections among the coded segments (Lodico et al., 2010; Yin, 2014). Three computer programs were key components in achieving this process: Microsoft Word, QSR NVivo10, and Nuance Dragon Naturally Speaking 13. Microsoft Word and Dragon Naturally Speaking were used to create interview transcripts. QSR NVivo10 was used to store, manage, organize, and code all of the data used for this study.

Systems for Keeping Track of Data

QSR NVivo10 has the capacity to warehouse, organize, and analyze a variety of forms of data including audio, video, textual, and images. NVivo10 was used to organize and manage all data collected for this study. For this study, three types of data were stored and managed in NVivo10: interview transcripts, observation protocols, and documentation. Audio recordings of the interviews were saved in a separate folder in the

researcher's computer and were not imported into NVivo10. Only the transcripts were imported into NVivo10 instead; this enabled the project file to be streamlined and more organized. All documents used for this study were coded and housed within the NVivo10 program. Coding and classification of major themes in NVivo10 helped to establish relationships between concepts. NVivo10 software ensured consistency in coding and provided additional controls against issues with reliability and validity in both data collection and data analysis. All computer files were housed in the researcher's personal computer (the project computer) and backed up on an external hard-drive located in a secure location in the researcher's home. The project computer and external hard-drive were encrypted with password protection and was not accessed by anyone other than researcher.

Interview Data

Interviews were digitally recorded using the Notability app on an iPad3, loaded into the researcher's laptop, and then transcribed. To create interview transcripts, the researcher spoke the content into Microsoft Word using the Dragon Naturally Speaking software plugin. Completed transcriptions were reviewed for accuracy by the researcher by comparing the text to the original digital recording. Once the accuracy of each transcription was verified, a copy was e-mailed to the interviewee for member checking. Transcription and coding of interview responses were completed within two days of each interview in an effort to ensure accuracy and time for member checking. All 13 of the resulting transcripts were subsequently loaded into QSR NVivo10 software for assistance with coding and analysis.

Observation Protocol

An observation protocol (see Appendix D) was used to document field notes of RTI intervention team meetings. The handwritten notes were typed onto a digital version of the protocol and saved in PDF format. These documents were loaded into NVivo10 and were coded for patterns, themes, categories and relationships.

Unobtrusive Documents

The assistant superintendent, who served as the facilitator for the RTI process in the school under study, provided the researcher with a large amount of documentation (in PDF format) related to the research problem. Among these documents were RTI meeting agendas, a district-level RTI implementation log, an application packet for state-level RTI cohort division, a problem-solving training meeting agenda, assessment calendars, reading expectation charts, anecdotal notes created by lead implementer from attending intervention meetings, PowerPoint presentations to school board regarding RTI implementation and school improvement, internal records, individual student performance data, standardized test data reports, RTI guiding documents, archival data, a needs assessment report for the school under study, and reading expectation charts. These documents were loaded into NVivo10 and were coded for patterns, themes, categories and relationships.

Data Analysis Using QSR NVivo10

There are a variety of ways to organize and code data in NVivo10. Interview data was coded before the observation and documentation were analyzed. Themes were coded and classified using the source data from interviews; this provided a foundation of

themes and categories upon which the observation and document data could be coded. Any new themes that emerged from observation and document data were added to the study. The data analysis was classified into themes and relationships while encompassing all three forms of data collected. Validation was ensured using this method of data triangulation.

Coding for themes in NVivo10. The NVivo10 program organizes data into a file folder system called "tree nodes." The main folder is called a "parent node" and the subfolders are called "child nodes." The terminology sounds complex, but a node is simply a synonym for a file folder identical to what is commonly used in any Windows file management system. I simply created a "node tree" for each interview question. Each question was a parent node and all themes that emerged from the responses in a question were organized into child nodes for that question. For example, all responses to question 1 were stored in a parent node appropriately named, "Question 1." Clicking the node named, "Question 1" opens a new text document which displays all responses from each of the 13 interviews for question 1. This common answer page made it easy to code responses to specific questions without having to navigate from one interview document to the next. Once the responses were organized by question, I created child nodes (sub-folders) for themes that emerged from individual participant responses. Next, I focused on participant responses that were similar by coding words, phrases, sentences or whole paragraphs into corresponding nodes (Yin, 2014). I then read through all of the corresponding data within each node to determine relationships and interlocked themes in

order to write a narrative description of the analysis in the findings for this study (Creswell, 2012). All data for this study was coded in this manner.

Auto-coding in NVivo10. During the course of data analysis, the headings ribbon was used to prepare documents for the auto-coding feature in NVivo10. Each heading level became a category within NVivo10 and any subheadings with the same names were coded under the same parent nodes, respectively. This function became very useful to instantly group all question responses under the corresponding question number. Rather than highlighting and coding them by hand, I simply used style formatting and clicked the auto-code feature; the program instantly grouped the questions into categories accordingly. Next, I read through the transcripts and refined the coding into patterns, themes, and relationships.

Next, the observation protocols and unobtrusive documents were coded. The coding process was similar to interview data; parent nodes were created for each document and child nodes were created for themes that emerged from those documents respectively. Again, the auto-code feature was a valuable function for quickly setting up parent and child nodes for documentation that was in MS Word format (all of the unobtrusive documents except the standardized test data was in MS Word format). I used the style ribbon to prepare each document for auto-coding. Next, each section of every document was further coded to refine the tree nodes for each category.

After thoroughly examining all of the coded data from all sources, categories were revised and thematic coding was applied. This comprehensive approach revealed common patterns, relationships, and themes among data collected from all sources.

Ultimately, data from all files were analyzed independently and then triangulated to identify emerging themes related to each research question.

Memoing in NVivo10. The NVivo10 program has a function where researchers may create, organize, and store notes as they code the data. This function was important for documenting discoveries, relationships, and epiphanies that emerged during throughout the data analysis phase of the study. Memos are stored with source documents and may be coded into nodes if I chose to situate sidebars among the node trees. Findings are reported in narrative form in this section. Validity and reliability of the findings were increased through triangulation of data.

Findings

The findings from this project study materialized from interviews, observations, and a review of unobtrusive documents as a means to inform the overarching research question: "How are the responses to intervention (RTI) data teams using data to improve student learning and close achievement gaps within the school being studied?" Findings for each research question are supported with evidence from interview transcripts, observations, and unobtrusive documentation. These findings will be interpreted through the lens of the framework for data-driven decision making model by Mandinach et al. (2008) and the literature regarding RTI implementation. This conceptual framework is used to understand how an organizational data use is processed and refined into actionable knowledge. Examinations of the findings for this study are interpreted pragmatically and theoretically in observance of the philosophical underpinnings that substantiate the conceptual framework. Participants are coded alphabetically (i.e.

Participant A, Participant B) to ensure confidentiality. The school division is so small that roles cannot be specified without revealing the source; the word "participant" is vague and less associative with role.

Conceptual Framework Lens: The Framework for Data-Driven Decision Making Model

On the surface, research questions for this study explore the manner in which educators move data into actionable knowledge. Data collection and analysis for this study adequately provide an understanding of how this is done within the local context. However, the findings also provide an understanding of how the philosophical underpinnings of the framework align with participant perceptions and rationales for using data to improve student learning. In this regard, this study explored data use in three different facets: teacher use, data team uses, and philosophical alignment between the RTI implementation process and The Framework for Data-driven Decision Making model. Ultimately, this investigation of the RTI implementation process led I to data-supported conclusions regarding the local problem and how it may be addressed: RTI data teams that were formed to comply with a state initiative to address achievement gaps, have not produced expected student gains after 4 years of implementation.

Philosophical lens. The philosophical lens used to interpret the data was composed of key components that make data-driven decision making possible: vision, establishing a data culture, technology to support data-driven decision making, human capacity, and professional development (Mandinach & Jackson, 2012). Rather than combing through the data for the mere existence of data use, the philosophical lens helps

to establish the extent to which essential components of data use are in place within the context under study.

Research Question 1

The first research question focused on data use: How do educators within the RTI data teams use data to inform their instructional decision-making? The main themes from this question are remediation, limited reach, core instruction, and data use in isolation.

Theme 1: **Remediation**. All educators within the process share a common vision for data use; it is currently viewed by participants as a method for identifying and remediating struggling students.

The findings indicate that the most prominent use of data is to inform remediation efforts. Educators in the school under study share a vision for using data to identify low-performing students for the purpose of moving them toward grade-level capacity. This vision is well established from the state-level down to the individual classroom teacher. One sentiment shared by all participants is that the goal of RTI is to identify and remediate struggling students. When asked about the purpose of RTI, Teacher B simply stated, "It is a way to improve a child that may not be scoring as high as they should be – not working up to their ability." This is consistent with the state-level guiding document which asserts that the goal of RTI is to identify and prevent potential learning problems while providing additional support for targeting individual student need (Virginia Department of Education, 2013). The school board in the local context approved funding and implementation of the RTI process to address problems with meeting adequate yearly progress (AYP) and closing annual measurable objective (AMO) gaps. In this regard,

school leaders intended to use RTI implementation as a turnaround strategy to shore up remediation for low-performing students – particularly those who were minorities or enrolled in special education. One key component of data-driven decision making is for educators to have a shared vision for data use (Mandinach & Jackson, 2012). In the local context, the vision for data use is established from senior administrators to be used as a way to identify and address learning gaps with low-performing students. This vision is manifested in the uniform conceptualization of the purpose of RTI implementation. Participant L said, "The purpose of RTI is to help kids achieve grade level proficiency in reading and math." This view of using the RTI process to remedy learning deficits is further explained by Participant G:

> It is to hopefully move them out of the lower tiers and into a higher Tier. Hopefully, it is to try to resolve a lot of the learning issues that are in place before having to refer students to special education. But, it is to try to help students move ahead so they do not have to become a part of special education. It's transitioning those tiers, getting them out of those tiers, moving them up; meeting them where they are.

Many of the participants used similar wording to Participant G in that the goal is to meet students where they are. There have been many supports put into place that help educators make normative and criterion measurement and comparisons. These include RTI coaches from the state department of education, an entire library of leveled reading books, comprehensive assessment computer software (AIMs Web, STAR math, PALs), benchmark software (Interactive Achievement), and instructional programs (Fountas &

Pinnell Leveled Literacy Intervention, READ 180). All of these components are used regularly throughout the school year to provide quantitative data used in determining student placement and progress; this is evidenced by the assessment calendar provided in Appendix P. Participant D provided an explanation of how these programs are used in tandem,

> If you're looking at reading, you have your AIMS WEB, the STAR Reading stuff that we do, and Fountas and Pinnell. You get your reading levels, and then you can get where they are with their fluency rate. You can start them exactly where they're supposed to be instead of wasting time trying to figure out where they are supposed to be. There's the DSRA, the spelling features thing we use to get the word study group. So you can get that done the first week of school and by the second week of school you already have them in their groups. Then, you have to continually assess them - either with running records or you can do the Fountas and Pinnell again - periodically and get the aims web every quarter and then you can move them up or you can move them back. That way you're not stagnating. You're not just staying at the same place the whole school year.

There is a strong commitment from district level administrators to enable and support RTI implementation at the school under study. The assistant superintendent is the facilitator and lead implementer of the process. She attends and leads all of the RTI data team meetings, ensures funding and purchase of material resources, and coordinates the assessment schedule for the building. This past school year, she enabled the acquisition of the Fountas & Pinnell Leveled Literacy Intervention System (LLI)

program; this was a $26,000 purchase. The reading and math center specialists, all classroom teachers, and building administrators also attend RTI data meetings; this demonstrates commitment to improving learning among Tier 3 students. All of the participants agree that their involvement in the RTI data teams raises their awareness of the important role data plays in helping their students. While explaining how the data team used data to diagnose learning problems, Participant H offered a sentiment,

> I think it's helping us to recognize the children of that are most at risk for not being successful. For me, that's the big thing. I've got data to support that this child is struggling and then I monitor the progress of that student. I like that part of it, 'Is what we are doing working or do we need to go to Plan B?' I like that part of it.

All of the educators involved in the RTI process express contentment with the notion that everyone is working toward a meaningful cause: helping at-risk students. A source of frustration is the limited amount of students the program seems to service.

> **Theme 2: Limited reach**. *The process is not serving all students. Data is used to create and modify the intervention plans for Tier 3 students and enlist a select number of Tier 2 students (15 per grade level) for intervention.*

Although RTI was implemented to remediate low-performing students, many of the participants expressed concerns about the systemic approach of accomplishing this goal. Participants, meeting agendas, and program rosters reveal that RTI data team meetings focus solely on Tier 3 students. The RTI data teams use data to create and modify intervention plans for these students. The RTI meetings are 30 minutes long and

occur once per month. There is not time to discuss any one student in depth, so the meetings are relegated to reporting whether or not a Tier 3 student has progressed; there often isn't enough time to report progress of all of the Tier 3 students. Participant D provided an overview that is consistent with accounts expressed by the other educators interviewed,

> It's better than it used to be, but we don't have enough time to really talk about the Tier 3 kids. We only have 30 minutes a month to do this. That's if we meet once a month which we haven't for a while; meet as an intervention team. As a grade level, we discuss things all of the time. But the formal intervention meeting is only 30 minutes month, *once a month*, and it hasn't even been every month. Every grade has 60 minutes of I/E time. How each grade uses this time depends on how it's worked into the master schedule. Some grades do 30 minutes in the morning and 30 minutes afternoon. So we do math in the afternoon with groups and in the morning we do LLI which is leveled literacy intervention; which is another program that were using. That's used for your Tier 2 students. Your Tier 3 students go out of the class to the math and reading centers.

Tier 2 interventions occur during I/E time and involve three students per classroom. Teachers must provide seatwork for the remainder of the class as they engage three students in 30 minutes of Fountas and Pinnell's LLI program. The total of students receiving this Tier 2 intervention is 15 students per grade level; it is rendered within the general classroom. The manner in which this is situated has become an item of contention with many of the participants as they voice concerns over classroom

management, equity, and practicality of the approach. Participant E expressed her disapproval of the manner in which Tier 2 instruction is mandated in K-3 classrooms,

> I feel like we're trying to do too many little things to fix a big problem. I feel like we're looking at the trees instead of the forest. I don't think it is effective when you are asked to work with 3 students in your classroom while responsible for 22 other students.

Classroom teachers do not provide intervention to Tier 3 students; they only prepare intervention for Tier 2 students. Regardless of their reservations, concerns, or discontent regarding the manner in which Tier 2 intervention times are situated, all of the participants agree that the LLI program is beneficial to students. Another concern that teachers expressed was the fact that there are Tier 2 students who never receive intervention due to group size restrictions. Participant F explained,

> The problem is you can only have a certain number of kids who receive interventions. There were students that failed the assessments pretty bad, but the centers were only taking students that were identified from last year's data. Tier 3 receives intervention in the math and reading centers. Tier 2 interventions would be LLI and whatever other interventions and strategies you use in your classroom. Not all of the Tier 2 students get LLI because you can only have three students for that. You couldn't have more than three students for LLI because of the attention you have to give to the kids in that program. Once you get past LLI, you're on your own. LLI is the only real intervention that we have for Reading. Math intervention is in the Math center, but that's only for Tier 3 students.

> The three kids you have for LLI aren't all the Tier 2 kids; they're just the three that were the lowest of the Tier 2. So, you've got your other Tier 2s doing work with everyone else. It's really hard to find time to work with the other Tier 2 kids. If you're showing a movie for science or something, you can pull some of those other Tier 2 kids, but it's really hard to find time to work with them.

When asked about data use and interventions for Tier 1 students, only one participant mentioned differentiated instruction for Tier 1 and Tier 2 students. Participant I explained,

> In my classroom, I'm doing tests, classroom observations, listening to their answers; I'm basically gathering my own anecdotal information, just looking and listening to what they can do within the classroom. If they're doing well on day-to-day assignments and test, they're doing fine.

All other participants indicated that they did not focus much on their Tier 1 students in that regard. Participant G said, "You really don't need interventions in Tier 1. Those children can be challenged; we don't meet on those kids." There has been a heavy emphasis on Tier 3 students and many interview responses were similar to Participant B, "I don't think we use any interventions in tier 1 or 2. For tier 3, they go to the math or reading centers. You do small group instruction, when you can find the time work with them one-on-one, peer mentoring and that kind of stuff." The lack of focus on Tier 1 and Tier 2 isn't due to a disregard for students. The participants are putting as much as possible into helping the low-performing students.

Ideally, core instruction and benchmarking is supposed to manage and sustain 75 – 85% of all students in Tier 1. However, the data for this study suggests that the RTI process itself is imposing on instructional time.

Theme 3: Core instruction suffers. *Participants and a review of documents suggest that instructional time is sacrificed to extraneous testing for purposes of progress monitoring.*

Core instruction needs preparation and must be delivered with fidelity in order to provide an instructional foundation to all students regardless of their Tier designation. Participants feel that there are too many programs incorporated into the RTI process and too much data collection required. Participant D said,

> The assessments need to be streamlined. We have our fingers in too many pots. You've got your PALS, AIMS Web, Fountas and Pinnell, STAR Math, STAR Reading, LLI, and SOL stuff. There's a lot of stuff. I feel like we're over assessing these kids sometimes. Some of it is informal and you can get it done in a few minutes, but I feel like all we're doing is testing.

Many participants (including administrators) share the sentiment that they feel that a great deal of instructional time is sacrificed to testing. For the lower grades (K-3), many of the assessment procedures involve students being tested individually and not in small groups or whole class. PALS testing, for example, must be administered to one student at a time. To accomplish this, most teachers pull a desk outside their classroom rotate students into the hallway one at a time; the remaining students are given seatwork. All of the participants agree that assessments and data collection are necessary, but they

also express a need to streamline the process and reclaim instructional time. Participant F explained,

> Sometimes, there's too much data and too much testing. We need to decide what it is that we really need. Why do we have to do Fountas and Pennell, the Word Study test, and all that when PALS does both of those? What is AIMS Web measuring when the teachers aren't told anything about what we're measuring? Everything needs to be streamlined across the school. I feel like nobody is ever doing the same thing. Everybody is just deciding what data they think is important. It needs to be like, 'this is what everybody does and this is what is important.' So, we don't need to get reading levels three different ways. We don't need to get spelling levels three different ways. Let's just decide the best way and use that.

Implementation in the school under study has been following the RTI framework as it is described in state-level guiding documents. A review of assessment calendar, meeting agendas, and interview data all confirm that the staff have tier definitions, data meetings, interventionists, shared planning times, and plenty of data collection protocols. The problem has been moving the data into actionable knowledge. The schedule and the manner in which data collection is situated have made it difficult to plan and implement interventions at the classroom level. Participant M explained,

> When you do have a kid that is diagnosed as being low on something, when do we have the time to work with the children who are low? Some kids are all low

but they're low at different levels so there's no way to put them together and address their needs as a small group so you have to work independently.

Participant M and others are championing for classroom groupings that are more homogeneous. I observed, at the final meeting of the year, the assistant superintendent informing the staff that ability grouping would be applied to classroom scheduling next year. Once students are tested, it is up to the individual teacher to make sense of the data and find ways to improve student learning.

Theme 4: Data use and teacher isolation. *The majority of data use is done on the teacher level. The teams rarely engage in collaborative inquiry or professional discourse about the data during meetings.*

Participants feel as if there is a lack of opportunities available for collaboration, professional learning, and sense making with the process. RTI data team meetings occur once each month; participants and meeting agendas confirm that the meetings do not occur consistently. If teachers want to ask about their findings, and they hold their questions for the RTI data team meeting, they may have to wait more than one month. The teachers have a common planning time, but much of their planning time is scheduled for meetings; many teachers have to stay late after school to tend to their own instructional planning. The school has not employed an ongoing collaborative model such as PLCs or online professional learning networks (PLNs). Once data is collected, the teacher must determine uses for it or take the initiative to seek help outside of school hours. When asked if a teacher could seek out a specialist for help, Participant M said, "I know that the goal of it is to collaborate and bring things together. But they don't have

any more time in the schedule to meet with us than we have." Pressure from standardized testing has created some situations where specialists are more accessible to some grade levels and not others. Participant B explained,

> Some grades are subjects tend to get overlooked by the specialists because they're working so hard to get those standardized test scores up. I think we're doing an injustice some of our students because we don't have the specialists working with them.

The staff has been continually reduced over the past 4 years due to budget limitations. The reduction in personnel means that fewer people take on heavier loads and are stretched in many different directions.

Staffing is a problem that all of the participants agree must be remedied; there are not enough people on the staff to effectively implement RTI. When asked how the process could be improved, the participants suggested adding qualified teacher's aides, more special education teachers, and the concept of "floating teachers" who tend to use RTI implementation. Participant I suggested,

> I really think we need more personnel. If I can have anything that I wanted, it would be nice to have a floating teacher. For example, for reading and math, someone who can go in and offer suggestions and help teachers. It would be non-confrontational, non-threatening, and non-judgmental. They wouldn't evaluate a teacher, it never goes on paper, but that person can go into the building and give advice.

Participant B had a more practical suggestion, "We need more personnel. More hands on deck would definitely make things better. If we had more qualified aides in the classrooms, there could be more one-on-one and small group instruction." Teachers perform all of the assessments and place the results in their data binders. I observed that some teachers attend the meetings without their data binders and those who bring their data do not get an opportunity to discuss their findings.

Research Question 2

The second research question focused on systemic efforts and perceived intentions of program implementation: How is the RTI process used to assist low-performing and at-risk students in the school being studied? The main themes from this question are programs, additional time, and problem-solving teams.

Theme 5: Programs. *A wide variety of instructional programs, instructional materials, and computer programs have been purchased specifically to target and help low-performing students.*

A variety of instructional and computer programs are used to assist teachers with assessment and remediation for low-performing students. One participant explained that the assistant superintendent tries to get the school anything and everything that is acclaimed to work for RTI. Programs available to teachers are PALS, READ180, the entire Fountas and Pinnell Leveled Reading system, Leveled Literacy Intervention (LLI), Interactive Achievement, STAR Math, iStation, and AIMS Web. Many of these programs are too time intensive for teachers: Fountas and Pinnell, LLI, AIMS Web, PALS. Some of the programs involve some aspects where students work independently:

iStation, READ180. Interactive achievement is used as an assessment tool. Participants agree that all of these programs are useful and expressed their gratitude for having them. However, all of the teachers interviewed express the notion that they are given general overviews of these programs and are expected to develop mastery on their own; they feel underprepared. A couple of participants describe this circumstance as "sink or swim." Participant I provided a brief overview of professional development as it relates to classroom teachers:

> In the beginning of the implementation, we did get together once per month. They explained the overview of the process to us, but they didn't give us professional development on the statistical analysis. We didn't really learn to work with the data; we didn't dig in deep enough. It's kind of like; we were going over the surface. Everyone can generate a report and get data, but they may not know what to do with that data. I'm analyzing that data from two angles: holistically and individually. You have to look at it from those angles because holistically if there's a breakdown, the teacher has done something wrong. I would know that I'd need to try something different. I think part of the breakdown is that people are not digging in deep enough – they don't know how to do it. That might be part of the problem along with the time factor.

All teachers interviewed explain that they enjoy the programs but find it difficult to find the time to develop their desired degree of competence with them.

Theme 6: Additional time. *Participants give up lunch time, planning time, and after-school time to help low-performing students.*

Teachers do not leave everything up to computer software. Participant K explained steps that are often taken to provide low-performing students more one-on-one or small group opportunities,

> If you're looking at steps, the first step is to look at the assessment scores. Once we have the assessment scores then we determine if there's room in the math or reading centers if that's an option. If that's not an option, we'll try to get the student into afterschool tutoring. We like to look at the data for a child and see how that data compares to other kids their age, not just in our building but other kids their age. We try to determine if it's something we can fix with interventions, the reading or math center, or in some cases the child is referred to child study. So I guess there are really four steps: data, intervention plans, child study, and then prescribing something.
>
> When we look at the child, we're looking at background information, what we've had to do with the student in grades before. What happened to them in the grades before whatever grade they're in now? We look at their history. Is this a child that's known to be sick all the time and sitting at the clinic every time the math class comes up? Is this a child whose parent picks him up early or gets them to school late? So we look at all of those factors or as many of those factors as we can and try to decide what would be the best strategy for this child? Can they stay after school? Will the parents let them stay after school? Is transportation an issue? Once we have all that in place, then we can decide if we work with the child during lunch are during our, music, or library times. Maybe we can work

with them an extra 15 to 20 minutes every day. Maybe we get a mentor from the upper grades to come down to work with the child. The potential for the data team to make those suggestions are there.

A review of team meeting and communication logs revealed measures that have become so routine that they were rarely mentioned in interviews: phoning conversations with caregivers, aside conversations with colleagues, internet searches for information, opportunistic meetings in public places with caregivers, conversations with previously attended school (for transfer students who are low-performers). All of these tasks demand additional time before, during, and after school. Teachers and administrators have demonstrated a willingness to commit extra time to solving problems regarding student truancy, low academic performance, or general student well-being.

Theme 7: Problem-solving meetings. *Participants explain that the follow-up meetings named "Problem-solving meetings" are helping them engage the data and engage in collaborative inquiry.*

Follow-up meetings, called problem-solving meetings, were implemented to introduce problem-solving to the RTI process. Participants and RTI meeting logs reveal that intervention meetings do not yield the sort of collaborative inquiry that helps educators move data into actionable knowledge. In the intervention meetings, specialists inform classroom teachers about the progress of a list of Tier 3 students and everyone leaves. Participants describe these meetings as an "assembly line" style of reporting. When if intervention meetings accomplish problem-solving, the majority of participants,

11 out of 13, agreed that time constraints has relegated the meetings to a series of progress reports on Tier 3 students and no problem-solving occurs. Teacher H said,

> In the intervention meeting, honestly, we have a list of kids to talk about. We are just supposed to stay on point; we have to stick to the script. "This is Kid A, progress monitoring is showing improvement (or not), what would you do about it? Are we satisfied or not?" and we're supposed to just stick to the script. It's a really scripted meeting.

All of the participants agree that the specialists and the interventionists are willing to help and are resourceful if you can find time to meet with them. One teacher said, "The intervention specialist has been very good about helping me if I go to her individually. He's given me suggestions that I can use in my classroom; that's been very nice." One major issue is the lack of time available in the schedule to collaborate with others. This year, a new feature, the problem-solving meeting, was introduced to help teachers schedule time with specialists or the interventionist. Teacher F began talking about intervention meetings and turned her focus to the newly implemented problem-solving meetings,

> We don't really problem solve. Some kids go to centers; there it is. There are some occasions where you can arrange to meet with a specialist and talk about some strategies that you can use to help a specific student. I feel like those help more than the intervention meetings where you're listening to people report progress of students that aren't yours.

The most evident theme that emerged from the intervention meeting is that it lacked a problem-solving element. A new meeting, the problem-solving meeting, appears to remedy some of those concerns. This meeting involves the teacher and interventionist and is held at another time after the intervention meetings. One participant explained the intended progression from intervention meeting to problem-solving meeting.

> First of all, we look at the child's intervention plan and consider the interventions that are being done. We look at the progress monitoring that has been done on the student. If those things are not in place, you cannot go any further. But, if they are -- and we tried to get them in place this year -- you can make a determination. For instance if a child's deficit is knowledge of short vowel sounds and words, then you been working on that with them on that with your interventions - hopefully are you using different strategies.
>
> We also asked for the strategies that are going to be used to be written on the intervention plan of the student. Then, what we do is meet in the problem-solving meeting and say, "Hey, it is not working. We are progress monitoring this child and he is not making progress. So we need to get together at a different time so we can talk about this child.' We then examine all the data we've collected on the child and then we say, 'Okay, what are some different things we can do? Could we bring the parents in? Could we give them some strategies they can do? Can we talk to the ESL teacher about this child? Can we get her to reinforce what we're trying to do?' So we come up with different ways and then we try that!

If that doesn't work that we need to have another problem solve meeting. We have done that on a couple of kids; we've talked a couple of times.

Research Question 3

The third and final research question focused on implementation strengths and weaknesses: What are affordances and barriers to establishing effective RTI problem-solving data teams within the school being studied? The main themes from this question are special education, fidelity and consistency, accountability, professional development, internal expertise, common planning time, time, and intervention team meetings.

Theme 8: Special education. *Special education does not play a significant role in the RTI process.*

Effective collaboration does not occur between special educators and center specialists. This is a discrepant theme that emerged during data collection. According to the RTI Manual (E. Johnson et al., 2006), special educators service all Tier 3 students, are responsible for their progress monitoring, and provide them with specialized and individualized interventions. Furthermore, the state-level guiding document for RTI (now called VTSS), affirms that the RTI process bridges the efforts of general educators and special educators by extending some specialized evaluation practices into general education (Virginia Department of Education, 2013). Collaboration among all providers of instruction is implicit within the RTI framework. Therefore, the emergence of a theme of special education exclusion from the RTI process was quite unexpected. Ironically, special education is designated as a Tier 3 intervention, but the special education department does not participate in the RTI process; none of the special education teachers

are member of RTI data teams. This is a huge barrier that impedes effective implementation of the RTI process, inhibits movement of students out of Tier 3, and cripples the enculturation of data use within the local context. When asked how the RTI implementation process could be improved, Participant L gave a single sentence response: "I think one of the biggest things we need to do is improve our special education situation." Participant J also offered a concern for special education: "I think special education teachers need to be included." To handle this discrepant theme, I contacted the committee and received permission to include a special education teacher in the study as an interview participant. Fortunately, there were special education teachers who responded to the invitation to participate. The most senior special educator from those who responded was chosen and included in data collection for this study.

One participant explained that the special education department representative dropped out of the leadership team in the beginning stages of RTI implementation because it appeared that special education was "taking the blame for everything that was wrong." Another participant explained that another special education teacher was put on the leadership team, received training, and moved away. The result is the special education department does not have a trained in-house coach or a representative that attends RTI data team meetings. One participant explained that Tier 3 students spend part of their day in the math or reading centers and another part of their day in special education; but the centers do not communicate with the special education department. The lack of collaboration creates a systemic problem for the RTI implementation process. This is particularly significant in regards to implementation fidelity and consistency.

Theme 9: Fidelity and consistency. *Educators participating in this study revealed that intervention program procedures and instructional practices are not implemented with fidelity throughout the school.*

To ensure successful deployment of an RTI framework, interventions must be implemented with reliability and fidelity. Responses from 10 of the 13 interview participants indicated that classroom teachers are not consistent across the board in regards to core instruction or intervention implementation. Collectively, participants rendered the following reasons for inconsistency and a lack of implementation fidelity: varied degrees of understanding among educators; number of programs being used in the process; lack of administrative oversight; and reluctant or defiant teachers. According to Participant L, "You can make whatever changes you want but the final decision maker is really the teacher. Once the door is closed, it's up to the teacher whether or not the plan is going to be followed." Participants feel that consistency issues arise due to the lack of follow-up. Team meetings only occur once per month and there is not a system of ongoing collaboration to support implementation. When asked how data is used to improve student learning, Participant F said, "Nobody ever checks on us to see how well we're doing with it. There was a time when someone was supposed to come around to observe us and then have a meeting about what they saw; but, that never happened. So I feel like, 'How do we know if it's going well?'" Follow-up is necessary to maintain consistency, but having the meetings themselves on a consistent basis is critical. Three participants specifically mentioned that the RTI data team meetings have not occurred regularly. Participant H tried to recall the frequency of meetings in 2014-2015,

> I feel like it hasn't been frequent this year. I don't know when the last time we had one was. I think the last one was like February (three months ago). I don't think we've had one in a long time.

Inconsistencies affect the work of classroom teachers and those who are hired to assist them. There are a small number of teacher's aides who are responsible for assisting with interventions. Participants agree that these personnel are not implementing interventions with fidelity. One participant explained, "One big problem is that people that help the intervention centers are not using the strategies that the teachers and intervention leaders are telling them to use. So, things are getting better, but we just need to clarify some things." A disparity among teachers regarding fidelity of implementation is easily noticeable; some teachers are following the plan and others are winging it. Participant G took a breath, and said,

> If you are not doing the interventions with fidelity, you cannot assume that the interventions are not working. So, do have you looked at that? If we can say 'yes we have,' then we can look at child study as the next step for that child. But we really don't want children going to child study unless we've had problem-solving meetings on them. That's taking a while to establish too.

This participant was referring to the philosophical barrier regarding responsibility for interventions. Another participant explained that some teachers feel as if their only responsibility is core instruction and feel as if Tier 2 students are "fixed" in the centers and special education students are "fixed" in the special education room. When asked about this, Participant G agreed that these perceptions exist and are a barrier to the

process. Next, Participant G submitted the following response regarding the importance of ongoing professional development and implementation fidelity,

> We have to make sure that everyone understands the process and we have to keep reminding people about how things are to be done. Don't assume anything.
>
> We need to continue to offer professional development. We don't make assumptions that the teachers don't need it anymore. We don't make assumptions if a child is not making progress that the core instruction is what it needs to be and "something is just wrong with the child." Some teachers need to be accountable and do more with interventions. Teachers that are seeing the child on a daily basis need to ask for problem-solving meetings for those students who have deficits if the interventions aren't working. They have to be specific. What are the deficits? What strategies have been used to tried to close those deficits? If those strategies have not been working, what else did you try? Have you talked with the parents and given them some strategies to try to help a child? I think we need to stop saying that there's just something wrong. We've got to start saying, "Okay, what is it that is wrong and what can we do to close that gap?"
>
> Quite honestly, if you put a child in special education, there are no magic buttons for the special educators to push. Can they do something that you can't do?
>
> The thing of it is, if you don't apply interventions at the classroom level and you wait until the end of the year to refer students that do not respond to classroom instruction, the process hasn't been developed enough on those students at that point; it's too little too late at this point in the game. That is a topic that people

> don't want to talk about because that's holding people accountable. I want more accountability and I want more fidelity. I think we need a process where we keep going back throughout the year and saying, "all right this is the next step." Don't wait till the end and refer them to child study to be considered for special education. Some people get students into child study and they don't qualify. Maybe it's because the teacher needs to do more with their interventions at the classroom level.

This response led to a conversation about administrative oversight and how there needs more follow-up and follow-through between monthly meetings. When asked about consistency and fidelity implementation issues, 10 out of 13 participants place responsibility on building leadership.

> **Theme 10: Accountability**. *Participant interviews and observations of team meetings reveal a lack of implementation oversight at the building level. Lack of oversight has led to a lack of accountability, consistency, and fidelity of RTI implementation.*

The conceptual framework used to interpret data for this study is successfully operationalized when five key components are in place: vision for data use, establishment of a data culture, technology, human capacity, and professional development (Mandinach & Jackson, 2012). To date, the process has been led from the district level by the assistant superintendent who served in the role as lead implementer. Through her peripheral leadership, the school has a shared vision for data use, appropriate technology, professional development, and a strong core of specialists/interventionists. However, an

organizational data culture has been difficult to establish without a building leader who reinforces the tenets of the implementation process and holds teachers accountable to follow-through. When asked how the RTI process could help close achievement gaps, Participant A simply replied, "We need accountability for both teachers and administrators. We need to have more checks and balances in place." Participant L was asked the same question, but offered more detailed response,

> I think a lot of the things we do need follow-up and accountability. We've had a lot of training. We spent more than $150,000 on training! What we really need is accountability. We need someone backing up the process and telling people, 'We're going to have this thing, this is what we expect you to do, everybody's on the same page, and this is what you need to do.' And we need a building leader that will continue to follow up and say, 'You will do this and then someone's going to follow up with it.' I wish our interventionist could be more of a coach who could observe and follow up with some of the stuff. She knows what it's supposed to look like and has a great demeanor with people. But someone needs to be backing her up and saying, 'The interventionist said this is what we need to be doing, what our literacy plan says what we need to be doing, what research says we need to do, and you're not doing it!' That is the piece that we have been missing that prevents this from really moving forward. Until we get to that part, we are not ever going to be consistent across the school. Until where consistent across the school,

> they are going to be students who have gaps. Then, you just stuck filling those gaps.

Participants acknowledge that human capacity also plays a role in the struggle to maintain consistency and fidelity in the implementation process. Participants explain that there are pockets of teachers who are reluctant to understand and implement interventions with fidelity. Also, there are varied conceptualizations of the process and instructional practices. This has led to a situation where many teachers have varied understandings of what it means to "do what you're supposed to be doing." Participant D explained,

> There has to be more consistency in how we're teaching. There needs to be more accountability, not just in the testing grades, but there needs to be accountability in the non-tested grades. They need to make sure they do what they're supposed to be doing. Within this school, there's inconsistency. There are some teachers who are not jumping on board and they're still doing things the way they've always done it and they're not changing.

My committee and IRB granted approval to include two additional participants to this study. The purpose was two gain perspectives from two teachers that were described as being resistant to implement or participate in the process. Both of these participants described what they were doing in the classroom. Their activities were close to what other teachers were doing (using LLI with small groups of 3 students and administering other required assessments). The teachers were doing the work, but struggled with understanding expectations for data use. They also did not know how to make the

program requirements fit into their schedule. One of these two participants offered the following explanation when asked how the data is used to improve student learning,

> I probably don't use it as much as I should. I don't have the time to go to the computer pull this up every 3 weeks; I just don't have the time. I don't have time to do this progress monitoring that we're supposed to do. I think it's supposed to be once a week, I just don't have time. When you progress monitor, you're working with one kid at a time at a computer. It's a short period of time and you can't just tell the rest of the class you all just work amongst yourselves while I progress monitor child; it doesn't work that way with young kids. But, the data is really helpful; it can pinpoint where a child really needs help.

The two teachers were torn because they saw the benefit of collecting and using data. However, they felt conflicted because leaving the majority of their students to fend for themselves makes them feel irresponsible. I observed an RTI team meeting where they voiced these concerns without response; they are frustrated at the perception that their concerns are not being taken seriously. The data suggests that the issue of accountability stems from a lack of human capacity and the establishment of a data culture. Pedagogical data literacy is unique and requires a specific set of knowledge. While educators cannot be expected to be experts in psychometrics, they must have some degree of assessment literacy (Mandinach & Gummer, 2013a). The literature suggests that ongoing professional development is critical for establishing a data culture.

Theme 11: Ongoing professional development. *Participants and document reviews reveal an absence of professional development that is continuous and*

ongoing. Professional Learning Communities (PLCs) are not established, there is no PLC initiative in place or planned, and PLC training has not been offered.

The ultimate goal of pedagogical data use is to transform data into instructional strategies that addresses student need. Transformation cannot occur if teachers and administrators do not understand how to employ data-driven decision making. Lack of this knowledge is systemic and is a deficit shared by most educators throughout the United States. Research suggests that pre-service education programs do not promote data literacy (Coburn & Turner, 2011b). Also, the literature suggests that there is lack of formal courses that allow practitioners to deal directly with data-driven decision making (Mandinach et al., 2011). Finally, some studies suggest that practicing educators do not think consistently about the relationships between instructional practice and student outcomes because they tend to use descriptive data and bivariate relationships without including multivariate analyses (Marsh & Farrell, 2014). A synthesis of the literature would suggest that a higher level of data literacy cannot be ascertained through single-day in-service experiences; it must be cultivated through a system of ongoing professional development. Participants in this study expressed a need for collaboration and professional learning. When asked about changes he would suggest for the current RTI process, Participant A said,

> I wish tier 2 and tier 3 could have a more collaborative approach. I was we can have more team meetings on what's working and not working in tier 2 and tier 3. What strategies are you using in tier 3 that can help my Tier 2 kids and what strategies are being used in Tier 2. What strategies they are using in Tier 3 that

> can be used in Tier 2 and Tier 1. I think professional development has been lacking. Let's not wait until summer to provide it, but let's have 30 minutes after school to talk about implementing some research-based strategies. Let's just hash it out as a group. 'What are you doing, what's working for you, what's not working for you?'

Participants were asked specifically about professional development opportunities that prepared them to use data for improving student learning. Responses to this question needed a great deal of analysis to understand. On the surface, there is evidence that a great deal of time and money was spent on professional development. Participant L remarked, "We've had a lot of training. We spent more than $150,000 on training! What we really need is accountability." However, many of the participants could not be specific about what exactly was done to prepare them for RTI implementation. When asked how to improve RTI implementation, Participant C responded, "Instead of just throwing us in, sink or swim, helping us stay afloat. I'd make sure the staff gets the training and support needed to carry out the process." However, a review of documentation and interview data reveal 4 years of professional development. Further coding and data analysis was done to understand the discrepancy between the large amount of professional development offerings and participant perspectives that they received very little preparation.

Theme 12: Internal Expertise. *Initial workshop trainings were provided for each and every program utilized in the initiative, but the implementation process does not*

afford teachers sufficient instructional supports needed for sustaining implementation fidelity.

Cross-referencing professional development themes with and coding of implementation documents revealed two additional findings that offer implications for professional development within the school under study. First, the one person who served in the role of instructional technology resource teacher took on an additional role of assistant principal. As a result, ITRT services are nearly abandoned and teachers were left to their own devices in regards to understanding and integrating technology into classroom instruction. Second, professional development opportunities were offered to a small number of educators. Those who were involved in those experiences recall them; the rest of the staff only has a handful of voluntary offerings to recall. New staff (those who joined the process after 2013) has little or no professional development experience regarding data use or RTI implementation. One veteran who has served on the leadership team said, "We had a lot of training on AIMS Web. But, other than that, there's never really been any professional development on using data for RTI." This is an indication that educators chosen for the train the trainer model did not share their learning with others. The assistant superintendent's intentions of installing distributed leadership resulted in an exclusivity of professional development to a small number of educators who did not follow through on notion of collaborative inquiry.

The initial RTI implementation plan created in 2010 details a phase-oriented process. The goal was to create internal expertise by training a representative sample of educators who would be responsible for training and coaching the rest of the staff. On

the surface, this appears to be a distributed leadership model, but over time the plan did not actualize because some of those trained have left or did not engage the process. One participant recalled that a change had to be made after the first year because the first group involved wasn't "giving us much traction." The following year, a different set of educators attended RTI training meetings and a school leadership team was formed to be in-house coaches. The following explanation is paraphrased for confidentiality purposes:

> We had the school leadership team trained on using data for an entire 2 days. The goal was to have a representative from each grade level who then would, hopefully, go into team meetings that are prescribed by the school to talk about data and model how to talk about data. So, that was our goal. Time passed. It wasn't really happening.
>
> Another consultant came in to model data team meetings for us again. The year after that, we started with this tier thing, with another consultant, where she talked to us about the 4 quadrants. She talked about looking at the quadrants and asking ourselves, 'what does our PALS data show us, what does our Fountas and Pinnell data show us, what does our AIMS web data show us about the kids in these quadrants?' You look at the data and you can tell if it's a fast reader-lots of errors, slow reader-no errors; you know, that's what the thing said. She modeled this for everyone on the staff that teaches reading. So we did that.

Professional development associated with RTI implementation in the school under study was often similar to what the teacher described above. Professional developments for RTI that involved external expertise were single "one-shot" events and did not provide

much follow-up or continuation. The literature suggests that data literacy expertise cannot be fostered from a one or two -day training (Anderson et al., 2010). One implication that could be drawn from the data is that teachers who were trained to help cannot offer much assistance to their peers because their training was limited. Even those who are expected to coach their peers explain that they feel as if they have been "thrown in to sink or swim." Another implication is that the thematic approach of the professional development is to train a few educators with intentions of establishing collaborative practice has not resulted in peer coaching. One teacher rendered her opinion of professional development,

> It's a work in process. We are not really doing very good right now. We are closer to the beginning stages of the development of the process. Faculty members were moved around in the middle of the year. If the process was working and everyone was using the interventions correctly, that never would have happened. If you go throughout the building, I don't think people can give you definitive criteria for the tiers. I think we were all thrown into this so quickly, got together, shown a video, and told 'this is how it is going to work and these are your tiers,' but I don't think there was enough training of the manpower around here. I think that's a deficit; I do think that's a problem. We are earlier in the process than our administration would like to see. I think it's because we have not had adequate professional development.

One confounding variable to RTI implementation is that teachers shuffled into different positions over the years of implementation attempts; some of them were moved

mid-year. Consequently, some teachers who attended trainings have moved into different positions or moved out of the district. Other teachers have moved into positions where the training had already been provided. Without an ongoing professional development model in place teachers who are new to positions lose their opportunity to learn about RTI implementation. Ongoing professional development would help pull new arrivals into the RTI process at the school under study. Very few teachers who were trained a few years ago are still employed within the school division. Teachers that remain do not have time in the schedules to train other teachers even though they share common planning with colleagues. The compounding result for both of these circumstances is teachers lacked support from peer coaching and suffered from a lack of an instructional technology resource teacher (ITRT). Initial workshop trainings were provided for each and every program utilized in the initiative, but the implementation process lacks technical support needed for sustainability.

Theme 13: Common Planning Time. *Review of documents, observations, and interview data suggest participants benefit from having common planning time.*

One enabling factor in the RTI implementation process is the existence of a common planning time. Teachers in every grade level have a daily shared common planning time. When asked about enabling factors in the process, one teacher responded, “Having a carved out specific time of the day is helping things be more streamlined.” Three important aspects that support a vision for data use are data coaches, a data team, and a common planning time. The RTI implementation process in the school under study has all three in place. Participant K explained, “This process is teacher driven. You can

implement structure, but if there's no teacher buy-in it's not going anywhere. They also have a common planning period that allows them to sit down and talk about students." To carve out time for Tier 2 intervention, the planning time was cut down to 35 minutes. Teachers discovered that the reduction in planning time had an adverse impact on the RTI implementation process.

Theme 14: Time. *Plenty of time is scheduled for data collection; little time is allocated in the schedule for systematic data analysis and data-driven decision making to occur.*

Participants feel that the process has become assessment driven but offers no time for sense making or problem-solving. When asked about barriers to RTI implementation, 9 out of 13 participants expressed that there is too little time available to make it work. Participant B said, "Time. Nobody has time to do it. You have good intentions, something comes up, and you move on to that. If you don't get something done today, you have to put it on the list for tomorrow." The notion that there is not enough time to implement the components of the framework is echoed by many of the participants. Participant H explained, "There's not enough time in the day. I feel like maybe we should extend the instructional day or something. We don't have enough instructional time. We do not have enough meeting time."

Every aspect of implementing RTI requires time. Teachers need time in their schedules to prepare for instruction, provide instruction, assess students, analyze data, meet about results, discuss progress, determine interventions, collaborate, and reflect on their experiences. A teacher's planning period is generally used for accomplishing some

of these tasks. However, the planning period is often used for meetings (child study, intervention meetings, drop-in parent-teacher conferences, impromptu staff meetings). Sometimes, the teacher's planning time would be used to have mini-faculty meetings where building-administration would discuss items that are traditionally on a faculty meeting agenda. In addition, there were last-minute announcements for unscheduled after-school faculty meetings. One teacher said, "I just stopped trying to do things during planning because planning would often disappear. I have to either stay after school until 5:30 p.m. or try to get into the building on the weekend." Teacher M offered some perspective regarding data analysis,

> Our planning period is only 35 minutes. That's not adequate time to keep up with the flow of paperwork to be able to analyze the data; it takes time away from school to go back and look at the data. If people are not committed to go back through the data like that, RTI is not going to be as effective. Instead of expecting people to analyze the data outside of the building (or outside of normal school hours) so much, the planning period needs to be longer. You need to have the time to analyze the data better. If you really want good instruction, you've got to give teachers time to go over the data. You've got to give teachers time to do what they need to do.
>
> The key component to the RTI implementation process is the intervention team meetings. Intervention team meetings in this study are referred to as "the RTI data team meeting." The findings suggest that the intervention meeting itself has become a barrier to RTI implementation.

Theme 15: Intervention Team Meetings. *The participants and the meeting agendas reveal a lack of focus and functionality for intervention team meetings.*

Participant consensus suggests that problem-solving does not occur at the intervention team meetings. Each group of grade-level teachers forms an RTI intervention team. The math and reading specialists attend each of these meetings along with one building administrator and the assistant superintendent. The majority of participants, 9 out of 13, feel that the meetings are not effective. The remaining four participants are more optimistic and suggest that the meetings are not where they need to be but are improving. Ironically, all of the participants agree that having the teams and the team meetings is worthwhile. Participant B said, "Everybody is striving for the same thing, but I just don't know if we're getting there." All of the participants agree that time is a factor that prohibits the meeting to function as intended. Participant K expresses a sentiment that is shared by all others,

> Sometimes it can be frustrating because it feels like an assembly line. You can leave the meeting and think to yourself that there was not enough time to talk about something that would make an impact or make a difference in a child's life. Because of time, we really don't get a chance to really talk about everything we need to talk about. I feel like we are focusing on the quantitative stuff and not the qualitative stuff that really explains why things are the way they are. If this is the child's fifth year being placed in tier 3 then why is he being placed in tier 3 every year? What's going on that he keeps getting placed there, and at what point is he going to catch up and not get placed but be promoted? Those are the

> conversations we miss. You leave the meeting and you feel like you just need another hour but there are only so many hours in the day.

The intervention meeting was originally intended to discuss student progress and problem-solve for interventions to address student need. Now, the meeting has been relegated to the specialists providing a progress report of how students are performing in the math and reading center. Participant A describes the issue and what is being done to overcome it:

> Well, this year with our new schedule, time constraint is probably the reason why we don't get as much accomplished in the meetings. We've only got 30 minutes. Teachers are just saying "boom-boom-boom" and then students are in the hallway. It could be better, but we have such an issue with time. It's been mostly reporting results. Everyone takes turns reporting results. We've had complaints that we haven't been able to talk about our Tier 1 and Tier 2 kids. I think next year, the plan is to lengthen our intervention meetings. I think everyone is excited about that.
>
> But now, what we do during the intervention meeting is schedule a problem-solving meeting with a teacher if there's a Tier 3 student that we have a concern about. We'll schedule this meeting before or after school. The specialist will meet with that teacher and give them some strategies that can be implemented in the classroom and then will review how effective they were.

The advent of the follow-up meeting (problem-solving meeting) between a specialist and a classroom teacher has helped to some extent. Participant F remarked,

"The problem solving meetings are more useful than the intervention meetings because you're given strategies to use for your own students; it's more personal where you get to talk about ways to help your kids."

Participants say that they were told that planning time will be extended next year and the building principal was replaced. An extended planning time along with the integration of the new problem-solving meeting could address some of the barriers discussed in this study. One participant remarked,

> It's almost there. We are slowly getting it to where it needs to be. Everybody in that building is committed to kids regardless of their capacity. With one or two exceptions I really believe that. I think everybody, for the most part, gets along. Everybody's getting along and everybody wants to do what's right for the kids. That's something that you can't buy. It is there and it's not like that everywhere. If you can give this group of people, who are so passionate and so committed to children, what they need, there's no holding that school back. Because for all of the faults and things that are wrong, there is so much right. There is so much right for a 60% free and reduced lunch school to be achieving at state and above state level on standardized test. That is a huge sign that says that there are a lot of good things happening here. The people who work there are committed to those kids. For the most part, the kids are committed. You don't have kids that are like, "I'm not doing it." For the most part, they show up. There's 97% tutoring attendance at the Elem. School and they do what you ask them to do. The interesting thing about our County is when you look our educational attainment as a community,

> 27% GED or no GED/HS Diploma, 9% with a bachelor's degree or higher; we typically wouldn't have the support we have from home. But all of those kids have somebody somewhere who cares about them and is making sure that they're going to be at that tutoring. There is someone who's doing the best they can for those kids; that's community strength.

A vision for data use and dedicated staff are components that give the RTI implementation process a great deal of promise. More importantly, this process has the potential to accomplish the participant's shared goal of improving student learning and closing achievement gaps.

Assumptions, Limitations, Scope and Delimitations

Assumptions

The first assumption was that participants would give honest responses and understand inadvertent jargon used in interview questions. The second assumption was that effective RTI problem-solving teams were an important factor for successful implementation of an RTI framework. Third, I assumed the conduct of the participants would not be altered by my presence during team meeting observations. The final assumption was that the participants would remain in the RTI problem-solving teams for the duration of the study.

Limitations

A limitation of a study is something that presents a potential weakness (Creswell, 2013). One limitation was an unexpected limited amount of time to observe and interview participants. Final IRB approval occurred at a time when the data team

meetings were ending for the year. I did not have an opportunity to observe as many data team meetings as originally anticipated. I also discovered a limitation in the design of the methodology for this study; more than one interview should have been scheduled with each participant. There were times when an interview was cut short and it was completed the next day. When this occurred, the participant returned to discuss reflections regarding previously asked questions and offered rich, well deliberated responses to questions; the interview was improved. The interviews would have yielded much better data had all been scheduled to occur in two separate sessions.

I believe that RTI problem-solving teams should integrate principles of data-driven decision making and professional learning communities. This bias could influence data collection and data analysis; these biases are based on my beliefs rather than participant experiences. Trustworthiness was ensured through triangulation of information sources, computer software queries (NVivo10), audio-recorded interviews, peer debriefing, and member checking.

Scope and Delimitations

The scope of this study explores the current knowledge and use of data-driven decision making found among educators who participate in RTI problem-solving data teams. This study is delimited to a small rural elementary school located in the southeastern region of the United States. Data collection consists of interviews, observations, and a review of unobtrusive documentation involving eight elementary classroom teachers, one special education teacher, two peripheral teachers and two

administrators. Any generalizations derived from the findings of this study are bound by the implementation of the case study design.

Evidence of Quality

I carefully adhered to the implementation of the proposal for this study as approved by the Walden University IRB. The appendix provides the actual interview and observation protocols used for data collection. Appendix O provides a sample transcript; Appendix E contains the letter of participation and consent letter sent to all of the participants. Member checking, observations, peer debriefing, and data triangulation were used to ensure accuracy of the findings. Member checking involved segments of transcripts emailed to participants in to ensure, both, accuracy and reliability of participant responses. Peer debriefing is a strategy that uses a colleague who offers perspective so that my own bias does not influence the portrayal of the data (Lodico et al., 2010). For this study, peer debriefing was achieved with the cooperation of an administrator from a neighboring school who recently completed a doctoral program. According to Merriam (2009), triangulation uses multiple sources to ensure accuracy of the study. For this study, data triangulation was achieved through a variety of data collection methods comprised of interviews, observations and a review of unobtrusive documents.

Interviews were conducted using a semi-structured protocol focused on participant perceptions of RTI implementation and involvement in data teams within the local context (see Appendix C). Prior to collecting data, all individuals in the participant pool were emailed a letter of participation and consent letter. Interviews were scheduled

with those who responded with an indication of consent: "I consent." Thirteen volunteer participants were interviewed and four data team meetings were observed. Schedule and location of interviews were set at the interviewee's convenience. Each participant was reminded of the voluntary nature, beneficence, and purpose of the study before questioning.

Dealing with Discrepant Cases

Disconfirming evidence (discrepant cases analysis) is handled by finding evidence inconsistent with themes that were established during data analysis; discrepant cases should be identified during data collection and data analysis (Gast & Ledford, 2014). Discrepant cases, in this study, are outliers among the data that presented contrasting perspectives on highly evident themes that emerged from data collection. Discrepant cases were inadvertently handled by examining unobtrusive documents and comparing the contexts of interview responses. A deeper investigation led to a more complex understanding of participant perspectives and effects of RTI implementation. The process of discovering discrepant cases contributed a deeper understanding of the local problem and the context in which it is situated. Discussion of conflicting and opposing views reported in this study enhances the trustworthiness and credibility of the research. There was only one discrepant theme handled in this study: inclusion of special education. Some participants suggested that special education was a Tier 3 intervention in the RTI process. Other participants explained that special education was excluded from the RTI process. After member checking the transcripts, I communicated with Walden's IRB and my committee to gain approval for adding three additional

participants to the study. The additional interviewees contributed new knowledge to the study that helped me to better understand the situation. The discrepant theme was described in detail in the data analysis section of this project study. I believe that the final report is improved because of the additional investigation of discrepant cases.

Data Analysis Summary

RTI is a process that demands implementation of data-driven decision making within an educational setting; this is a complex and highly systematic endeavor. The conceptual framework used to interpret the data for this study was the framework for data-driven decision making model (Mandinach et al., 2008). When the data was viewed through the lens of this framework, I could assess the extent to which the educators created an effective data culture for improving student learning. According to the framework model (Figure 1), there are three levels of processing data: data level, information level, and knowledge level. The findings revealed that the participants were able to use a wide array of programs and practices to gather and organize data. This is evidence that they have achieved the first level: the data level. Most of the computer-based programs will generate analytical reports of student performance and the staff is meeting to discuss these reports. This evidenced that the data was being transformed into information. That is, the data had been organized, summarized, and had meaning. Participants had experience with moving data use to the second level of data-driven decision making: the information level. Participants encountered difficulties moving the information into actionable knowledge which could be used to improve student learning. The findings suggest that there were two main reasons for this 1) the response was to find

more things for the student to do rather than reflect on the effectiveness of instructional practices and 2) the process is situated in a manner where professional discourse and collaboration could not occur due to time constraints. In essence, there was plenty of time given for identifying low-performing students and virtually no time allocated for collective inquiry needed to troubleshoot the learning gaps. The theory underpinning the framework model suggests that several key components must be in place before the participants have the infrastructure needed to use data effectively as an organization: ongoing professional development, technology-based tools, organizational data culture, effective leadership. All of these components develop and support human capacity. The findings suggest that the participants have many key components in place and are close to achieving the infrastructure needed to move into the third level of the framework model: the knowledge level. Once this level is obtained, student learning gaps will be addressed in a fluid and organic manner. It is important to note that systemic changes within the local context must be made in order to remove the barriers that impede the current implementation model. The local context addressed many of the problems that were mentioned in this study, but there were some aspects of the implementation plan that must change in order to move the process forward. The findings suggest that human capacity and time are two obstacles that the participants must overcome in order to move the process forward. Participants must explore solutions that add more time to the process, establish consistent expectations of instructional practices and interventions, and establish a consistent understanding of the framework. The local context cannot continue with the current implementation strategy and expect to advance the process forward.

Project as an Outcome

The overarching research question for this inductive analysis guided an exploration of the manner in which educators in the school under study used data to address persistent achievement gap. The findings of this study suggest that the current RTI framework employed at the school under study is nearly complete. There are several components in place that identify student learning gaps. However, students are not improving enough to move out of tiers and achievement gaps remain. This study explored the work of RTI data teams and found that these teams are not meeting the needs of Tier 2 and Tier 3 students. Data analysis revealed several implementation barriers; the most prominent categories were human capacity, professional development, and lack of time for planning and collaboration. The findings revealed that the current master schedule does not afford additional time for teachers to plan or collaborate. However, the use of collaborative online tools would provide flexible communication sources, resource warehousing, and training that can be accessed at the educator's convenience. A culture of data use is a key component for building the capacity for effective data-driven decision making practice that positively impacts student learning (Abbott & Wills, 2012; Anderson et al., 2010; Hamilton et al., 2009). The project, a framework for collaborative professional learning within small rural contexts, will supplement the current RTI data team implementation effort and address implementation gaps identified in the findings of this study. The project is intended to positively impact the instruction practice and have a direct influence on student achievement of all students.

Conclusion

The purpose of this qualitative case study is to investigate how RTI data teams use data to improve student learning and close achievement gaps within the school being studied. The investigation involved gathering and understanding educators' perspectives regarding data use and the work of RTI data teams. Section 2 contains a detailed description of the findings based on the three research questions and the research problem. Also described in section 2 are the data collection process, data analysis, findings, discrepant cases, and evidence of the data quality for this study. Continued implementation of the RTI process and the integration of collaborative online spaces for professional learning are recommended.

I will provide a description of the project in section 3. Included in this description will be the goals, the rationale, and a review of literature for the project. Logistical information regarding resources, potential barriers, and a time table for the project will also be discussed.

Section 3: The Project

The problem and purpose of this study were detailed in Section 1. The purpose of this qualitative case study was to investigate how RTI teams used data to improve student learning and close achievement gaps within the school being studied. The problem of a persistent achievement gap within the local context was established in order to rationalize the need for the study. The need for the study was also supported by student achievement data, a state initiative, and federal accountability policies.

Section 2 provided the qualitative research methods used to investigate the problem within the local context for this study. Data collection included interviews, observations, and a review of unobtrusive documents. An inductive analysis methodology guided data collection. An overarching research question guided analysis of the data: "How are the RTI data teams using data to improve student learning and close achievement gaps within the school being studied?" The findings resulted in recommendations for continued implementation of the RTI process and the integration of collaborative online spaces for professional learning.

Section 3 presents a professional development plan designed to offer educators a blended learning experience that could address the local problem for the school under study. This section begins with a description of the project. Subsequent sections contain the following: goals of the project, review of literature, description of goals and rationales of the project, discussion of project implementation, project evaluation plan, and project implications.

Description and Goals of the Project

Background

A synthesis of the literature and findings from this study suggest that traditional models of professional development are inappropriate for small rural school divisions and the school under study. The findings of this study also suggest that implementation of the current RTI framework is greatly hindered by a lack of time and human capacity. Attempts at incorporating distributed leadership and ongoing professional development within the local context have failed. A synthesis of the findings and the literature suggest that the local context must develop and employ a customized approach for delivery of professional development that is tailored to the unique circumstances of a small rural context. For this reason, the project for this study is a new framework for professional learning; it is designed to accommodate for the implementation barriers identified in this study and commonly associated with small rural contexts.

Project Description

The project, *SwimmingLessons*, is a conceptual framework for professional learning created specifically to address the local problem for this study. The title of the framework, *SwimmingLessons,* was derived as a response to participant descriptions of the current PD process as being, "sink or swim." The project was designed with intentions to offer ongoing support to help educators "swim" through program implementation. The quality of the blended professional development framework is ensured through alignment with the Standards for Professional Learning published by Learning Forward. The Standards for Professional Learning outline the characteristics of

effective professional development that promote effective teaching and learning: (a) learning communities, (b) resources, (c) learning designs, (d) leadership, (e) data, (f) implementation, and (g) outcomes (Killion & Crow, 2011). These standards were incorporated into the design of the project to ensure that the framework was research-based. In addition, several learning theories and research findings were applied to the design of the project framework; these are discussed in the literature review section for the project. If implemented with fidelity, the framework should result in the following: an increase of technology integration skills among participating educators; a preferred method of acquiring recertification points; established and sustained collaborative practice; and a positive impact on student learning through improvement of instructional practice. The framework model for the project shown in Figure 9 is a comprehensive process that infuses technology integration with targeted pedagogical skill development. The project provides educators with scenario-based experiences that target specific instructional practices while establishing practice immersion through teaming and online collaboration. The overarching goal of the framework is to establish capacity for data-driven decision making; the model should foster a positive collaborative culture while contributing to the establishment of collective inquiry.

The framework applies a mixture of best practices for professional learning and classroom instruction. Key components of the framework are job-embedded designs, formative assessment of participant learning, active engagement of participants, participant remediation, and fostering of professional learning communities.

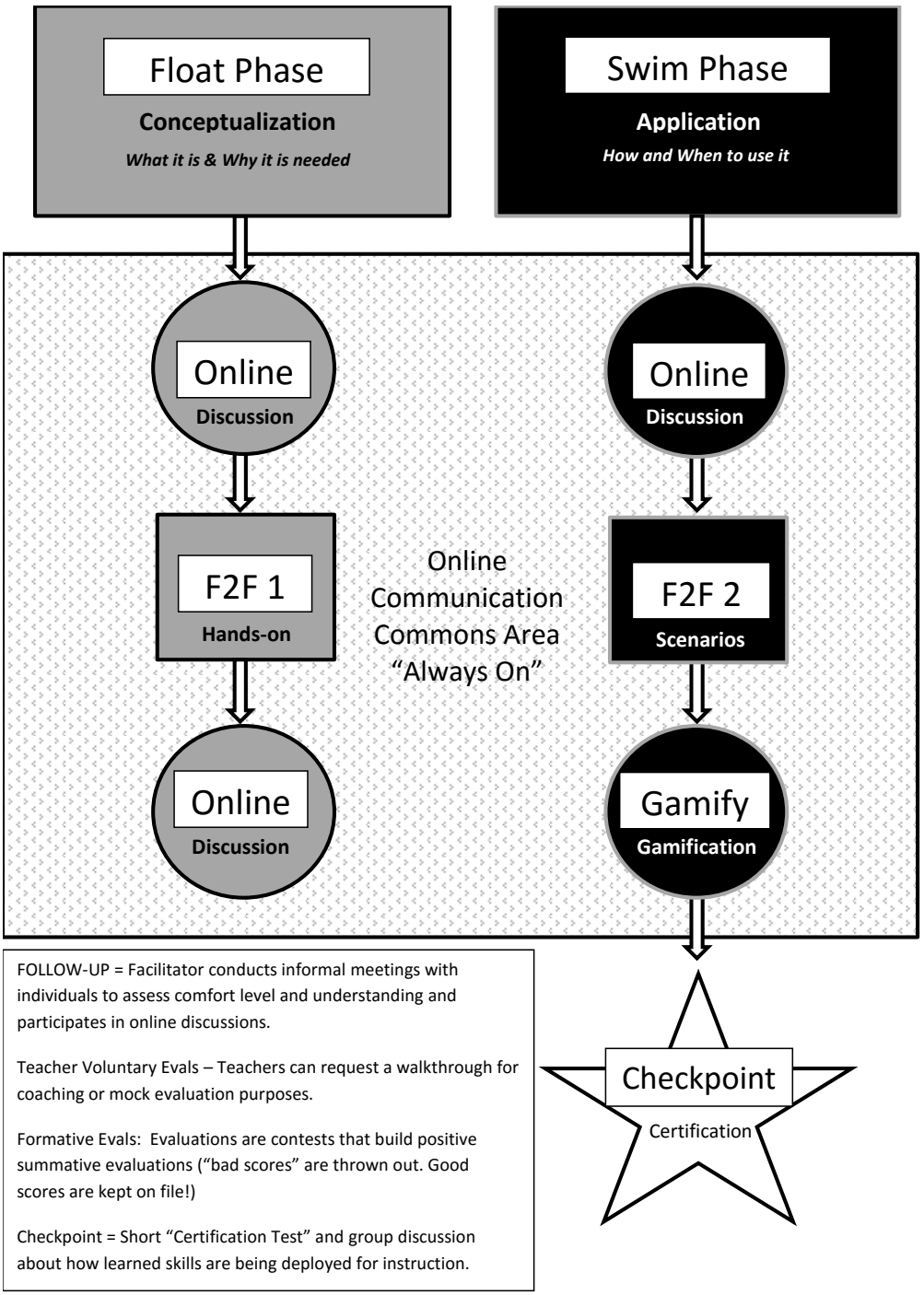


Figure 9. SwimmingLessons professional learning framework. Original illustration created by author of this study.

Physiology of the Framework System

The framework is organized by modules with the duration of 2 months. The model shown in Figure 9 represents the components of a single module. Each module is composed of two main phases: a float phase and a swim phase. The float phase is shaded in a lighter color to signify a purpose of orientation, familiarization, and acclimation of concepts. The float phase is used to help participants understand the theory or philosophical underpinnings that substantiate the need for implementation of the innovation. The swim phase is shaded in a dark solid color to represent the purpose of moving from abstract to concrete understanding of employment of the innovation. The swim phase helps participants learn how and when to use the innovation. Each phase contains four learning sessions: two face to face (F2F) and two online. The online discussions use asynchronous and synchronous online tools that enable real-time communication and collaboration among participants.

The large boxes at the top of the model represent the "context sessions" for each phase that preface the smaller subsequent sessions. The context sessions provide an overview of the basic ideas and concepts that underpin the focus of the module. Each session will model and provide practical exercises on specific collaborative online tools while engaging teachers with practices aligned with the Framework for Data-driven Decision Making (Mandinach et al., 2008) and the Standards for Professional Learning (Killion & Crow, 2011). The large shaded box that houses all of the sessions represents asynchronous online communication using a learning management system (LMS) such as Schoology, Edmodo, or Blackboard K-12. The LMS is used to drive the framework.

The virtual space will visually frame and organize the module, provide resources pertinent to the module, and provide a space for participants to engage in collaboration and collective sense-making. Also, the LMS is used for participant acknowledgements and gamification efforts.

The duration for each module of the framework is 2 months. It takes 1 month to move through each phase of the framework. Before the initial session occurs, resource materials and session prereading are made available for viewing and download in a virtual space such as a common bulletin board. There is a session that takes place each week. Each module is 8 weeks long; Weeks 1-4 are the float phase and Weeks 5-8 comprise the swim phase. The float phase begins with a context session that lasts 1hour. The context session provides an overview of the innovation and the rationale for implementation. Post session materials are posted in the virtual space after the float phase is conducted. During week 2, educators participate in a follow-up synchronous online discussion, with a question-and-answer format designed to engage participants in sense-making and conceptualization of the innovation. Questions for all synchronous discussions are contributed by participants prior to the session. They are posed to the group, which is given time to work through responses and solutions. The facilitator seeks opportunities to credit participants who contribute appropriate responses and to fill in any gaps in understanding throughout the discussion. The goal of the online sessions is to empower the whole group to collaborate on solutions to the questions posed by individual members. The facilitator offers assistance if the group cannot arrive at an appropriate response. Week 3 involves a face-to-face hands-on workshop where educators engage

the innovation in small groups with help from the facilitator(s). Week 4 is the final week of the float phase in which participants engage in another synchronous online discussion. By this time, the participants should have a good conceptualization of the innovation and a solid understanding of why it is needed. The next four weeks involve integration of the innovation into practice.

The second and final phase of the module is the swim phase. During this phase, understanding of the innovation moves from abstract to concrete. The focus of the swim phase is giving participants experiences with direct application of the innovation to their own instruction. This phase follows the same 4 week format as the float phase, except the content is specific to real instructional experiences. Educators must bring their own data, artifacts, anecdotes, and issues (whichever is applicable to the focus of the session) with an intention to employ the innovation to address their own practice.

The module ends with two motivational strategies: gamification and certification. The final session of the swim phase involves the awarding of badges and points. Points are awarded for participation throughout the module and could result in "leveling up" a participant's online status on the online community platform. For example, a title such as "Level 4" may appear beneath the participant's screen name if a predetermined level of participation has been achieved. A check for understanding is given at the end of each module in the form of an online quiz. There is no consequence if a participant performs poorly on this assessment. However, certificates are awarded to those who earn a high score. If an educator performs poorly, the facilitator remediates the educator during online discussion weeks of the succeeding module and reassesses the educator 4 weeks

later. Asynchronous communication and collaborations take place throughout the module in the online community platform.

The framework is designed to deliver a module in the fall and a module in the spring. The spring module content is a revisitation, reinforcement, and extension of fall modules. This is done to assist transfer of training, consistency, and implementation fidelity. The focus of the spring module is increasing the degree to which participants engage in situated learning and critical thinking. Spring float phases involve visitation and observation of (and communication with) other organizations that exemplify the innovation. For example, ideal activities for this phase would be faculty field trips to visit exemplary organizations; viewing videos that highlight model organizations; and Skype conversations with experts or other educators from exemplary systems. The synchronous online discussions that occur in the spring will be critical of process and focus on improving current and future program implementation. The spring swim phase will identify and address implementation barriers while continuing to immerse participants in the application of the innovation.

Project Goals and Outcomes

The literature suggests that transformation of education relies on a reimaging of professional development; it must be viewed as a process of professional learning within a networked age (Brooks & Gibson, 2012). The project provides a structured way to incorporate tenets of 21st-century learning, standards for professional learning, and best practices for establishing capacity for data-driven decision making. However, there are 5 specific goals of the project:

1. To provide the local context with a framework for professional learning that can be used to increase transfer of training, overcome time and location barriers, and build human capacity.
2. To establish a normative system (or culture) of ongoing collaboration and professional learning.
3. To empower teachers to identify and address gaps in student learning and instruction practice through collective problem-solving.
4. To offer an ongoing professional development experience that is relevant to the needs of educators within the local context.
5. To establish an online community of practice among educators within the local context.

The *SwimmingLessons* Professional Learning Framework uses job-embedded learning designs to engage educators in professional learning. According to Croft, Coggshall, Dolan, and Powers (2010), job-embedded professional development is an ongoing process that connects learning and application in daily practice; it requires active participant involvement in cooperative, inquiry-based work. Specific outcomes for this project are (a) an online reference of practice generated through professional discourse and crowd-sourcing of resources (b) sustained implementation of the innovation; and (c) a culture of active engagement in professional learning that promotes sustainable change in practice and improved student achievement.

Rationale for Chosen Project Genre

The project can be categorized in the genre of professional development evaluation: training plan with modules. Rather than detailing a specific workshop sequence or offering a series of professional development sessions targeted to a specific topic, this project submits a framework for professional learning that is intended to address the uniqueness of schools situated within small rural contexts.

The school under study suffers from a delivery system of professional development (PD) that is incompatible for the context in which it is situated. A synthesis of the literature review and findings from this study suggest that traditional models of professional development are inappropriate for small rural school divisions. Educators in rural schools have greater PD needs than their counterparts in urban and suburban school districts (Clarke & Wildy, 2011). Limitations in funding, human capacity, and access to college campuses (due to geographical distances) are among several factors that exacerbate the challenges commonly associated with the implementation of disruptive innovations into small rural schools (Aslan & Reigeluth, 2013; Preston, Jakubiec, & Kooymans, 2013). A specific training program would be insufficient for addressing the local problem for this study; it requires a comprehensive systemic change in how educators are prepared for program implementation. To account for the uniqueness of small rural school-improvement needs, the method of providing substantive and effective PD requires a framework that is tailored for schools situated within small rural contexts. Therefore, the project for this study is a professional learning framework for delivering

systematic, ongoing, and blended collaborative professional development experiences. A full presentation of the framework is shown in Appendix A.

Rationale of How this Project Will Address the Problem

In section 2, data analysis revealed fifteen themes that emerged from participant perspectives, documents, and observations: remediation, limited reach, core instruction, data use in isolation, programs, additional time, problem-solving teams, special education, fidelity and consistency, accountability, professional development, internal expertise, common planning time, time, and intervention team meetings. Categories that encompass these listed items are human capacity, professional development, framework design, time limitations, and leadership. In the school under study, the assistant superintendent provided oversight of program implementation and ensured that it was well-funded. Also, $150,000 was invested in a series of professional development efforts; every program was introduced to the initiative through a professional development effort. Furthermore, state best-practice recommendations for implementation of an RTI framework were followed during the planning phase of the initiative. Execution of the implementation plan, however, has revealed several unforeseen discrepancies. A synthesis of the findings and the literature suggest that, despite proper planning and funding, the current implementation plan is not appropriate for the characteristics of the small rural local context in which the target school is situated. Despite the use of a researched-based implementation framework, the local context suffers from the human capacity needed to carry out the process with fidelity.

The most glaring discrepancy revealed in the findings is the amount of professional development offered to teachers; many of the participants recalled little to no professional development offerings. Documentation verified a series of well-attended professional development sessions. However, according to the data, the PD experiences did not make a memorable impression on the participants. A synthesis of the findings and the literature review for this project section revealed three important considerations for addressing the local problem: professional learning design, transfer of training, and impact of leadership. The blended collaborative professional development framework created for this project will address those areas.

Professional learning design. The proposed project for this study is a framework for blended collaborative professional learning within a small rural context. The literature suggests that active engagement of educators in professional development (PD) that moves beyond traditional, passive learning results in a greater impact on practice (Shaha & Ellsworth, 2013). In this regard, findings from this project study suggest that professional development offered to teachers in the target school lacked the time and human capacity needed to transfer learning to practice and effective implementation. Many small rural schools are turning to network and internet-based solutions to overcome time and human resource limitations. The flexibility afforded from internet-based communication tools are thought to offset educators' lack of opportunities to conduct face-to-face collaboration (Blitz, 2013a). The project for this study uses a blended model that incorporates networked and internet-based technologies that help to address issues of time, consistency, and human resources. However, a review of literature concerned with

online professional development suggests that several factors determine effectiveness of this modality: relevance to local context, whether or not the learning addresses a relevant need, extent to which it facilitates communication and social interaction, and time allotted to complete activities (Cook & Steinert, 2013). The modules will incorporate the Standards for Professional Learning published by Learning Forward (Killion & Crow, 2011). These standards will help to ensure the modules contain job-embedded professional development experiences that ensure relevance to the local context and facilitate the establishment of professional learning communities. A study of online professional development for rural educators found that those teachers who participated in the online professional development experienced an increase in knowledge, ability to implement research-based practices in their classrooms, and developed meaningful collaborative relationships with colleagues (Erickson, Noonan, & McCall, 2012). The implication from this study is that installing an online component of professional development would greatly benefit educators in the school under study who are situated within a similar context and conditions. A blended professional development platform offers educators the ability to warehouse, organize, and create libraries of downloadable resources. Also, in house training videos, links to resources, and professional discourse could all occur in these spaces. Establishing online professional learning communities would meet the needs of the educators to effectively implement and foster ongoing professional development. Key components of an effective professional learning community could be nurtured through the online professional learning environment; this

could result in establishing consistency, fidelity, and accountability that is missing in the current RTI implementation process.

Transfer of training. In education, the notion of transfer of training refers to the extent to which educators use what they have learned in the professional development sessions. The findings from this study reveal that there is a transfer of training problem in which a small percentage of what is presented in professional development sessions are ultimately applied to instructional practice. The project for this study integrates research to ensure the highest probability for transfer of training. Five key considerations incorporated into the framework are motivation to transfer, training evaluation, training design, training methods, and social support for learning (Culpin, Eichenberg, Hayward, & Abraham, 2014; Grohmann, Beller, & Kauffeld, 2014; Homklin, Takahashi, & Techakanont, 2014; A. M. Saks & Burke-Smalley, 2014; A. M. Saks & Burke, 2012). The project includes gamification and participant acknowledgment to support motivation to transfer; built-in feedback loop processes for formative and summative evaluations of training; a design informed by the collaborative inquiry model and Standards for Professional Learning; training methods informed by job-embedded and situated learning theory; and components that foster social collaboration and support for shared learning. One additional inadvertent outcome of the framework will be participant procurement of various certifications such as Google Educator or Microsoft Certified.

Leadership. The findings in section 2 reveal that participants credit the building principal with implementation failure. Although a research-based implementation framework and training efforts were put in place, the absence of program oversight and

follow-up from the building-level leadership led to a lack of consistency and fidelity. The importance of leadership in program implementation is well established in the literature. In the early 1950s, Edwin Fleishman published a study that led to an understanding of how the culture of leadership was more influential to employee attitudes and behaviors than any training program (Fleishman, 1953; A. Saks, Salas, & Lewis, 2014). The implication of this study suggests that the leader must subscribe to an initiative before there is buy-in from subordinates. The project framework establishes ongoing feedback loops that offer two-way assessment between leadership and teachers; this is done using online feedback mechanisms such as email, private messages through the LMS, Google form surveys, and face-to-face formative meetings. Facilitators and leaders will take all of the assessments that are required of the teachers. This is to ensure reliability and validity of the leader as coach. Expectations for all roles will be posted on the online community platform to serve as a constant reminder and to drive the intended collaborative culture of the framework.

Compensating for weaknesses in the current model. The findings in section 2 revealed that the delivery system for professional development was designed in annual phases. An initial plan mapped full implementation to occur over a 4-year period. One participant described the implementation process as a layering where one program was added to the initiative each year. The downfall of this plan was that professional development had no follow-up from one year to the next. Training on a particular skill occurred in one year and was never reintroduced thereafter. One consequence is that teachers who entered into the implementation process two or more years after the initial

phase were not able to benefit from previous professional development sessions. In fact, professional development that established an understanding of the RTI process occurred one year and was never revisited. It was never revisited and many teachers do not understand the rationale of program implementation or have a clear conceptualization of the process. The project framework uses a conceptual module and an application module to ensure that educators understand both the philosophical and practical application of the program.

An adaptable framework for future use. The project is a framework tailored for the local context. The project addresses all of the barriers experienced by the current framework and offers a research-based approach to adapting any initiative to fit the local context. The framework is structured to assist the establishment of sustainable change.

Literature Review for the Project

This project was undertaken to provide a professional development framework to address the local problem within a small rural school. Boolean searches of the following terms informed the literature review for this project: *conceptual framework for professional development, professional learning framework, professional development design, small rural schools, effective school improvement, school improvement for rural schools, effective professional development, framework for professional development, online professional development, blended professional development* from SAGE full-text database, ERIC, and Education Research Complete, and Google Scholar databases which are accessible through the Walden University Library.

An additional search was conducted to contribute additional literature specific to the project. This review reference a small number of books published by leading authors as they have produced influential works on how to design, implement, and evaluate professional development. Boolean searches of the following terms were conducted in the Walden University databases: *job-embedded professional development, professional learning design, transfer of learning, transfer of training, leadership and professional development, situated learning, experiential learning, affordance theory, multimedia learning theory, social development theory, social learning theory, pedagogy and content knowledge (TPACK).* These terms facilitated a deeper understanding of the philosophical underpinnings of research-based practices outlined in the Standards for Professional Learning.

Professional Development

The purpose of the project for this study is to provide a framework for a blended collaborative professional learning. In the literature, professional development of teachers and administrators is described as an essential and necessary component of school improvement (Cameron, Mulholland, & Branson, 2013; Croft et al., 2010). Stewart (2014) suggests that the worldview of teacher learning has shifted from a reform movement focused on teacher development to one that underscores capacity building for the sake of improving student achievement. The key of successful integration of an initiative is dependent on how well educators can learn and develop capacity to implement the design; this places a burden on leaders to provide adequate professional development (Klein & Riordan, 2009). Effective designs of professional development

emphasize continuous capacity building rather than single-event workshops (Mandinach & Gummer, 2013a). Ongoing professional learning affords the educator to employ constant reflection on the skills that delineate effective teaching; these instructionally effective strategies are nurtured and retained through continuous professional development (Luneta, 2012). Professional development experiences must be engaging and relevant to the participant. Research suggests that the most effective professional development engages educator's in a process of active participation in teaching, modeling, supporting, and assessment of student learning; this is done through a culture of collaboration that is grounded in collective inquiry (Nishimura, 2014). These characteristics are supported through the use of networked and internet-based modalities of professional learning. Technology, pedagogy, and content knowledge can be integrated in the design of online professional development modules to enhance task relevance for maximum learning and transformation (Collins & Liang, 2014). Traditional models of professional development remain the most prominent format despite the abundance of literature that supports ongoing and collaborative models of professional development.

Secretary of Education Arne Duncan exalted the rationale of an updated version of Learning Forward's Standards for Professional Learning by explaining the need for the education community to rethink the manner in which teachers are prepared and developed (Duncan, 2011). In fact, he titled the section about professional development, *Lousy professional development, but plenty of it.* Secretary Duncan (2010) explained that $2.5 billion in Title II funding is allocated for teacher improvement and leadership each

year. However, there is no evidence or assurances that teachers are benefiting from professional development that promotes evidence-based practices (Duncan, 2011). To ensure that the project for this study promotes evidence-based practices, characteristics of the framework will align with the Standards of Professional Learning and will be informed by research pertaining to transfer of learning, job-embedded professional development, blended online professional learning, and leadership of school improvement. The framework also incorporates research that was reviewed in Section 1: professional learning communities, collaboration, and data-driven decision making.

Theory and Research That Supports the Project

The project framework draws from the theory of situated learning and research of job-embedded professional development, transfer of training, and Standards of Professional Learning. The theory of situated learning guides the rationale of approach for the conceptual framework model for the project. The research on job-embedded professional development and transfer of training guide the instructional design, methodologies, and evaluation for modules. Also, the research ensures that modules are designed for active participation, engagement with evidence-based content, and promotion of collaborative practices. The Standards of Professional learning provide clear expectations and guidance for normative systems, infrastructure, and evidence-based practice.

Situated learning. Situated learning is a constructivist approach that promotes the notion that effective learning occurs through experiences of active participation. This approach situates the learner within the context and culture of the learning activity. Lave

and Wenger (1991) illustrated the concept of situated learning through five case studies of apprenticeship: Yucatec Mayan midwives, Liberian tailors, U.S. navy quartermasters, and supermarket butchers. Each of these cases demonstrated learning through apprenticeship experiences in which students were immersed within the everyday context in which the knowledge and skills were used. The examples of apprenticeship demonstrate the manner in which students construct their own knowledge from a combination of prior experiences, social interaction, and kinesthetic activity. Professional learning is facilitated through a situated learning environment where educators share experiences and exchange knowledge (Ching-Ching, 2014). According to Lave and Wagner (1991), the learning is often unintentional and organic as a result of participating within a community of practice and following the example of an established group member. In education, student teaching and staff mentor programs employ the coaching aspects of the apprenticeship model established by situated learning. However, an effective employment of the theoretical approach would emphasize not only the need for novices to learn within contexts that are increasingly more authentic, but to perceive nuances in the work that render expert-quality results before taking action themselves (Leaman & Flanagan, 2013). The project for this study situates learning experiences around social interactions in which authentic practice takes place. Situated learning provides a theoretical basis for the project framework; tenets of job-embedded professional development inform the framework design.

Job-Embedded professional development. Many contemporary reform approaches incorporate job-embedded professional development practices in an effort to

increase the extent to which participants engage the learning and transfer that which is learned to instructional practice. Job-embedded learning suggests that professional development should be relevant to the needs of each teacher. A job-embedded learning design uses a framework to guide individualized professional development at a school (Croft et al., 2010). Perceived content relevance is gained through offering learning experiences that mirror learning that is embedded within the participant's work day. Job-embedded professional development is characterized as learning that occurs in the context of the job setting; is relevant to the work of participants; involves social and situated learning; incorporates prior knowledge; promotes active participation; fosters reflective practice (Zepeda, 2014). Job-embedded learning designs engage in ongoing professional learning. The literature suggests that ongoing job-embedded professional development improves pedagogical knowledge, instructional practice, and student achievement (Althauser, 2015). Professional learning that is job-embedded may include analysis of student data, student observations, constructing and scoring common assessments, examining student or educator work, review case studies, problem-based learning, examinations of case studies, and lesson studies (Killion & Crow, 2011). Groups of educators engaged in job-embedded learning may gather for book studies, demonstrations of practice, perform simulations, video clubs, professional readings, or study groups. Other collaborative activities may include co-teaching, action research, peer coaching, peer observations and visitations.

The literature review in Section 1 and the finding in Section 2 suggest that one component needed to address the local problem is the establishment of professional

learning communities. Job-embedded development is important for building capacity needed for the establishment of professional learning communities (PLC). The literature suggests that teachers who form online communities can achieve the goals of PLCs (Blitz, 2013a). Online collaboration provides teachers with the capacity to engage with a group, develop a sense of community, and contribute toward improving their instructional practices.

Transfer of training. The intention of professional development is to impart teachers with knowledge that will be used to improve instructional practice and positively impact student learning. One concern is whether the learning from these experiences is actually applied to classroom instruction. This is a notion introduced by research from the business sector as a transfer of training (Ford & Weissbein, 1997; Grossman & Salas, 2011). Baldwin and Ford (1988) spurred research in transfer of training when they published a literature review of 63 empirical studies on the relationship between input factors and transfer along with a framework for examining the transfer process.

Transfer of training involves the act of using what is learned in the training environment and applying those skills and behaviors in the work environment; the transfer also involves maintenance of trained skills and behaviors for the length of time necessary to perform the job (A. M. Saks & Burke, 2012). The literature from education and the business sector agree that there is a transfer of training problem in the United States. A common paradigm to bolster positive organizational change is to fund training in an effort to properly roll-out new initiatives. The research is proving this practice to be expensive and unreliable. Grossman and Salas (2011) reported that U.S. business

organizations spend over $125 billion on employee training and development each year. In education, Secretary Duncan (2010) stated that $2.5 billion in Title II funding is allocated for teacher improvement and leadership each year. However, research findings suggest that very little of what is learned in training is applied on the job and most investments in training do not transfer to the job performance; less than twenty percent of what is learned in training transfers to practice (Awais Bhatti, Ali, Mohd Isa, & Mohamed Battour, 2014; Kazbour, McGee, Mooney, Masica, & Brinkerhoff, 2013; A. M. Saks & Burke, 2012). These finding suggest that U.S. business and educational organizations are not getting the desired return on their professional development investments.

Transfer of training is an outgrowth of the transfer of learning theory. Designers of professional learning use a variety of methods to improve transfer of training. The three most prominent are stimulus variability, identical elements, general principals. Kazbour et al. (2013) describe the three methods in this manner:

- *Stimulus variability* occurs when trainers use a variety of examples or have participants practice tasks in different scenarios or settings.
- *Identical elements* refer to the method of presenting stimuli that are similar to what the participants will be using in their work environment.
- *General principles* is a method where participants are taught to use general problem-solving strategies to remedy a wide range of problems within their work environment.

These three methods are not the most popular; the literature is non-conclusive regarding their impact when used in isolation. The certainty drawn from this research, however, is that the method alone cannot guarantee a high percentage of training transfer; the method must be accompanied by several characteristics or factors that are proven to positively affect transfer.

There are several studies that examine factors that influence transfer of training. The most significant factors that contribute to positive transfer of training are training design, training methods, motivation to transfer, and social support, and training evaluation (A. M. Saks & Burke-Smalley, 2014; A. M. Saks & Burke, 2012). Awais Bhatti et al. (2014) examined the effects of a variety of factors on training transfer and transfer motivation. These factors include individual, environmental, training design, and affective reaction factors on training transfer and transfer motivation. Awais Bhatti et al. (2014) stated, "the study revealed that perceived content validity and transfer design work together and influence the trainee's performance self-efficacy management" (p. 51). The study affirmed the importance of promoting the relevance of learning to the work of the participant. The authors suggest that a clear understanding of the relevance of the training (or perceived content validity) enhance the participant's motivation to apply what is learned to their work (or motivation to transfer). A study by Grohmann et al. (2014) yielded similar results. The authors conducted two studies that concluded that motivation to transfer predicts transfer of training. Social support has also proven to have a positive influence on transfer of training. Homklin et al. (2014) examined the influence support from supervisors, coworkers, and the organization had on learning and transfer.

Their study concluded that coworker support had the greatest influence on transfer. Culpin et al. (2014) explored the relationship between participants' self-reported intention to transfer and self-reported actual transfer. The study contributed insight in regard to factors of transfer design that yielded higher transfer of training: active engagement, prior knowledge, relevance to the workplace, opportunity for repeated practice. A synthesis of these studies suggests a variety of factors positively affect training transfer. However, there is a lack of focus of the content in regards to soft and hard skills. The intentions of the training should align with the needs of the learner.

Most of the literature regarding training transfer does not consider the relevance of content training types in influencing the success of transfer; the authors suggest this is a misguided perspective that all training is identical in terms of training transfer (Laker & Powell, 2011). The literature rarely distinguishes between training that focuses on the development of hard skills (technical) and learning intended to foster soft skills (interpersonal and intrapersonal). Laker and Powell (2011) posits that the construct of training transfer can be more accurately understood if viewed in two different forms: hard skills training and soft skills training. The findings from this review suggest that consideration and distinction of soft and hard training could contribute to more effective design of training transfer. A synthesis of the literature regarding transfer of training suggests that an effective design must be tailored to the needs of the local context and use a performance-based approach (Kazbour et al., 2013). This is difficult to accomplish using a traditional professional development model; online, blended, and hybrid forms of professional learning must be considered.

Blended and Online Professional Learning

Professional development (PD) is the widely accepted method for improving instructional practice and pedagogical content knowledge. The literature suggests that effective professional development involves learner-centered collaborative approaches, active learning, constructivist pedagogy, and transformative practice rather than traditional approach (Chitanana, 2012; Erickson, Noonan, & McCall, 2012). School officials who offer traditional professional development to teachers fail to incorporate many of the elements characteristic of effective evidence-based learning design. As a result, the offerings generally fail to meet the individual needs of teachers (Dash, De Kramer, O'Dwyer, Masters, & Russell, 2012). Gibson and Brooks (2013) described common characteristics of traditional professional development as imposed top-down, unfocused, devoid of adult learning preferences, lacking in intellectual rigor, and disconnected from the realities of instructional practice. Rural and suburban educators often experience barriers with traditional professional development that complicate or preclude their participation such as access to the event (cost and approvals to attend), rigid schedules of sessions, geographic location, inconvenient dates, appropriateness of content for individual needs of teachers, and imposition on work and family demands of the participant (Dash et al., 2012; Francis-Poscente & Jacobsen, 2013). Internet technology has made it possible for teachers to engage in spontaneous and voluntary collaboration; asynchronous and synchronous communication, and informal learning from a variety of online sources (Seo & Han, 2013). With the advent and recent proliferation of online learning sources, an increasing amount of educators explore digital

alternatives for professional learning that offer flexibility to accommodate their personal schedules and circumstances.

In recent years, online professional development (OPD) has flourished as an alternative to face-to-face professional development. A synthesis of the literature regarding the impact of digital technologies on education would suggest that the ubiquity, popularity, and convenience of web-enabled micro technologies contribute to an organic development of dependency upon digital tools for content, communication, resources, and informal learning (Dornisch, 2013; Selwyn, 2011; Underwood, 2009; Weigand, 2014; Wise, Greenwood, & Davis, 2011). Purcell, Heaps, Buchanan, and Friedrich (2013) surveyed 2,462 Advanced Placement and National Writing Project teachers regarding their perceptions of the impact of digital tools on instructional practice. Instructional technologies; professional learning; influence of socioeconomic variables, generational differences in technology uses, student dispositions, and parent interaction were among several factors that were included in the report. Findings of the study clearly identified the internet as a major contributor to contemporary educational practice and professional learning. These finding are among wide array rendered in the final report, but are specific to professional learning:

- 99% of teachers use internet search engines as an information source.
- 99% of teachers use the internet to conduct job-related research.
- 92% of teachers indicated that the internet has a major impact on their ability to plan and prepare for instruction.

- 80% of teacher use the internet on a weekly basis to assist them with lesson planning.
- 75% of teachers stated that internet and digital tools have a major impact on increasing their professional knowledge.
- 69% of teachers attribute their improved ability to collaborate with colleagues to the internet (Purcell et al., 2013).

An implication that can be formed by these findings is that teachers already possess the capacity for online professional development and are inclined to use the medium for improving their practices. Therefore, shifting from traditional face-to-face professional development towards models that incorporate more internet-based elements is a logical and natural progression. Currently, there are two prominent designs for infusing web-based technologies with staff training: blended (or hybrid) design and online professional development (OPD). Some organizations embrace a fully online model of professional development in an effort to take full advantage of the flexibility it affords participants in respects to time and location (Phu, Vien, Lan, & Cepero, 2014). However, some experts such as Brooks and Gibson (2012) caution against discounting the face-to-face component of the professional learning experience and encourage frameworks that employ a "combination of online and face-to-face learning opportunities" (p. 2). Proponents of the blended (or hybrid) approach contend that combination incorporates the widest array of learning theory and yields a higher probability of impacting teaching practice and student achievement.

One aspect of online professional development currently under development is using elements of games to drive motivation to transfer. The rationale for using these

devices is that students live in a digital society where people inadvertently learn through commercial-generated information and communications technology (ICT); therefore, teachers must learn to use ICT for professional learning and classroom instruction (Vrasidas & Solomou, 2013); this is a notion borrowed from the theory of situated learning. Gamification and game-based learning are strategies that are used to provide contextualization of knowledge within authentic learning environments, increase intrinsic and extrinsic motivation, and promote active engagement in the learning experience (Bahji, Lefdaoui, & El Alami, 2013; Crichton, Pegler, & White, 2012). The two approaches differ in that game-based learning refers to the use of games for learning. Gamification situates the learner into online gaming or role-playing contexts and incorporates learning outcomes into the game scenarios; these manifest in the forms of tasks, missions, or quests. The draw of gamification is that it is designed to employ game mechanics from popular gaming frameworks: reward and point structures; increasing levels of play; multi-player community format; and specific characterizations and roles of participations. Vrasidas and Solomou (2013) examined the benefits of using online games in teacher professional development. The researchers immersed the participants in an online gaming world called Quest Atlantis where participants completed tasks that were designed to cover specific learning outcomes. The findings suggested the gaming situation provides participants with a general feeling that they were willingly pursuing knowledge rather than being forced to receive it through presentation; some of the participants referred to the experience as addictive. The implication from this study is that goal-oriented community-based format of gamification lesson design is highly

engaging and may be successfully employed as a motivational method for fostering active participation and motivation to transfer.

Standards for Professional Learning

Educational systems are effective when they are adaptive to the needs of an ever-changing society. People in America currently comprise a digital-age society, but the majority of educational organizations prepare students to meet the needs an industrial-age society. It is because of this misalignment that educational organizations within the U.S. are the least impacted by societal changes (Aslan & Reigeluth, 2013; Schlechty, 2009). Failure for educational systems to paradigm shift into 21st-century learning organizations results in a discrepancy between what we offer students and what they actually need to be prepared for life beyond high school (Gunn & Hollingsworth, 2013; Partnership for 21st century skills, n.d.; Tucker, 2014). Several professional organizations provide standards for practice that steward transformation of curriculum, instruction, assessment, and leadership. The project for this study incorporates standards developed by Learning Forward to ensure that the framework is grounded in research.

The Standards for Professional Learning outline characteristics of effective professional learning; they are based on research and evidenced-based practice (Learning Forward, 2011). The standards provide clear expectations and guidance for designing professional development. The standards were written to target two primary professional objectives: to strengthen the effectiveness of educators and improve student outcomes. If implemented with fidelity, these standards provide educators with active partnership in determining the focus of their learning; the manner in which their learning occurs; and

how they evaluate effectiveness of their professional learning experiences. There are seven standards that comprise the document: (a) learning communities, (b) resources, (c) learning designs, (d) leadership, (e) data, (f) implementation, and (g) outcomes.

Explanations of each standard. Each of the seven standards is explained in a concise and clear manner. The standard of learning communities encourages collaborative teaming that involves a commitment to continuous improvement, collective responsibility, and goal alignment (Killion & Crow, 2011). The standard of leadership describes leadership that develops human capacity, advocates for teachers, and establishes support systems for professional learning. The resource standard states the importance of creating an infrastructure appropriate for effective professional learning. The data standard describes the use of multiple streams of data types and sources to inform designing and planning of professional learning. Learning Forward (2011) contends that learning designs of professional development should incorporate learning theories, recent research, and models of human learning. The standards also postulate that literature regarding sustainable change should support implementation of professional learning. The final standard posits that outcomes of the professional learning should align with curricular standards for educator performance and student achievement.

Four prerequisites for the standards. The document also describes four prerequisites that are implicit in the standards for professional learning. The first prerequisite is that educators must commit to meet the needs of all students. The implication is that it will take continuous learning to develop the skillsets needed to

address diverse learners with diverse capabilities. The second prerequisite is that educators engage the process with an open mind and ready to learn. This implies that learning experiences will require collaborative engagement a willingness to accept the need to improve practice. The third prerequisite is that educators engage collaborative inquiry and learning that enhances individual and collective performance. The implication is that participants embrace a common vision for student improvement and exhibit a non-judgmental approach towards collaborative learning. The fourth and final prerequisite is that educators acknowledge and respect that people learn in different ways and at different rates. The implication for this prerequisite is that participants must be accepting, respectful, and patient of differences among the group in regards to learning needs and learning styles (Learning Forward, 2011). Professional learning will be most effective if these four norms are established.

Project Implementation

The project, *SwimmingLessons*, is a conceptual framework for professional learning created specifically to address the local problem for this study. The framework was designed with intentions to offer ongoing professional development that combined face-to-face and online learning experiences. As previously explained in an earlier section of this study, the title of the framework, *SwimmingLessons*, is derived as a response to participant descriptions of the current PD process as being, "sink or swim." The project was designed with intentions to offer ongoing learning and support systems that help educators "swim" through program implementation. Quality of the blended professional development framework is ensured through alignment with the Standards for

Professional Learning (Killion & Crow, 2011). Four factors are needed in order to implement the framework: superintendent approval, school board approval, collaborative development of RTI modules, and modeling the framework with central office and building-level leaders. Two concurrent processes will take place in the summer: immersion training with administrators and development of teacher modules (RTI modules).

Proposal for Implementation and Timetable

Superintendent approval. In the local context, all new initiatives must be discussed and approved by the Superintendent of Schools. This is done by emailing the school board secretary and asking for an appointment. As a courtesy, the implementation proposal package will be emailed directly to the superintendent prior to the face-to-face meeting. To establish a need for framework deployment, three components will comprise the implementation proposal package: a narrated PowerPoint video, an implementation timeline, and brief report of the findings from this project study. The PowerPoint video will provide a comprehensive overview of the SwimmingLessons framework to include a rationale for development and deployment; an explanation of the proposed timeline; an overview of how the framework addresses the needs of the school under study; roles and responsibilities of participant stakeholders; potential barriers and existing supports; and suggested hardware and software that supplement existing technologies. The face-to-face meeting enables the superintendent to request additional information and clarifications regarding framework implementation. If the superintendent approves the proposal and

implementation plan, it would be sent to the next available monthly school board meeting session with a recommendation for approval from the superintendent.

School board approval. In the local context, school board approval is accomplished one of two ways: brief description from the superintendent followed by a vote or presentation followed by a vote. The rationale for providing the superintendent with a proposal package was to provide something that could be copied and sent to respective school board members for review. If the superintendent forwards the digital package to school board members along with their monthly meeting preparatory materials, all questions and clarifications will flow through the superintendent pre-meeting and the actual vote will be short and quick. The other possibility is that the school board will request a live presentation of the PowerPoint to be followed by a question and answer session. A vote will be rendered during that meeting. In the history of the school district, a recommendation for approval has never been voted down by the school board. Recommendations are not voted down because the superintendent will not send a proposal without giving due diligence. The implementation plan will be adjusted to reflect actual dates and locations and put into motion once it is approved by the school board.

Modeling: Training for leaders. The next step in the process is to facilitate a module experience for all district leaders. The module will focus on the philosophical and theoretical underpinnings of the framework, administration of the framework, and expected outcomes of the framework. Session content will promote the components outlined in the literature review for this project and will provide the leadership with two

things: 1) an immersive experience with the framework and 2) a comprehensive understanding of job-embedded practices that must be incorporated into individual sessions. The community platform will provide downloadable supplementary materials and links to resources. The module will model implementation as well as provide the leaders with experience similar to those intended for teacher participants. This two-month module experience will serve as a pilot of the framework before it is used in the fall semester. Throughout the module, leaders will have opportunities to contribute feedback regarding framework strengths and weaknesses. The leaders will roll-out an improved rendition of the framework in the fall.

Collaborative development of RTI modules. Modules and sessions for this framework must be customized and developed to meet the needs of the local context. For this reason, planning and development of the teacher modules must be collaborative. A series of meetings in July and August will include the RTI leadership team and external consultants. These meetings will entail an orientation with the framework and collaborative development of teacher modules intended to address the local problem. The float phase of the framework will focus on teacher conceptualizations of the RTI process within the school under study; this phase will help to standardize expectations and protocols. The black phase will provide teachers with practical exercises that build capacity for data-driven decision making. The summer sessions will be used to map the curriculum and pacing of the module; job-embedded strategies will also be mapped into the sessions to ensure variety of strategies, relevance of content and active participation.

Timetable for implementation. Meetings seeking superintendent recommendation to the board will begin in January. This will give ample time for the implementation plant to be adjusted according to the superintendent's suggestion. A recommended implementation plan will be sent to the school board for approval by April. The framework pilot with the leadership group will occur in July and August. Planning surveys will be emailed to teachers in August to collect perspectives regarding experiences that are most relevant to their practices. Meetings with the external consultants and the RTI leadership team from the school under study will also occur throughout the summer (July and August) to begin work on designing modules for the school year. Teachers will experience the framework in October and November; they will experience the spring modules in February and March. The community platform remains active throughout the year so teachers can collaborate and extend learning into practice.

Roles and Responsibilities of Stakeholders Involved

I am responsible for initial development and implementation oversight of this project. There are no curriculum specialists or content supervisor positions in the central office; the school division is too small. Therefore any curriculum design, teacher instruction, or assessment is usually rendered by building level educators or purchased from an external source. For the "SwimmingLessons" project, I will work with building-level leadership team and their external consultants to develop sessions for the first year of modules. Findings from this study will inform module creation of teacher perspectives regarding barriers and affordances of the previous implementation efforts. After one

year, building level staff will be responsible for crowdsourcing their own modules to populate the framework; I will assume an advisory role at that time. Teachers are responsible for contributing to the planning of their job-embedded professional development sessions by identifying experiences that are most relevant and have the greatest potential to improve instructional practice and student learning.

Potential Resources, Supports, and Barriers

The project framework requires all sessions to be customized to meet the needs of the local context; canned curriculum would not be used for this framework. The framework requires a learning management system (LMS) such as Schoology, Edmodo, Blackboard K-12, or Canvas. Fortunately, the superintendent and technology director have both confirmed that Blackboard K-12 will be purchased this summer. However, the summer leadership pilot will use existing resources and free online tools. Participating leaders will consist of twelve individuals comprised of building-level and school board-level leadership. The summer leadership pilot modules will use the high school library for face-to-face sessions; Edmodo will be the community platform and Collaborize Classroom will serve as the online classroom. Edmodo and Collaborize Classroom are two free virtual spaces that will provide the participants with a user-friendly introduction to contemporary 21st-century technology enhanced collaboration and gamification tools. Gmail will be the initial tool used for online communication; communication will move completely to Edmodo and Collaborize by the third week of the module. The leaders will access classrooms adjacent to the library for situated learning activities. Also, the leaders will attend one off-site field trip to visit exemplary schools in other regions of the state.

They will be asked to caravan in four district vehicles. Experts from the Department of Education will be invited to present at some of the face-to-face sessions. Department of Education staff consultants and trainers render their services to school districts at no cost to the district. An approval is needed from the assistant superintendent to purchase and provide refreshments for the face-to-face sessions through professional development funds. The following are punch list items that will be needed for face-to-face and online sessions:

- Two pre-rendered modules and pre-session materials
- Edmodo and Collaborize Classroom accounts.
- PowerPoint presentations.
- Participant laptops.
- Existing Wi-Fi access to the district servers for participants.
- PDF reading from a variety of peer-reviewed sources and credible publications.
- Videos illustrate session concepts
- A feedback loop for ongoing evaluation regarding effectiveness of the framework and sessions.

Modules are designed to pilot the framework and give leaders first-hand experience with the model. Continuous feedback loops and mandatory online discussions will give leaders ownership of the framework and consequently generate buy-in.

Existing support. District leaders will be sought who have an interest in funding and operationalizing the framework through Title II funding. Additional support will

come from all of the building principals who have participated in peer debriefing (directly and indirectly) for this study. The only foreseeable need for funding is travel expenses and accommodations for a field trip to other school divisions to view best practices in action. The technology director will be a participant of the group; any technological problems that occur will be remedied in short time.

Potential barriers. The primary barrier for the pilot implementation effort will be unforeseeable issues that occur during the time of face-to-face sessions. All leaders within small rural schools serve multiple roles and are often called-away from one thing to tend to another. Also, the state department invitees may not accept. To control for this potential barrier, the group will have alternative session activities provided in Collaborize Classroom. Although all of the existing leadership has already expressed support for the framework, there is the chance that it may not be accepted by some of the participants once the modules are underway. To control for this potential barrier, continuous feedback loops will be established through Collaborize Classroom to establish a sense of investment for the resistant or reluctant participant; corrections to the framework will be made and suggestions from participants will be rewarded through gamification. An online virtual field trip would be used if the leader trip is not approved or widely accepted by participants. The final possible barrier would be sustainability of implementation. There are no curriculum specialists or content supervisor positions in the central office; the school division is too small. Therefore any curriculum design, instruction, or development is rendered by building level educators. After one year, building and district leadership will determine which needs should be addressed and the framework

will be populated with new or amended modules. There is a chance that the effort could lose momentum at that point in time. There is a possibility that canned PD curriculum could infiltrate the framework as it is introduced by building-level leadership in the future. Also, coordinating, facilitating, and maintaining framework implementation demands the creation of a new personnel position within the district: Director of Curriculum and Professional Development. I could not maintain this framework in my current capacity of building-level leadership.

Project Evaluation

The overarching goal of the project is to provide the local context with a framework for professional learning that can be used to increase transfer of practice, overcome time and location barriers, and build human capacity. Ultimately, desired outcomes from this project are improved instructional practice and increased student achievement. The framework is designed to implement any initiative or to help establish existing program consistency. The project framework is dynamic and responsive to the needs of participants and the local context. In essence, content for the modules and session are made-to-order and consideration is given to the nuances of the local context and situation. For this reason, evaluation methods to assess project effectiveness and appropriateness must be formative. Continuous feedback loops and session evaluations will be established using a Blackboard K-12 as a community platform to continuously monitor quality, effectiveness, and relevance of the professional development experiences. The continuous development model is different from a traditional development model which requires substantial development on the front end and

summative evaluations that can only inform post-intervention deployments of the model. *SwimmingLessons* will use a feedback-driven authoring model involves participants in a feedback loop that informs incremental content development before and during the professional learning process (Lin & Riesbeck, 2008). To increase motivation to transfer, suggestion-based framework tweaks made to the framework will be posted on a fixed framework upgrade log; participants who contribute useful suggestions will be rewarded through gamification points and badges.

As the project is a process rather than a single event, the overall evaluation goal is to steward development of professional learning communities through continuous online and face-to-face collaboration among stakeholders. The pilot implementation that involves building and district leadership coupled with subsequent implementation of modules will eventually bring all educators within the district into the community platform.

The goal of the framework design is to establish a normative system or culture of ongoing collaboration and professional learning. Once teacher culture changes, an organic transformation may occur whereas student and parent communication will become student and parent collaboration. Ultimately, the instructional core of student, teacher, and parent will be expanded to include a school community of stakeholders which may result in an improvement of learning for all students.

Implications Including Social Change

The project uses a participatory method to familiarize educators with technology enhanced delivery rather than approaching technology integration and 21st-century

practices as a top-down mandate to teachers. On the local level, the project helps educators overcome external (e.g. resources, support) and internal barriers (teacher beliefs about teaching and learning) through continuous professional discourse, ongoing professional learning, collaboration, and sharing of resources. Inan and Lowther (2010) found that the school environment influences the extent to which a teacher is proficient with technology. The project would create an immersive environment for continuous use of technology enhanced learning tools. Using technology for professional learning could lead to improved pedagogical technology integration into classroom instruction through modeling, immersion with digital tools, and familiarity with online collaboration practices. Finally, educators within the local context have not begun an initiative to learn about or adopt a professional learning community framework. Implementation of the *SwimmingLessons* framework may establish the capacity for developing and sustaining professional learning communities within the school under study.

Importance of Project

The project contributes a new professional learning framework that can be generalized to a variety of learning contexts. If implemented with fidelity, the framework may improve professional development and professional practice. The literature suggests that a need for a professional learning model that provides context-specific and relevant training (Kelly, Bluestone-Miller, Mervis, & Fuerst, 2012). Traditional professional development sessions usually groups educators together in large groups and are presented with the same information at the same time. The traditional "sit and get" approach for delivery of professional development does not account for the varied knowledge and

capacity levels of the participants regarding the topic being presented (Cosmah & Saine, 2013). The project for this study provides pre-session materials, resources, and a blended collaborative learning approach to accommodate for differences in learning styles, prior knowledge, and varied skill levels among participants.

Differentiation in professional learning. A common characteristic of traditional professional development is that is occurs as a single event with little or no follow-up. Lack of follow up does not include necessary developmental supports and leaves teachers to implement the learning through a process of trial and error. Cosmah and Saine (2013) submit the notion that teachers commonly practice technology substitution rather than integration. For example, students who are issued laptops may use them for taking notes and reading electronic versions of their textbooks; but, the laptops do not serve a purpose different than the pencils, paper, and books they have replaced. A similar phenomenon occurs with Smart Boards that serve as expensive overhead projector screens in many classrooms. Substitution is also referred to as domestication by Schlechty (2009) and refers to the tendency of educators to alter an innovation to fit existing practice rather than to change practice to accommodate the technology. The framework will help provide training and support for teachers to learn and experience ways to use the digital devices to promote student productivity and creativity. The float modules educate the teachers while the black modules provide them with an entire month of practical experiences with the innovation. Follow up modules in the spring, ongoing collaboration in the community platform, and continuous support reinforces professional learning and competencies.

Perhaps the most significant contribution the project makes to social change is a model of professional learning that is designed to addresses the transfer problem. As stated in the literature review, learning that takes place in professional development is not applied to actual practice. As a result, time and money is wasted on the training program, instructional practice does not change, and student learning does not improve; the project for this study offers a solution to this problem.

Conclusion

This section contained information regarding a description of a project designed to address the local problem within the school under study. Literature related to situated learning, job-embedded professional development, transfer of learning to classroom practice, blended and online professional development, and Standards for Professional Learning contributed context to the theory framing the project. The section also contained a discussion of implications for social change and the importance of the project for the local and greater context.

The discussion in Section 4 will addresses strengths and limitations of the project. The following section will also discuss alternative definitions and solutions to the local problem. Section 4 will end with a self-reflection of what was learned throughout the journey of creating the project for this study; scholarship, project development and evaluation, and leadership and change will be topics of this discussion.

Section 4: Reflections and Conclusions

The basis for data-driven decision making in education is that teachers are never aiming at a single target; as society changes, the multiplicity of targets increase. Teachers within a contemporary system of education must embrace the notion that they are responsible for teaching a diverse population with diverse capacities for learning. A traditional factory model of classroom instruction is no longer appropriate for students; a one-size-fits-all approach to teacher education is not appropriate either (Aslan & Reigeluth, 2013). The educational community is in need of a new approach for professional learning that is aligned with the 21st-century learning tenets that comprise contemporary instructional reform imperatives. Despite an abundance of research and publications that assert the importance of professional development for all educational reform efforts, there are few studies regarding the impact of specific models of professional development on student achievement (Althauser, 2015).

The current study began with a small scope: to examine the practice of RTI teams within a single elementary school. What began as an examination of a data-driven decision making among a handful of educators grew into a project that may be generalizable to schools with similar contexts. In designing the project for this study, I set out on an audacious and ambitious journey to contribute a framework to address a larger-context problem: professional development reform. My journey has arrived in an unexpected place of framework creation. Section 4 includes a personal reflection about my journey of developing and completing the project for this study.

Project Strengths

The project study was intended to address the problem of persistent achievement gaps between student demographic groups despite a multiyear programmatic effort to address them at the school under study. Several strengths of the project derived from the process of conducting the study. First, the study itself received an amazing amount of support from every level of district leadership. The staff at the local site was enthusiastic, honest, and prolific in their responses. Every invitation to participate in the study was accepted, and I was given an entire week to schedule and complete interviews with participants. The local context was so accepting and accommodating that the study was informed by an overabundance of data. The school board members, superintendent, assistant superintendent, and building leadership all offered any assistance they could to inform the study.

Grounded in Data

The data themselves were asset to the development of the project. The participant sample for the interviews included people in a variety of capacities which offered a form of role triangulation (Creswell, 2012; Yin, 2014). The assistant superintendent emailed every document ever generated from the process being studied to me. Teachers who participated in the interviews also sent me copies of student artifacts to inform the study. The large amount of data led to a deep analysis resulting in a thorough understanding of the multiple facets of the local problem. The framework as an outcome would not have been possible without having such a deep understanding of the local context and problem.

The SwimmingLessons Framework

The design of the framework has a major strength; it is grounded in research. The framework is designed with the rationale of addressing gaps in practice in the local context. Addressing current practices establishes the need for the framework and grounds it in practical experience. The framework is also informed by learning theory and research regarding professional learning. Grounding the framework in theory establishes the quality of the design. Other specific strengths of the framework include feedback loops, ongoing collaboration, continuous professional learning, and the use of a blended model. Innovative components that are conceptually new to the literature are the two month abstract-concrete scheme (float phase and swim phase) and the fall-spring modules (initial training and follow-up). The use of a community platform is not new to education, but it is a key component of an effort to establish a collaborative culture.

Project Limitations

The project has not been tested and is at the theoretical stage of development. Also, the initial implementation relies on a single individual as others have not experienced the module or been involved in creation. Therefore, there is a conceptual barrier that must be overcome, whereas others must conceptualize the intended purpose and function of the framework; then, they must believe it can work. Next, there may be philosophical barriers that inhibit buy-in or full implementation. Some actors within the process may be put off by a framework that requires participant-development rather than designed content.

Chaos Theory and Practical Experience

Chaotic systems are predictably random. Implementation of a framework, an initiative, or a program involves unforeseeable obstacles and barriers. One predictable barrier will be teachers who do not readily subscribe to the framework because it is different than anything they have seen before. In my own experience as a building administrator, I commonly experience teachers who tell me, "Just tell me exactly what you want me to do, and I will do that." The irony of this experience is that teachers often assert that students should not seek the "one right answer"; they contend that students should have initiative and creativity. Yet when many teachers are asked to do something and generate their own solutions, they are afraid to experiment lest they not provide the "one right answer." In fact, some teachers would rather wait until they receive the "right answer." Reluctance of teachers to innovate is relevant to this project, as the intention of the framework is to nurture an increased comfort level with exploration, self-reflection, and ongoing personal improvement. My intention is to foster an environment tolerant of risk taking and learning through failure.

Tech-"NO!"-phobia:

PLCs benefit from virtual community platforms that foster collaboration through Internet-enabled devices. Teachers who become more comfortable with Internet-based resources tend to incorporate virtual learning and communication into their instruction. The success of the framework depends upon a shift in how educators perceive technology use. The shift must begin with school leadership. One stigmatizing perception is that a teacher sitting at his/her computer (or staring down at a device) is neglecting instructional

duties. This may have been the case before Internet-based technologies became ubiquitous in American culture. However, a contemporary teacher sitting at a computer may be designing a technology enhanced learning tool, blogging, analyzing student assessment data, monitoring student activity on electronic devices, corresponding with parents, participating in a virtual discussion with students, or engaging in any number of productive uses of that electronic device. School leaders must seek to recognize and encourage organic uses of technological devices rather than micromanage. Some teachers in the school under study situate their computers in an area of their classrooms where they can access them at the beginning and end of the instructional day; they do not engage the computer at any other times of the day. Other teachers may use their computers to design and print student handouts and worksheets. These minimal uses of the technology are symptoms of a paradigm in which school leaders view effective instruction as teacher centered. One weakness of the framework is that it will conflict with the philosophical barrier created by traditional administrators who view technology use as something that is teacher centered. For the framework to be successful, teachers must be trusted to use the technology responsibly and productively.

Recommendations for Remediation of Limitations

An alternative problem that warrants investigation for the local context is how to build capacity to implement 21st-century learning initiatives. The local context is still locked into traditional systems of leadership, process, and instruction. The problem is comprehensive, and a solution would involve changing mental models (Schlechty, 2009; Senge, 1990) so that stakeholders view teaching and learning through an entirely

different lens. Perhaps a focus on 21st-century learning philosophy would be a more appropriate approach for guiding stakeholders in a new direction. Rather than submitting a framework that will change the local context, perhaps it is more important to establish a need for change.

A sense of urgency was implicit in the development of the project. I interpreted the purpose of project design to be an immediate action that would address the problem. This interpretation led to the exclusion of long-range plans that may have been more comprehensive and contained a stronger possibility for sustainability. I feel as if each finding in Section 2 warrants a course of action respectively. Failure to address each theme independently may contribute confounding variables that inhibit implementation of the suggested project. Perhaps I could have extended the existing approach of providing professional development to small groups and targeted the human capacity problem in that manner.

Discussion of Process

Scholarship

At this point in the process, I find myself nearing the end of a 4 year doctoral journey. Engaging in research and a project study drafting process has contributed to my understanding of what it means to be comprehensive. There is much to be learned through enterprise that cannot be acquired through reading. Throughout the undertaking of this endeavor, I was engaged in continuous reflection and reexamination of prior conceptualizations of research and the construct of a scholar-practitioner.

The doctoral journey has afforded me an opportunity to truly understand the purpose of research. My study did not truly begin to develop until I arrived at an understanding about the immense importance of the literature review. A thorough review of the literature will inform and simplify all other sections of the dissertation. Familiarity of content, syntax, and scholarly writing that was gained from continuous readings of peer-reviewed work served as an inadvertent apprenticeship from which I gathered an understanding of the nuances of scholarly work. I also gathered a sense of conviction after reviewing the literature; I had an innate desire to address the local problem in a deep and meaningful way.

Qualitative data collection and data analysis were two aspects of research that demand a great deal of time and attention to detail. The time invested in the analysis allowed me to understand and appreciate how perspectives can contribute to findings that inform action. That is something that was difficult to understand until I collected and analyzed data for this project study. The project is grounded in research and data.

Project Development and Evaluation

Arriving at the idea for the project was a journey within itself. The local problem is not unique to the field of education, but the context in which it is situated bears several characteristics that are small rural school divisions. Recommendations that are common in project studies for addressing educational problems did not apply to the problem of this study. To responsibly address the local problem that was different, I had to be an artisan and create a project that was tailored to fit the local context.

At this point in time, there is not much research regarding issues in small rural U.S. education. The literature does not offer an explanation for the lack of research regarding small rural U.S. schools. However, the relevance of this fact is that there is no such thing as a framework created specifically to help small rural U.S. schools overcome a plethora of barriers inherent in the small rural context. Fortunately, the literature review in Section 1 of this study afforded me an opportunity to understand and review several frameworks. A good understanding about the construct of a framework helped me to realize that the local context needed a framework that guided implementation and professional learning.

I consulted peer-reviewed articles about frameworks in order to gather an understanding of rationales used for design. I paid close attention to the illustrations and read the corresponding explanations of the conceptual models. A great deal can be understood by reading the entire article rather than scanning them. The culminating effect of reviewing of these articles actually provided me with emergent themes that helped to inform the design of the project's conceptual model.

Leadership and Change

Literature reviews and development of the project have led me to a new understanding of leading organization change. I have learned that there are two concepts at the core of the literature regarding change leadership: improve capacity of leaders to steward change and improve capacity of teachers to improve student learning (Marsh & Farrell, 2014; Preston et al., 2013). Accountability-based research focuses on the effects of various initiatives put in place to produce improvements in student test scores and

teacher response to the high-stakes atmosphere of accountability. Federal and state legislation demands evidence that all students are experiencing improvements in their learning (Mandinach, 2012). This means that teachers must use data to monitor progress and building-level leaders must use data to monitor the effects of instruction; the common thread in this process is data use. Gaps in practice or student learning are evident through student performance data and classroom observations (Datnow & Park, 2014). The local context does a good job of collecting data. I found that actors at different levels must process the data for differing purposes: the teacher must analyze data for gaps in student learning whereas the leader must analyze the data for systemic implications. I determined through this study that a leader's new role in data-driven decision making is to examine outcomes from both instructional practice and the organizational system of data use. Most importantly, process should not exist in a vacuum, and school leaders cannot view themselves as passive conduit of their environments. Rather than manage and maintaining existing process, leaders need to influence and shape their environments.

Discussion of Self

Analysis of Self as Scholar

I no longer hold a pre-conceived assumption that dissertation writing is merely an activity designed to teach scholarly writing. Well, perhaps it is within some contexts. At Walden University, however, the project study document is more than a glorified research paper; it is a call to action. I have a newfound bias for the benefits of a project study. I feel that it has meaning that extends beyond the confines of the document. The

project study approach forced me to examine and address a local problem, a gap in practice, rather than espousing research-based opinion that runs the risk of purgatory within the theoretical realm. I feel that I am prepared to methodologically assemble ideas to address an issue within any context. The project study is not a paper; it is template for an action plan. Now, when I recognize a disparity within my own local context, I view it through the lens of a scholar-practitioner; I crave exploration and an opportunity to gain a deeper understanding of the problem rather than rushing to judgement and solution. I learned how to synthesize finding to ground ideas in research. My belief regarding action has changed: action is an ongoing pursuit of resolution rather than the simple provision of a solution.

I have gathered a newfound fascination with qualitative research. In essence, the interviews were therapeutic conversations with an implicit sense of purpose. Throughout the dissertation process, I felt that data analysis was a looming cloud of uncertainty; I was certain that attempting the analysis would be a painful cross to bear. Now, I feel unresolved and want more opportunities to hone my skills with qualitative data analysis. I understand the responsibility to inform practice has just begun. Having a doctorate bestows upon me a special set of skills and a responsibility to engage practical issues with research methodologies and, in turn, contribute knowledge that improves quality of life for people throughout the world.

Analysis of Self as Practitioner

My personal vision has always been to someone who could promote and influence positive change in an organization and a larger context. I am always willing to

contribute, but felt as if my enthusiasm was not matched by a requisite level of expertise to impart sustainable change. In other words, I felt very confident about my ability to recognize gaps in practice, but lacked an understanding of how to properly address them. This project study was, in every sense of the term, an exercise in exploration. Through the project study process, I gained knowledge of using a scholarly approach to substantiate my opinions regarding education, process, and policy. Taking a scholarly approach improved my career and job performance. I find myself defaulting to qualitative research practices to understand and address problems on a daily basis. My NVivo program is populated with three additional studies that I have been conducted concurrent with this study. I have learned to read with purpose, speak with substance, and act with confidence.

Analysis of Self as Project Developer

I feel as if my effort of developing the project was inadvertently similar to a qualitative research design. This process was not achieved in a vacuum. My first idea was that the local problem was too comprehensive and a white paper would at least inform the local context of the situational nuances. My second committee member, Dr. Robelia did not believe that a white paper would contribute much help to the local context; she was right. I then decided that a single professional development session would not be enough to address a multitude of themes that needed to be addressed. So, I started planning a workshop series that would occur once per month. I had conversations with the superintendent of the school under study and also a high school principal within the district. These conversations made one thing evident: monthly professional

developments are just more of the same; they do not work. I had several conversations with my wife who is an educator with 15 years. She spoke from the perspective of the teacher and offered specific experiences with professional development (online, hybrid, and traditional) that have failed over time. All of these conversations led me to believe that none of the available genres for a project would satisfy the needs of the local context. I reread Section 2 of this study and realized something: the local context doesn't need more professional development; it needs a better delivery system for professional development. My experience with traditional professional development has taught me the value of pairing research and collaboration to inform and develop a substantive project that incorporates multiple perspectives with research findings. I have developed a view that some problems are born from well-intended processes, initiatives, and programs that did not complete full implementation. The experience with project development for this study has given me a method for crafting resolutions to unrealized processes.

Overall Reflection of Work and Learning

The study and resulting project landed in an unexpected place. The project study process began with floundering in search of an acceptable local problem. Like many of my colleagues, I had to arrive at an understanding of the difference between a personal problem and a substantiated local problem. Ultimately, I recognized teacher discontent with RTI meetings. I started to listen to some of the grumblings and determined that the teachers were dissatisfied because they were forced into a process that did not appear to working. I had little expertise with the framework and spent entire semesters reading and

learning about RTI. A thorough review of the literature on the RTI process led to several curiosities regarding the process used within the local context; these curiosities became my research and interview questions. At this point, the project study became less about satisfying requirements for an advanced degree and more about helping the local context. I wanted to focus on closing the persistent achievement gaps and crafting relevant protocols that would substantially inform the study and help to identify gaps in the implementation process. I believe that this project study has accomplished these objectives.

As a practitioner, this doctoral degree imparts upon me the implied expertise that will allow me to have a voice in the decision making processes and influence in decisions rendered. My mission is to use the knowledge I have gained about data-driven decision making, RTI, school leadership, and professional development to contribute to positive sustainable change in local and greater contexts. I hope the project helps school officials design and offer better professional learning experiences to educators.

Implications, Applications, and Directions for Future Research

The implications for future research are that we need to focus on barriers that inhibit true reform and tackle the seemingly insurmountable issues. Building capacity for Data-driven decision making is one of those issues. I found that, in my own reviews of the literature, it all comes down to human capacity. If a leader tackles personnel issues and shortcomings head-on, they experience positive effects in the long run. Extant in the literature are two intervention approaches for shoring up teacher capacity to engage in data-driven decision making: (a) subject teachers to professional development and

demand improved practice or (b) to establish collaborative professional learning in which the leadership is a participant. The research on these interventions are incomplete as they fail to provide adequate information about what constitutes effective capacity building and under what circumstances it occurs (Coburn & Turner, 2011a). Recent literature regarding data-driven decision making denounces the use of how-to guides and suggests a reliance on theoretically-driven research; the implication is that theoretical frameworks will provide a deeper understanding of the dynamic between organizational interventions and practitioner activity (Marsh & Farrell, 2014). The implication of this rationale is that more attention must be given to systemic factors; leaders must consider the appropriateness organizational frameworks.

In the school under study, the lead implementer of the RTI process followed every suggestion of the state-level trainers and implemented the suggested framework. Process implementation was well-funded, well-staffed, and had full support of division and building level administrators. Findings revealed that presenters at state-level professional development sessions used models and processes from large school divisions. As a result, the suggested framework for RTI implantation was not aligned with the needs of the local context. Leaders of schools situated in small rural contexts are left to their own devices in some respects because many of the findings are not generalizable to their contexts. An analogous comparison would be like taking recommendations for comfortable winter wear from people in Tennessee when you are planning to visit Maine. The clothing will cover and temporarily keep you warm, but it will not prevent impending hypothermia for very long.

Recommendations for further research include examinations of characteristics specific to small rural contexts. Research is needed for nearly every aspect of teaching and learning that is specific to the small rural context.

Conclusion

This project study represents a culmination of everything learned in the doctoral program at Walden University. Coursework provided an orientation to the rigor of scholarly work needed to conduct research and consider future plans of action that could positively impact school culture. The experience has motivated me to pursue qualitative approaches for exploring, understanding, and addressing gaps in practice within my local and greater contexts. As a scholar-practitioner, I now believe that it is my duty to bridge research to practice.

This section was a reflection of the project study that established a local problem and a project developed to address the local problem. The project was designed to address several gaps in practice identified by the findings in Section 2. Professional development is critical for addressing problems with fidelity and consistency in the installation of an initiative. The professional development framework provides a structured method needed to impart understandings of implementation components in a comprehensive way. The project can help to establish communities of practice among the educators in the local context as they strive to improve instructional practice and student learning.

References

Abbott, M., & Wills, H. (2012). Improving the upside-down response-to-intervention triangle with a systematic, effective elementary school reading team. *Preventing School Failure, 56*(1), 37-46. doi:10.1080/1045988X.2011.555793

Althauser, K. (2015). Job-embedded professional development: its impact on teacher self-efficacy and student performance. *Teacher Development, 19*(2), 210-225. doi:10.1080/13664530.2015.1011346

Anderson, S., Leithwood, K., & Strauss, T. (2010). Leading data use in schools: organizational conditions and practices at the school and district levels. *Leadership & Policy in Schools, 9*(3), 292-327. doi:10.1080/15700761003731492

Aslan, S., & Reigeluth, C. (2013). Educational technologists: Leading change for a new paradigm of education. *TechTrends: Linking Research & Practice to Improve Learning, 57*(5), 18-24. doi:10.1007/s11528-013-0687-4

Awais Bhatti, M., Ali, S., Mohd Isa, M. F., & Mohamed Battour, M. (2014). Training transfer and transfer motivation: The influence of individual, environmental, situational, training design, and affective reaction factors. *Performance improvement quarterly, 27*(1), 51-82. doi:10.1002/piq.21165

Bahji, S. E., Lefdaoui, Y., & El Alami, J. (2013). Enhancing motivation and engagement: A top-down approach for the design of a learning experience according to the S2P-LM. *International Journal of Emerging Technologies in Learning, 8*(6), 35-41. doi:10.3991/ijet.v8i6.2955

Baldwin, T. T., & Ford, J. K. (1988). Transfer of training: A review and directions for

future research. *The training and development sourcebook, 180*. doi:10.1111/j.1744-6570.1988.tb00632.x

Ball, C. R., & Christ, T. J. (2012). Supporting valid decision making: Uses and misuses of assessment data within the context of RTI. *Psychology in the Schools, 49*(3), 231-244. doi:10.1002/pits.21592

Bean, R., & Lillenstein, J. (2012). Response to intervention and the changing roles of schoolwide personnel. *The Reading Teacher, 65*(7), 491-501. doi:10.1002/TRTR.01073

Beaver, J., & Weinbaum, E. (2015). State test data and school improvement efforts. *Educational Policy, 29*(3), 478-503. doi:10.1177/0895904813510774

Berkeley, S., Bender, W. N., Gregg Peaster, L., & Saunders, L. (2009). Implementation of response to intervention. *Journal of Learning Disabilities, 42*(1), 85-95. doi:10.1177/0022219408326214

Berman, P., & McLaughlin, M. W. (1978). *Federal programs supporting educational change: Implementing and sustaining innovations*. Retrieved from Santa Monica, Calif.: http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED108326

Bernhardt, V. (2004). *Data analysis for continuous school improvement*. Larchmont, N.Y.: Eye on Education.

Blackford, K., & Khojasteh, J. (2013). Closing the achievement gap: Identifying strand score differences. *American Journal of Business Research, 6*(2), 5-15. Retrieved from http://www.amhighed.com/ajbr.htm. Retrieved from

http://www.amhighed.com/ajbr.htm

Blitz, C. (2013a). *Can online learning communities achieve the goals of traditional professional learning communities? What the literature says*. Retrieved from National Center for Education: http://ezp.waldenulibrary.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=ED544210&scope=site

Blitz, C. (2013b). *Can Online Learning Communities Achieve the Goals of Traditional Professional Learning Communities? What the Literature Says. Summary.* . Retrieved from National Center for Education: http://files.eric.ed.gov/fulltext/ED544210.pdf

Brooks, C., & Gibson, S. (2012). Professional learning in a digital age. *Canadian Journal of Learning & Technology*, *38*(2), 1-17. doi:10.4324/9781315853529

Burchinal, M., McCartney, K., Steinberg, L., Crosnoe, R., Friedman, S. L., McLoyd, V., & Pianta, R. (2011). Examining the black–white achievement gap among low-income children using the NICHD study of early child care and youth development. *Child Development, 82*(5), 1404-1420. doi:10.1111/j.1467-8624.2011.01620.x

Burn, K., Mutton, T., & Hagger, H. (2010). Strengthening and sustaining professional learning in the second year of teaching. *Oxford Review of Education, 36*(6), 639-659. doi:10.1080/03054985.2010.501140

Burns, M., Pierson, E., & Reddy, S. (2014). Working together: How teachers teach and students learn in collaborative learning environments. *International Journal of*

Instruction, 7(1). doi:10.1177/000494411105500104

Burns, M. K., Egan, A. M., Kunkel, A. K., McComas, J., Peterson, M. M., Rahn, N. L., & Wilson, J. (2013). Training for generalization and maintenance in rti implementation: Front-loading for sustainability. *Learning Disabilities Research & Practice, 28*(2), 81-88. doi:10.1111/ldrp.12009

Burns, M. K., Peters, R., & Noell, G. H. (2008). Using performance feedback to enhance implementation fidelity of the problem-solving team process. *Journal of School Psychology, 46*(5), 537-550. doi:10.1016/j.jsp.2008.04.001

Cameron, S., Mulholland, J., & Branson, C. (2013). Professional learning in the lives of teachers: towards a new framework for conceptualising teacher learning. *Asia-Pacific Journal of Teacher Education, 41*(4), 377-397. doi:10.1080/1359866X.2013.838620

Castro-Villarreal, F., Rodriguez, B. J., & Moore, S. (2014). Teachers' perceptions and attitudes about Response to Intervention (RTI) in their schools: A qualitative analysis. *Teaching and Teacher Education, 40*, 104-112. doi:10.1016/j.tate.2014.02.004

Chick, H., & Pierce, R. (2013). The statistical literacy needed to interpret school assessment data. *Mathematics Teacher Education & Development, 15*(2), 1-19. doi:1177/0004944114530067

Ching-Ching, C. (2014). Situated learning and professional development: A case study of applying cognitive apprenticeship and community of practices in a kindergarten. *Problems of Education in the 21st Century, 59*, 15-24. Retrieved from

www.scientiasocialis.lt/pec/?q=node/892

Chitanana, L. (2012). A constructivist approach to the design and delivery of an online professional development course: a case of the iEarn online course. *International Journal of Instruction, 5*(1), 23-48. Retrieved from www.e-iji.net/dosyalar/iji_2012_1_2.pdf

Clarke, S., & Wildy, H. (2011). Improving the small rural or remote school: The role of the district. *Australian Journal of Education, 55*(1), 24-36. doi:10.1177/000494411105500104

Coburn, C. E., & Turner, E. O. (2011a). Putting the "use" back in data use: An outsider's contribution to the measurement community's conversation about data. *Measurement: Interdisciplinary Research and Perspectives, 9*(4), 227-234. doi:10.1080/15366367.2011.634653

Coburn, C. E., & Turner, E. O. (2011b). Research on data use: A framework and analysis. *Measurement: Interdisciplinary Research and Perspectives, 9*(4), 173-206. doi:10.1080/15366367.2011.626729

Coburn, C. E., & Turner, E. O. (2012). The practice of data use: An introduction. *American Journal of Education, 118*(2), 99-111. doi:10.1086/663272

Colker, R. (2013). Politics trump science: The collision between no child left behind and the individuals with disabilities education act. *Journal of Law & Education, 42*(4), 585-631. Retrieved from http://www.law.sc.edu/jled/

Collay, M., Winkleman, P., Garcia, R., & Guilkey-Amado, J. (2009). Using collaborative inquiry to transform teaching, learning, and inquiry about leadership: The

transformational learning of our educational leadership faculty team as we developed assessments for an equity-centered pedagogy. *Educational Leadership and Administration: Teaching and Program Development, 21*, 27-38. Retrieved from http://www.editlib.org/j/ISSN-1064-4474/

College Entrance Examination Board. (1977). *On Further Examination: Report of the Advisory Panel on the Scholastic Aptitude Test Score Decline.* Retrieved from New York, N.Y.:

Collins, L., & Liang, X. (2014). Task relevance in the design of online professional development for teachers of ells: a q methodology study. *Turkish Online Journal of Distance Education, 15*(3), 268-281. doi:10.1080/19415257.2012.712752

Colyvas, J. A. (2012). Performance metrics as formal structures and through the lens of social mechanisms: When do they work and how do they influence? *American Journal of Education, 118*(2), 167-197. doi:10.1086/663270

Cook, D. A., & Steinert, Y. (2013). Online learning for faculty development: A review of the literature. *Medical Teacher, 35*(11), 930-937. doi:10.3109/0142159X.2013.827328

Cosmah, M., & Saine, P. (2013). Targeting digital technologies in common core standards: A framework for professional development. *New England Reading Association Journal, 48*(2), 81-86. doi:10.1016/S0360-1315(02)00073-8

Cosner, S. (2012). Leading the ongoing development of collaborative data practices: Advancing a schema for diagnosis and intervention. *Leadership & Policy in Schools, 11*(1), 26-65. doi:10.1080/15700763.2011.577926

Crawford, L. (2014). The Role of Assessment in a Response to Intervention Model. *Preventing School Failure: Alternative Education for Children and Youth, 58*(4), 230-236. doi:10.1080/1045988X.2013.805711

Creswell, J. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Boston, Mass.: Pearson.

Creswell, J. (2013). *Qualitative inquiry and research design: Choosing among five approaches*. Los Angeles, Calif: SAGE Publications.

Crichton, S., Pegler, K., & White, D. (2012). Personal devices in public settings: Lessons learned from an ipod touch / ipad project. *Electronic Journal of e-Learning, 10*(1), 23-31. doi:10.1007/s10639-014-9316

Croft, A., Coggshall, J. G., Dolan, M., & Powers, E. (2010). Job-embedded professional development: What it is, who is responsible, and how to get it done well. *National Comprehensive Center for Teacher Quality*, Retrieved from files.eric.ed.gov/fulltext/ED520830.pdf.

Culpin, V., Eichenberg, T., Hayward, I., & Abraham, P. (2014). Learning, intention to transfer and transfer in executive education. *International Journal of Training & Development, 18*(2), 132-147. doi:10.1111/ijtd.12033

Dash, S., De Kramer, R. M., O'Dwyer, L. M., Masters, J., & Russell, M. (2012). Impact of online professional development on teacher quality and student achievement in fifth grade mathematics. *Journal of Research on Technology in Education (International Society for Technology in Education), 45*(1), 1-26. doi:10.1080/15391523.2012.10782595

Datnow, A. (2011). Collaboration and contrived collegiality: Revisiting hargreaves in the age of accountability. *Journal of Educational Change, 12*(2), 147-158. doi:10.1007/s10833-011-9154-1

Datnow, A., Hubbard, L., & Mehan, H. (2002). *Extending educational reform: From one school to many*. London, England: RoutledgeFalmer.

Datnow, A., & Park, V. (2012). The principal role in data-driven decision making: using case-study data to develop multi-mediator models of educational reform. *School Effectiveness and School Improvement, 23*(2), 179-201. doi:10.1080/09243453.2011.599394

Datnow, A., & Park, V. (2014). *Data-Driven Leadership* (First edition ed.). San Francisco, Calif: Jossey-Bass.

Datnow, A., Park, V., & Kennedy-Lewis, B. (2012). High school teachers' use of data to inform instruction. *Journal of Education for Students Placed at Risk (JESPAR), 17*(4), 247-265. doi:10.1080/10824669.2012.718944

Datnow, A., Park, V., & Kennedy-Lewis, B. (2013). Affordances and constraints in the context of teacher collaboration for the purpose of data use. *Journal of Educational Administration, 51*(3), 341-362. doi:10.1108/09578231311311500

Davis, T. N., Barnard-Brak, L., & Arredondo, P. L. (2013). Assistive Technology: Decision-making Practices in Public Schools. *Rural Special Education Quarterly, 32*(4), 15-23. Retrieved from http://acres-sped.org/

Dennis, M. S., Calhoon, M. B., Olson, C. L., & Williams, C. (2013). Using computation curriculum-based measurement probes for error pattern analysis. *Intervention in*

School and Clinic, 1053451213513957.

Dever, R., & Lash, M. J. (2013). Using common planning time to foster professional learning. *Middle School Journal (J3), 45*(1), 12-17. Retrieved from http://www.amle.org/ServicesEvents/MiddleSchoolJournal/tabid/175/Default.aspx

Division for Early Childhood of the Council for Exceptional Children, National Association for the Education of Young Children, & National Head Start Association. (2014). Frameworks for response to intervention in early childhood: Description and implications. *Communication Disorders Quarterly, 35*(2), 108-119. doi:10.1177/1525740113514111

Dodor, B. A., Sira, N., & Hausafus, C. O. (2010). Breaking down the walls of teacher isolation. *Journal of Family & Consumer Sciences Education, 28*(1), 1-12. Retrieved from http://www.natefacs.org/JFCSE/jfcse.htm

Dornisch, M. (2013). The digital divide in classrooms: teacher technology comfort and evaluations. *Computers in the Schools, 30*(3), 210-228. doi:10.1080/07380569.2012.734432

DuFour, R., DuFour, R., & Eaker, R. (1998). *Revisiting professional learning communities at work: New insights for improving schools*. Bloomington, Ind.: Solution Tree.

DuFour, R., DuFour, R., Eaker, R., & Many, T. (2010). *Learning by doing: A handbook for professional learning communities at work.* . Bloomington, Ind.: Solution Tree Press.

DuFour, R., & Fullan, M. (2013). *Cultures built to last: Systemic PLCs at work*. Bloomington, Ind.: Solution Tree Press.

DuFour, R., & Marzano, R. (2011). *Leaders of learning: How district, school, and classroom leaders improve student achievement*. Bloomington, Ind.: Solution Tree Press.

DuFour, R., & Mattos, M. (2013). How Do Principals Really Improve Schools? *Educational Leadership, 70*(7), 34-40. Retrieved from http://www.cisdctl.com/uploads/1/3/3/4/133401/st-dufour-mattos-article.pdf

Duke, D. L. (2014). A bold approach to developing leaders for low-performing schools. *Management in Education, 28*(3), 80-85. doi:10.1177/0892020614537665

Duncan, A. (2010) *Data: The truth teller in education reform*. Bethesda, MD, Keynote address at the Educate with Data: Stats-DC 2010.

Duncan, A. (2011). Forge a commitment to authentic professional learning. *Journal of Staff Development, 32*(4), 70-72. Retrieved from http://www.learningforward.org/news/articleDetails.cfm?articleID=2327

Dunn, K. E., Airola, D. T., Lo, W.-J., & Garrison, M. (2013). Becoming data driven: The influence of teachers' sense of efficacy on concerns related to data-driven decision making. *Journal of Experimental Education, 81*(2), 222-241. doi:10.1080/00220973.2012.699899

Earl, L., & Katz, S. (2002). *Leading schools in a data-rich world*. Dordrecht, Netherlands: Kluwer.

Erickson, A., Noonan, P., & Jenson, R. (2012). The school implementation scale:

Measuring implementation in response to intervention models. *Learning Disabilities: A Contemporary Journal, 10*(2), 33-52. Retrieved from http://www.ldworldwide.org/research/learning-disabilities-a-contemporary-journal

Erickson, A., Noonan, P., & McCall, Z. (2012). Effectiveness of online professional development for rural special educators. *Rural Special Education Quarterly, 31*(1), 22-32. Retrieved from www.ksu.edu/acres/pub.html

Fallon, G., & Barnett, J. (2009). Impacts of school organizational restructuring into a collaborative setting on the nature of emerging forms of collegiality. *International Journal of Education Policy and Leadership, 4*(9), 1-14. Retrieved from http://journals.sfu.ca/ijepl/index.php/ijepl/article/view/159

Farrell, C. (2014). Designing school systems to encourage data use and instructional improvement: A comparison of school districts and charter management organizations. *Educational Administration Quarterly*. doi:10.1177/0013161x14539806

Fehr, M. C., & Agnello, M. F. (2012). Engaging in diverse classrooms: Using a diversity awareness survey to measure preservice teachers' preparedness, willingness, & comfort. *Multicultural Education, 19*(2), 34-39. doi:10.1007/210763-012-9371-y

Fleishman, E. A. (1953). Leadership climate, human relations training, and supervisory behavior. *Personnel psychology*, *6*(2), 205-222. doi:10.1111/j.1744-6570.1953.tb01040.x

Folsom-Kovarik, J., Wray, R., & Hamel, L. (2013). Adaptive assessment in an instructor-

mediated system. *Lecture Notes in Computer Science,* 571-574. doi:10.1007/978-3-642-39112-5_61

Ford, J. K., & Weissbein, D. A. (1997). Transfer of training: An updated review and analysis. *Performance improvement quarterly, 10*(2), 22-41. doi:10.1111/j.1937-8327

Francis-Poscente, K., & Jacobsen, M. (2013). Synchronous online collaborative professional development for elementary mathematics teachers. *International Review of Research in Open & Distance Learning, 14*(3), 319-343. doi:10.3102/0013189X033008003

Francis, K., & Jacobsen, M. (2013). Synchronous online collaborative professional development for elementary mathematics teachers. *International Review of Research in Open and Distance Learning, 14*(3), 319-343. doi:10.3102/0013189X033008003

Fuchs, D., & Fuchs, L. (2006a). A framework for building capacity for responsiveness to intervention. *School Psychology Review, 35*(4), 621. Retrieved from http://www.nasponline.org/publications/spr/index-list.aspx

Fuchs, D., & Fuchs, L. (2006b). Introduction to Response to Intervention: What, why, and how valid is it? *Reading Research Quarterly, 41*(1), 92-99. doi:10.1598/rrq.41.1.4

Fuchs, D., & Fuchs, L. (2009). Responsiveness to intervention: Multilevel assessment and instruction as early intervention and disability identification. *Reading Teacher, 63*(3), 250-252. doi:10.1598/rt.63.3.10

Fuchs, D., Mock, D., Morgan, P., & Young, C. (2003). Responsiveness-to-intervention: Definitions, evidence, and implications for the learning disabilities construct. *Learning Disabilities Research & Practice (Wiley-Blackwell), 18*(3), 157-171. doi:10.1111/1540-5826.00072

Fuchs, L. (2004). The past, present, and future of curriculum-based measurement research. *School Psychology Review, 33*(2), 188-192. doi:10.1016/j.learninstruc.2014.02.002

Fullan, M. (2007). *The new meaning of educational change*. New York, N.Y.: Teachers College Press.

Gage, N. A., & McDaniel, S. (2012). Creating Smarter Classrooms: Data-Based Decision Making for Effective Classroom Management. *Beyond Behavior, 22*(1), 48-55. Retrieved from http://www.ccbd.net/Publications/BeyondBehavior

Gast, D., & Ledford, J. (2014). Applied research in education and behavioral sciences. In D. Gast & J. Ledford (Eds.), *Single Case Research Methodology: Applications in Special Education and Behavioral Sciences* (pp. 1-18). New York, N.Y.: Taylor and Francis.

Gibson, S., & Brooks, C. (2013). Rethinking 21st century professional development. *Literacy Information and Computer Education Journal, 4*(2), 973-982. Retrieved from www.infonomics-society.org/LICEJ/Rethinking%2021st%20Century%20Professional%20Development.pdf

Gilbert, J., Compton, D., Fuchs, D., Fuchs, L., Bouton, B., Barquero, L., & Cho, E.

(2013). Efficacy of a first-grade responsiveness-to-intervention prevention model for struggling readers. *Reading Research Quarterly, 48*(2), 135-154. doi:10.1002/rrq.45

Goodlad, J. (1984). *A Place Called School. Prospects for the Future*. New York, N.Y. : McGraw-Hill Book Company.

Goren, P. (2012). Data, data, and more data--what's an educator to do? *American Journal of Education, 118*(2), 233-237. doi:10.1086/663273

Grohmann, A., Beller, J., & Kauffeld, S. (2014). Exploring the critical role of motivation to transfer in the training transfer process. *International Journal of Training & Development, 18*(2), 84-103. doi:10.1111/ijtd.12030

Grossman, R., & Salas, E. (2011). The transfer of training: what really matters. *International Journal of Training and Development, 15*(2), 103-120. doi:10.1111/j.1468-2419.2011.00373.x

Gunn, T. M., & Hollingsworth, M. (2013). The Implementation and Assessment of a Shared 21st Century Learning Vision: A District-Based Approach. *Journal of Research on Technology in Education (International Society for Technology in Education), 45*(3), 201-228. doi:10.1080/15391523.2013.10782603

Hagen, E., & Nordmeyer, J. (2013). No data left behind. *International Schools Journal, 33*(1), 26-40. Retrieved from http://www.ecis.org/page.cfm?p=335

Hamilton, L. (2011). The role of students in data use: Commentary on coburn and turner's "research on data use: a framework and analysis". *Measurement: Interdisciplinary Research and Perspectives, 9*(4), 207-210. doi:10.1080/15366367.2011.632331

Hamilton, L., Halverson, R., Jackson, S. S., Mandinach, E., Supovitz, J. A., & Wayman, J. C. (2009). *Using student achievement data to support instructional decision making. IES Practice Guide. NCEE 2009-4067*. (NCEE 2009-4067). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/practiceguide.aspx?sid=12.

Hardre, P. (2012). Standing in the gap: Research that informs strategies for motivating and retaining rural high school students. *Rural Educator, 34*(1). doi:10.1080/10668920902973362

Hargreaves, A. (1994). *Changing teachers, changing times: Teachers' work and culture in the postmodern age*. London, England: Cassell.

Hill, D. R., King, S. A., Lemons, C. J., & Partanen, J. N. (2012). Fidelity of implementation and instructional alignment in response to intervention research. *Learning Disabilities Research & Practice, 27*(3), 116-124. doi:10.1111/j.1540-5826.2012.00357.x

Hoaglund, A. E., Birkenfeld, K., & Box, J. A. (2014). Professional learning communities: Creating a foundation for collaboration skill in pre-service teachers. *Education, 134*(4), 521-528. Retrieved from http://www.projectinnovation.com/education.html

Hodkinson, P., & Hodkinson, H. (2004). The significance of individuals' dispositions in workplace learning: a case study of two teachers. *Journal of Education and Work, 17*(2), 167-182. doi:10.1080/13639080410001677383

Holcomb, E. (2004). *Getting excited about data: Combining people, passion, and proof to maximize student achievement*. Thousand Oaks, Calif: Corwin Press.

Holcomb, E. (2012). *Data dynamics: Aligning teacher team, school, & district efforts*. Bloomington, Ind.: Solution Tree Press.

Homklin, T., Takahashi, Y., & Techakanont, K. (2014). The influence of social and organizational support on transfer of training: evidence from Thailand. *International Journal of Training & Development, 18*(2), 116-131. doi:10.1111/ijtd.12031

Hoover, J. (2011). Making informed instructional adjustments in rti models: Essentials for practitioners. *Intervention in School and Clinic, 47*(2), 82-90. doi:10.1177/1053451211414193

Hord, S. (2004). *Learning together leading together: Changing schools through professional learning communities*. New York, N.Y.: Teachers College Press.

Hughes, C. A., & Dexter, D. (2011). Response to intervention: A research-based summary. *Theory Into Practice, 50*(1), 4-11. doi:10.1080/00405841.2011.534909

Huguet, A., Marsh, J. A., & Farrell, C. (2014). Building teachers' data-use capacity: Insights from strong and developing coaches. *Construcción de la capacidad de los profesores para el uso de datos: Reflexiones de entrenadores "fuertes" y "en desarrollo". 22*(50-57), 1-31. doi:10.14507/epaa.v22n52.2014

Hur, J. W., & Brush, T. A. (2009). Teacher participation in online communities: Why do teachers want to participate in self-generated online communities of k-12 teachers? *Journal of Research on Technology in Education, 41*(3), 279-303.

doi:10.1080/15391523.2009.10782532

Ikemoto, G., & Marsh, J. (2007). Cutting through the "data-driven" mantra: Different conceptions of data-driven decision making. *Yearbook of the National Society for the Study of Education (Wiley-Blackwell), 106*(1), 105-131. doi:10.1111/j.1744-7984.2007.00099.x

Inan, F., & Lowther, D. (2010). Factors affecting technology integration in K-12 classrooms: A path model. *Educational Technology Research and Development, 58*(2), 137-154. doi:10.1007/s11423-009-9132-y

Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2004 2004).

Ingram, D., Louis, K., & Schroeder, R. (2004). Accountability policies and teacher decision making: Barriers to the use of data to improve practice. *Teachers College Record, 106*(6), 1258–1287. doi:10.1111/j.1467-9620.2004.00379.x

Isbell, L. J., & Szabo, S. (2014). Understanding secondary teachers' concerns about rti: Purposeful professional communication. *Delta Kappa Gamma Bulletin, 80*(3), 11-23. doi:10.1111/0362-6784.00057

Jacobs, J., Gregory, A., Hoppey, D., & Yendol-Hoppey, D. (2009). Data literacy: Understanding teachers' data use in a context of accountability and response to intervention. *Action in Teacher Education, 31*(3), 41-55. doi:10.1080/01626620.2009.10463527

Jimerson, J. B. (2013). Thinking about data: Exploring the development of mental models for "data use" among teachers and school leaders. *Studies in Educational Evaluation*. doi:S0191491X13000540

Johanningmeier, E. V. (2010). A nation at risk and sputnik. *American Educational History Journal, 37*(1/2), 347-365. Retrieved from http://www.infoagepub.com/products/American-Educational-History-37

Johnson, E., Mellard, D., Fuchs, D., & McKnight, M. (2006). Responsiveness to intervention (RTI): How to do It. (RTI manual). doi:10.1177/0734282911428200

Johnson, E. S., Pool, J. L., & Carter, D. R. (2011). Lessons learned from a tiered service delivery implementation project. *Intervention in School and Clinic*. doi:1053451211423811

Kalberg, J. R., Lane, K. L., & Menzies, H. M. (2010). Using systematic screening procedures to identify students who are nonresponsive to primary prevention efforts: Integrating academic and behavioral measures. *Education & Treatment of Children, 33*(4), 561-584. doi:10.1353/etc.2010.0007

Kashima, Y., Schleich, B., & Spradlin, T. (2009). The Core Components of RTI: A Closer Look at Evidence-Based Core Curriculum, Assessment and Progress Monitoring, and Data-Based Decision Making. Special Report. *Center for Evaluation and Education Policy, Indiana University*, 1-12. Retrieved from http://www.indiana.edu/~ceep

Kazbour, R. R., McGee, H. M., Mooney, T., Masica, L., & Brinkerhoff, R. O. (2013). Evaluating the impact of a performance-based methodology on transfer of training. *Performance improvement quarterly, 26*(1), 5-33. doi:10.1002/piq.21135

Keller-Margulis, M. A. (2012). Fidelity of implementation framework: A critical need for response to intervention models. *Psychology in the Schools, 49*(4), 342-352.

doi:10.1002/pits.21602

Kelly, M. S., Bluestone-Miller, R., Mervis, B., & Fuerst, R. (2012). The family and school partnership program: a framework for professional development. *Children & Schools*, *34*(4), 249-252. doi:10.1093/cs/cds031

Kereluik, K., Mishra, P., Fahnoe, C., & Terry, L. (2013). What knowledge is of most worth: Teacher knowledge for 21st century learning. *Journal of Digital Learning in Teacher Education (International Society for Technology in Education), 29*(4), 127-140. doi:10.1080/21532974.2013.10784716

Kerr, K. A., Marsh, J. A., Ikemoto, G. S., Darilek, H., & Barney, H. (2006). Strategies to promote data use for instructional improvement: Actions, outcomes, and lessons from three urban districts. *American Journal of Education, 112*(4), 496-520. doi:10.1086/505057

Killion, J., & Crow, T. (2011). *Standards for professional learning* (1936630028). Retrieved from http://learningforward.org/standards

Kimmel, S. C. (2012). Collaboration as school reform: Are there patterns in the chaos of planning with teachers? *School Library Research., 1-15*. Retrieved from http://www.ala.org/aasl/slmr

Kise, J. (2012). Give teams a running start: Take steps to build shared vision, trust, and collaboration skills. *Journal of Staff Development*, *33*(3), 38-42. Retrieved from http://www.learningforward.org/publications/jsd/jsd-blog/jsd/2012/06/30/june-2012-vol.-33-no.-3

Klein, E., & Riordan, M. (2009). Putting professional development into practice: a

framework for how teachers in expeditionary learning schools implement professional development. *Teacher Education Quarterly, 36*(4), 61-80. Retrieved from http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ870215

Klinkenberg, S., Straatemeier, M., & Van der Maas, H. (2011). Computer adaptive practice of maths ability using a new item response model for on the fly ability and difficulty estimation. *Computers & Education, 57*(2), 1813-1824. doi:S0360131511000418

Kohler-Evans, P., Webster-Smith, A., & Albritton, S. (2013). Conversations for school personnel: A new pathway to school improvement. *Education, 134*(1), 19-24. Retrieved from http://www.projectinnovation.com/education.html

Koyama, J., & Kania, B. (2014). When transparency obscures: The political spectacle of accountability. *Journal for Critical Education Policy Studies (JCEPS), 12*(1), 143-169. Retrieved from http://www.jceps.com/

Laker, D., & Powell, J. (2011). The differences between hard and soft skills and their relative impact on training transfer. *Human Resource Development Quarterly, 22*(1), 111-122. doi:10.1002/hrdq.20063

Lange, C., Range, B., & Welsh, K. (2012). Conditions for effective data use to improve schools: Recommendations for school leaders. *International Journal of Educational Leadership Preparation, 7*(3), 1-11. Retrieved from http://files.eric.ed.gov/fulltext/EJ997478.pdf

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*.

N.Y.: Cambridge university press.

Leaman, L. H., & Flanagan, T. M. (2013). Authentic Role-playing as Situated Learning: Reframing teacher education methodology for higher-order thinking. *Studying Teacher Education: Journal of Self-Study of Teacher Education Practices, 9*(1), 45-61. doi:10.1080/17425964.2013.771573

Learning Forward. (2011). Standards for Professional Learning. *Journal of Staff Development, 32*(4), 41-44. Retrieved from http://learningforward.org/standards#.Vf9HnvlVhBc

Learning Point Associates. (2004). *Guide to using data in school improvement efforts: A compilation of knowledge from data retreats and data use at learning point associates*. Retrieved from Naperville, Ill: http://www.learningpt.org/pdfs/datause/guidebook.pdf

Leclerc, M., Moreau, A., Dumouchel, C., & Sallafranque-St-Louis, F. (2012). Factors that promote progression in schools functioning as professional learning community. *International Journal of Education Policy and Leadership, 7*(7), 1-14. Retrieved from http://www.ncpeapublications.org/

Levin, J. A., & Datnow, A. (2012). The principal role in data-driven decision making: Using case-study data to develop multi-mediator models of educational reform. *School Effectiveness and School Improvement, 23*(2), 179-201. doi:10.1080/09243453.2011.599394

Lieberman, A., & Rosenholtz, S. (1987). The road to school improvement: Barriers and bridges. In J. I. Goodlad & K. J. Rehage (Eds.), *The ecology of school renewal*

(pp. 79-88). Chicago, Ill.: National Society for the Study of Education.

Lin, Q., & Riesbeck, C. K. (2008). Human-in-the-loop: A feedback-driven model for authoring knowledge-based interactive learning environments. *Journal of Educational Computing Research, 38*(4), 469-509. doi:10.2190/EC.38.4.e

Little, J. W. (2012). Understanding data use practice among teachers: The contribution of micro-process studies. *American Journal of Education, 118*(2), 143-166. doi:10.1086/663271

Lodico, M., Spaulding, D., & Voegtle, K. (2010). *Methods in educational research: From theory to practice*. San Francisco, Calif.: Jossey-Bass.

Love, N. (2009). *Using data to improve learning for all: A collaborative inquiry approach*. Thousand Oaks, Calif: Corwin Press.

Love, N., Stiles, K., Mundry, S., & DiRanna, K. (2008). *The data coach's guide to improving learning for all students: Unleashing the power of collaborative inquiry*. Thousand Oaks, Calif: Corwin Press.

Luneta, K. (2012). Designing continuous professional development programmes for teachers: A literature review. *Africa Education Review, 9*(2), 360-379. doi:10.1080/18146627.2012.722395

Mandinach, E. (2012). A perfect time for data use: Using data-driven decision making to inform practice. *Educational Psychologist, 47*(2), 71-85. doi:10.1080/00461520.2012.667064

Mandinach, E., & Gummer, E. (2013a). Building educators' data literacy: Differing perspectives. *Journal of Educational Research & Policy Studies, 13*(2), 1-5.

Retrieved from http://www.aera.net/EducationResearch/BeyondAERA/JournalofEducationalResearchPolicyStudies/tabid/10869/Default.aspx.

Mandinach, E., & Gummer, E. (2013b). A systemic view of implementing data literacy in educator preparation. *Educational Researcher, 42*(1), 30-37. doi:10.3102/0013189x12459803

Mandinach, E., Gummer, E., & Muller, R. (2011). *The complexities of integrating data-driven decision making into professional preparation in schools of education: It's harder than you think.* Retrieved from Alexandria, Va.:

Mandinach, E., Honey, M., & Light, D. (2006). *A theoretical framework for data-driven decision making.* Paper presented at the Annual meeting of the American Educational Research Association, San Francisco.

Mandinach, E., Honey, M., Light, D., & Brunner, C. (2008). *Data-driven school improvement: Linking data and learning*. New York, N.Y.: Teachers College Press.

Mandinach, E., & Jackson, S. (2012). *Transforming teaching and learning through data-driven decision making*. Thousand Oaks, Calif: Corwin Press.

Mark, D. (2013). Academic Achievement Gap or Gap of Opportunities? *Urban Education, 48*(2), 335-343. doi:10.1177/0042085913476936

Marsh, J. A., & Farrell, C. C. (2014). How leaders can support teachers with data-driven decision making: A framework for understanding capacity building. *Educational Management Administration & Leadership*. doi:10.1177/1741143214537229

Marx, G. (2006). *Future-focused leadership: Preparing schools, students, and communities for tomorrow's realities*. Alexandria, Va: Association for Supervision and Curriculum Development.

McLaughlin, M. (1987). Learning from experience: Lessons from policy implementation. *Educational evaluation and policy analysis, 9*(2), 171-178. doi:10.3102/01623737009002171

McLaughlin, M., & Talbert, J. (2003). *Reforming districts: How districts support school reform*. Retrieved from Normal, Ill.:

McMaster, C. (2013). Building inclusion from the ground up: A review of whole school re-culturing programmes for sustaining inclusive change. *International Journal of Whole Schooling, 9*(2), 1-24. Retrieved from http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ1016788

Means, B., Chen, E., DeBarger, A., & Padilla, C. (2011). *Teachers' ability to use data to inform instruction: Challenges and supports.* Retrieved from http://eric.ed.gov/?id=ED516494

Means, B., Padilla, C., & Gallagher, L. (2010). *Use of education data at the local level: From accountability to instructional improvement*. Retrieved from

Meirink, J. A., Imants, J., Meijer, P. C., & Verloop, N. (2010). Teacher learning and collaboration in innovative teams. *Cambridge Journal of Education, 40*(2), 161-181. doi:10.1080/0305764X.2010.481256

Merriam, S. (1998). *Qualitative research and case study applications in education*. San Francisco, Calif.: Jossey-Bass

Merriam, S. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, Calif.: Jossey-Bass.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, Calif.: Sage.

Miller, C. L. (2010). Accountability policy implementation and the case of smaller school district capacity: Three contrasting cases that examine the flow and use of NCLB accountability data. *Leadership & Policy in Schools, 9*(4), 384-420. doi:10.1080/15700760903342350

Mistretta, R. M. (2012). 3 Steps, 1 Goal: Teacher teams boost math instruction using 3-part learning design. *Journal of Staff Development, 33*(6), 60-63. Retrieved from http://www.learningforward.org/publications/jsd/jsd-blog/jsd/2012/12/05/december-2012-vol.-33-no.-6

Moller, S., Mickelson, R. A., Stearns, E., Banerjee, N., & Bottia, M. C. (2013). Collective pedagogical teacher culture and mathematics achievement: Differences by race, ethnicity, and socioeconomic status. *Sociology of Education, 86*(2), 174-194. doi:10.1177/0038040712472911

Morrison, C. D. (2014). From 'sage on the stage' to 'guide on the side': A good start. *International Journal for the Scholarship of Teaching & Learning, 8*(1), 1-15. Retrieved from http://digitalcommons.georgiasouthern.edu/ij-sotl/

Moss, P. A. (2012). Exploring the macro-micro dynamic in data use practice. *American Journal of Education, 118*(2), 223-232. doi:10.1086/663274

Moss, P. A. (2013). Validity in action: Lessons from studies of data use. *Journal of*

Educational Measurement, 50(1), 91-98. doi:10.1111/jedm.12003

Murray, J. (2014). Critical issues facing school leaders concerning data-informed decision-making. *Professional Educator, 38*(1), 14-22. doi:10.1080/13632434.2013.773882

National Center on Response to Intervention. (2010). *Essential components of RtI– a closer look at response to intervention*. Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Center on Response to Intervention. Retrieved from http://www.rti4success.org/sites/default/files/rtiessentialcomponents_042710.pdf.

National Commission on Excellence in Education. (1983). *A Nation at Risk: The Imperative for Educational Reform*. Washington, DC: National Commission on Excellence in Education. Retrieved from http://www.ed.gov/pubs/NatAtRisk/index.html.

Nellis, L. M. (2012). Maximizing the effectiveness of building teams in response to intervention implementation. *Psychology in the Schools, 49*(3), 245-256. doi:10.1002/pits.21594

Nelson, T. H., Deuel, A., Slavit, D., & Kennedy, A. (2010). Leading Deep Conversations in Collaborative Inquiry Groups. *Clearing House, 83*(5), 175-179. doi:10.1080/00098650903505498

Nishimura, T. (2014). Effective professional development of teachers: a guide to actualizing inclusive schooling. *International Journal of Whole Schooling, 10*(1), 19-42. doi:retrieved from

http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ1016781

No Child Left Behind (NCLB) Act of 2001, 20 U.S.C, Pub. L. No. 107-110 § 115, 1425 Stat. (2002).

Owen, S. (2014). Teacher professional learning communities: Going beyond contrived collegiality toward challenging debate and collegial learning and professional growth. *Australian Journal of Adult Learning, 54*(2), 54-77. Retrieved from http://www.ajal.net.au/

Park, V., Daly, A. J., & Guerra, A. W. (2013). Strategic framing: How leaders craft the meaning of data use for equity and learning. *Educational Policy, 27*(4), 645-675. doi:10.1177/0895904811429295

Partnership for 21st century skills. (n.d.). *The intellectual and policy foundations of the 21st century skills framework*. Retrieved from http://route21.p21.org/images/stories/epapers/skills_foundations_final.pdf

Perkins, A., & Engelhard, G. (2011). Talking back to data: Comments on a framework for data use. *Measurement, 9*(4), 211-216. doi:10.1080/15366367.2011.632334

Phu, V., Vien, C., Lan, V., & Cepero, J. (2014). Factors driving learner success in online professional development. *International Review of Research in Open & Distance Learning, 15*(3), 120-139. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/1714/2907?

Piety, P. (2013). *Assessing the educational data movement*. New York, N.Y.: Teachers College Press.

Prasse, D., Breunlin, J., Giroux, D., Hunt, J., Morrison, D., & Thier, K. (2012).

Embedding multi-tiered system of supports/response to intervention into teacher preparation. *Learning Disabilities: A Contemporary Journal, 10*(2), 75-93. Retrieved from http://www.ldworldwide.org/clinicians/learning-disabilities-a-contemporary-journal

Preston, J., Jakubiec, B., & Kooymans, R. (2013). Common challenges faced by rural principals: A review of the literature. *Rural Educator, 35*(1), 1-12. Retrieved from http://files.eric.ed.gov/fulltext/EJ1022612.pdf

Prytula, M., Hellste, L., & McIntyre, L. (2010). Perceptions of teacher planning time: An epistemological challenge. *Current Issues in Education, 14*(1). doi:10.1016/j.tate.2008.09.018

Purcell, K., Heaps, A., Buchanan, J., & Friedrich, L. (2013). How teachers are using technology at home and in their classrooms. *Washington, DC: Pew Research Center's Internet & American Life Project*. doi:Retrieved from http://pewinternet.org/Reports/2013/Teachers-and-technology

Pyle, A., Wade-Woolley, L., & Hutchinson, N. L. (2011). "Just listen to us": The Role of Teacher Empowerment in the Implementation of Responsiveness to Intervention. *Alberta Journal of Educational Research, 57*(3), 258-272. Retrieved from http://ajer.synergiesprairies.ca/ajer/index.php/ajer/article/view/915.

Ravitch, D. (2010). *The death and life of the great American school system: How testing and choice are undermining education*. New York, N.Y.: Basic Books.

Robinson, G. G., Bursuck, W. D., & Sinclair, K. D. (2013). Implementing RTI in two rural elementary schools: Encouraging beginnings and challenges for the future.

Rural Educator, 34(3), 1-9. Retrieved from http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ1014132

Rojas-LeBouef, A., & Slate, J. (2011). The achievement gap between white and non-white students: A conceptual analysis. *International Journal of Educational Leadership Preparation, 6*(4). Retrieved from http://eric.ed.gov/?id=EJ974337

Rose, L. T., & Fischer, K. W. (2011). Garbage in, garbage out: having useful data is everything. *Measurement: Interdisciplinary Research and Perspectives, 9*(4), 222-226. doi:10.1080/15366367.2011.632338

Rowley, R., & Wright, D. W. (2011). No "white" child left behind: The academic achievement gap between black and white students. *Journal of Negro Education, 80*(2), 93-107. doi:10.2307/41341113

Saks, A., Salas, E., & Lewis, P. (2014). "The transfer of training". *International Journal of Training & Development, 18*, 81-83. doi:10.1111/ijtd.12032

Saks, A. M., & Burke-Smalley, L. A. (2014). Is transfer of training related to firm performance? *International Journal of Training & Development, 18*(2), 104-115. doi:10.1111/ijtd.12029

Saks, A. M., & Burke, L. A. (2012). An investigation into the relationship between training evaluation and the transfer of training. *International Journal of Training & Development, 16*(2), 118-127. doi:10.1111/j.1468-2419.2011.00397.x

Schaffhauser, D. (2011). Swimming with data. *T.H.E. Journal, 38*(8), 32-34. Retrieved from http://thejournal.com/research/2011/09/digital-edition_september.aspx

Schaffhauser, D. (2012). Closing the gap. *T.H.E. Journal, 39*(9), 10-16. Retrieved from

http://thejournal.com/research/2012/11/magazine_november.aspx

Schlechty, P. (2009). *Leading for learning: How to transform schools into learning organizations*. San Francisco, Calif.: Jossey-Bass.

Schwanenberger, M., & Ahearn, C. (2013). Teacher perceptions of the impact of the data team process on core instructional practices. *International Journal of Educational Leadership Preparation, 8*(2), 146-162. Retrieved from http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ1016262

Selwyn, N. (2011). Making sense of young people, education and digital technology: the role of sociological theory. *Oxford Review of Education, 38*(1), 81-96. doi:10.1080/03054985.2011.577949

Senge, P. (1990). *The fifth discipline: The art and practice of the learning organization*. New York, N.Y.: Doubleday/Currency.

Seo, K., & Han, Y.-K. (2013). Online teacher collaboration: A case study of voluntary collaboration in a teacher-created online community. *KEDI Journal of Educational Policy*, *10*(2), 221-242. doi:Retrieved from http://eng.kedi.re.kr/

Shaha, S., & Ellsworth, H. (2013). Predictors of success for professional development: Linking student achievement to school and educator successes through on-demand, online professional learning *Journal of Instructional Psychology*, *40*(1-4), 19-26. Retrieved from http://www.projectinnovation.biz/index.html

Shen, J., Cooley, V. E., Ma, X., Reeves, P. L., Burt, W. L., Rainey, J. M., & Yuan, W. (2012). Data-informed decision making on high-impact strategies: Developing and validating an instrument for principals. *Journal of Experimental Education*,

80(1), 1-25. doi:10.1080/00220973.2010.550338

Shymansky, J., Annetta, L., Yore, L. D., Wang, T.-L., & Everett, S. (2013). The Impact of a Multiyear Systemic Reform Effort on Rural Elementary School Students' Science Achievement. *School Science & Mathematics, 113*(2), 69-79. doi:10.1111/ssm.12002

Sinnema, C., Sewell, A., & Milligan, A. (2011). Evidence-informed collaborative inquiry for improving teaching and learning. *Asia-Pacific Journal of Teacher Education, 39*(3), 247-261. doi:10.1080/1359866x.2011.597050

Slonski-Fowler, K., & Truscott, S. (2004). General education teachers' perceptions of the prereferral intervention team process. *Journal of Educational and Psychological Consultation, 15*(1), 1-39. doi:10.1207/s1532768xjepc1501_1

Snoek, M. (2013). From splendid isolation to crossed boundaries? The futures of teacher education in the light of activity theory. *Teacher Development, 17*(3), 307-321. doi:10.1080/13664530.2013.813758

Spear-Swerling, L., & Cheesman, E. (2012). Teachers' knowledge base for implementing response-to-intervention models in reading. *Reading & Writing, 25*(7), 1691-1723. doi:10.1007/s11145-011-9338-3

Spillane, J. (2012a). Data in practice: Conceptualizing the data-based decision-making phenomena. *American Journal of Education, 118*(2), 113-141. doi:10.1086/663283

Spillane, J. (2012b). *Distributed leadership* (Vol. 4). San Francisco, Calif.: John Wiley & Sons.

Spillane, J., Diamond, J., Burch, P., Hallett, T., Jita, L., & Zoltners, J. (2002). Managing in the middle: School leaders and the enactment of accountability policy. *Educational Policy, 16*(5), 731-762. doi:10.1177/089590402237311

Stanley, A. (2011). Professional development within collaborative teacher study groups: Pitfalls and promises. *Arts Education Policy Review, 112*(2), 71-78. doi:10.1080/10632913.2011.546692

Steeves, K., Bernhardt, P., Burns, J., & Lombard, M. (2009). Transforming american educational identity after sputnik. *American Educational History Journal, 36*(1/2), 71-87. Retrieved from http://www.infoagepub.com/products/journals/aehj/index.html

Stewart, C. (2014). Transforming professional development to professional learning. *MPAEA Journal of Adult Education, 43*(1), 28-33. Retrieved from https://www.mpaea.org/?page=publications

Supovitz, J. A., & Tognatta, N. (2013). The impact of distributed leadership on collaborative team decision making. *Leadership & Policy in Schools, 12*(2), 101-121. doi:10.1080/15700763.2013.810274

Torff, B. (2014). Folk belief theory, the rigor gap, and tehe achievement gap. *The Educational Forum, 78*(2), 174-189. doi:10.1080/00131725.2013.878424

Tucker, S. Y. (2014). Transforming pedagogies: Integrating 21st century skills and web 2.0 technology. *Turkish Online Journal of Distance Education (TOJDE), 15*(1), 166-173. Retrieved from http://tojde.anadolu.edu.tr

Underwood, J. (2009). The impact of digital technology: A review of the evidence of the

impact of digital technologies on formal education. Retrieved from http://dera.ioe.ac.uk/10491/3/A9RF934_Redacted.pdf

Vahey, P., Rafanan, K., Patton, C., Swan, K., Hooft, M., Kratcoski, A., & Stanford, T. (2012). A cross-disciplinary approach to teaching data literacy and proportionality. *Educational Studies in Mathematics, 81*(2), 179-205. doi:10.1007/s10649-012-9392-z

Van 't Hooft, M., Vahey, P., Swan, K., Kratcoski, A., & Cook, D. (2012). A cross-curricular approach to the development of data literacy in the middle-grades: The thinking with data project. *Middle Grades Research Journal, 7*(3), 19-33. Retrieved from http://www.infoagepub.com/

Vanhoof, J., Verhaeghe, G., Verhaeghe, J. P., Valcke, M., & Van Petegem, P. (2011). The influence of competences and support on school performance feedback use. *Educational Studies (03055698), 37*(2), 141-154. doi:10.1080/03055698.2010.482771

Vanneman, A., Hamilton, L., Anderson, J. B., & Rahman, T. (2009). *Achievement gaps: How black and white students in public schools perform in mathematics and reading on the national assessment of educational progress. Statistical analysis report*. Retrieved from Washington, DC: http://nces.ed.gov/nationsreportcard/studies/gaps/

Virginia Department of Education. (2013). *Virginia tiered system of supports (VTSS): A guide for school divisions*. Retrieved from http://www.doe.virginia.gov/instruction/virginia_tiered_system_supports/resource

s/vtss_guide.pdf.

Virginia Department of Education. (2014). Accountability terminology. Retrieved from http://www.doe.virginia.gov/statistics_reports/school_report_card/accountability_terminology.pdf.

Vrasidas, C., & Solomou, M. (2013). Using educational design research methods to examine the affordances of online games for teacher learning. *Educational Media International, 50*(3), 192-205. doi:10.1080/09523987.2013.839151

Wagner, T. (2008). *The global achievement gap: Why even our best schools don't teach the new survival skills our children need and what we can do about it.* New York, N.Y.: Basic Books.

Wagner, T., & Compton, R. (2012). *Creating innovators: The making of young people who will change the world*. New York, N.Y.: Scribner.

Waterman, R. (1987). *The renewal factor: How the best get and keep the competitive edge.* New York, N.Y.: Bantam Books.

Wayman, J., Cho, V., Jimerson, J. B., & Spikes, D. (2012). District-wide effects on data use in the classroom. *Education Policy Analysis Archives, 20*(25). Retrieved from http://dide.minedu.gob.pe/xmlui/handle/123456789/1444

Wayman, J., & Stringfield, S. (2006a). Data use for school improvement: School practices and research perspectives. *American Journal of Education, 112*(4), 463-468. doi:10.1086/505055

Wayman, J., & Stringfield, S. (2006b). Technology-supported involvement of entire faculties in examination of student data for instructional improvement. *American*

Journal of Education, 112(4), 549-571. doi:10.1086/505059

Weigand, H.-G. (2014). Looking back and ahead—didactical implications for the use of digital technologies in the next decade. *Teaching Mathematics & its Applications, 33*(1), 3-15. doi:10.1093/teamat/hru006

Werts, M. G., & Carpenter, E. S. (2013). Implementation of tasks in RTI: Perceptions of special education teachers. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children, 36*(3), 247-257. doi:10.1177/0888406413495420

Wise, S., Greenwood, J., & Davis, N. (2011). Teachers' use of digital technology in secondary music education: illustrations of changing classrooms. *British Journal of Music Education, 28*(02), 117-134. doi:10.1017/S0265051711000039

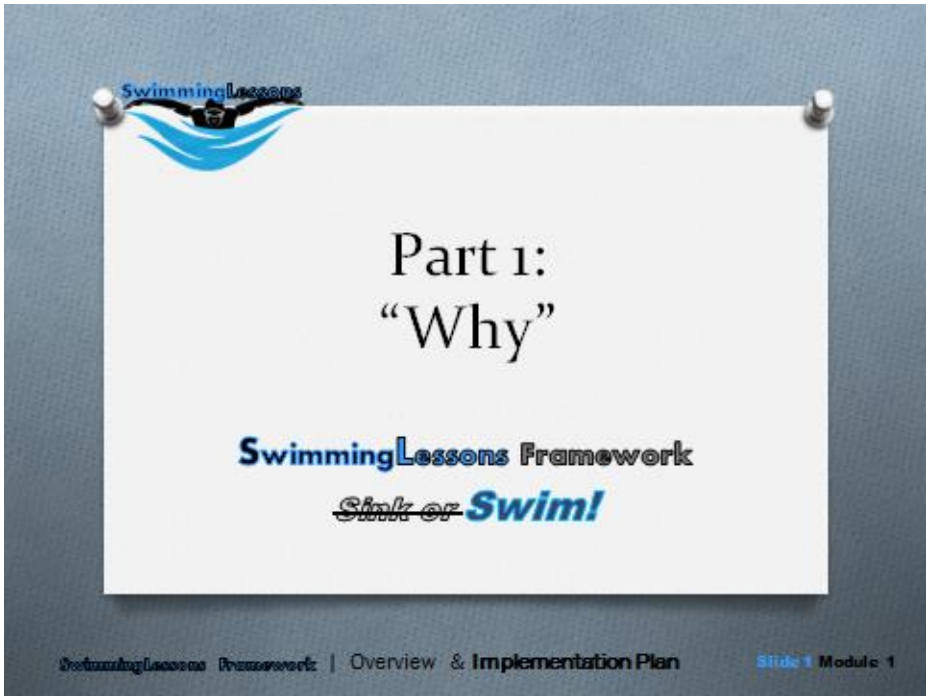
Wright, P. (2010). *2010-2011 Application for Response to Intervention (RtI) Cohort*. Virginia Department of Education. Retrieved from http://www.doe.virginia.gov/administrators/superintendents_memos/2010/207-10.shtml

Yin, R. (2014). *Case study research: Design and methods*. Thousand Oaks, Calif.: SAGE Publications.

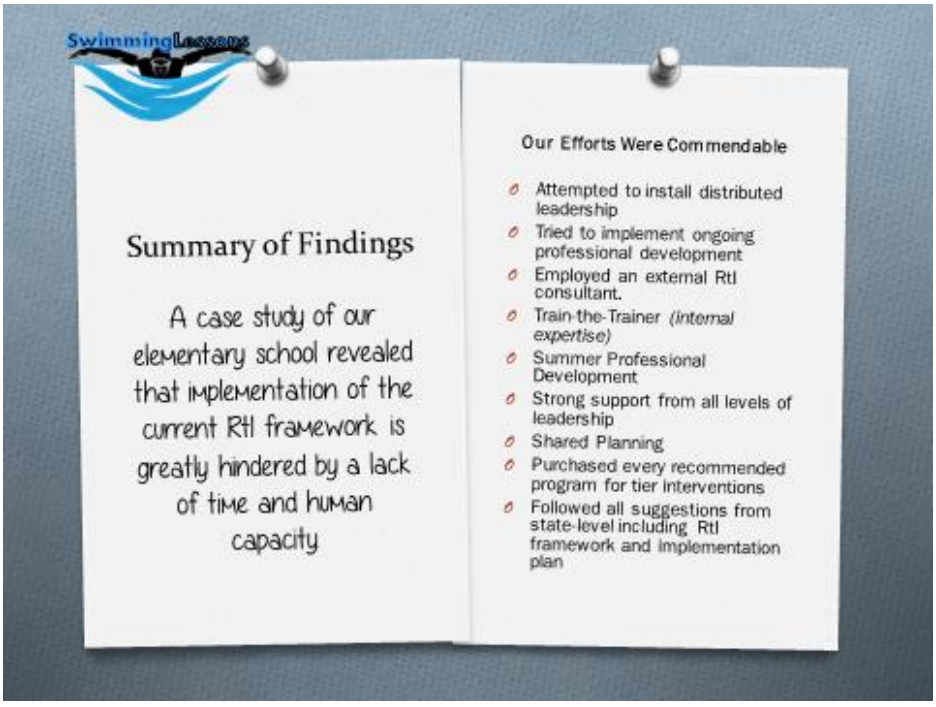
Zepeda, S. (2014). *Job-embedded professional development: Support, collaboration, and learning in schools*. N.Y.: Routledge.

Appendix A: Presentation of SwimmingLessons Framework

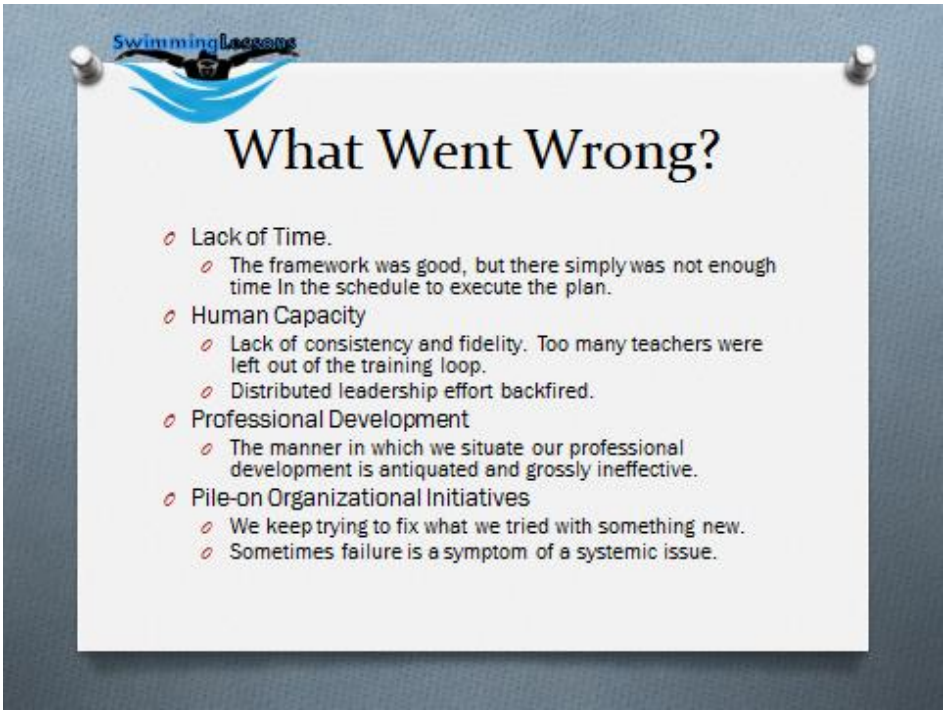
Slide 1



Slide 2



Slide 3



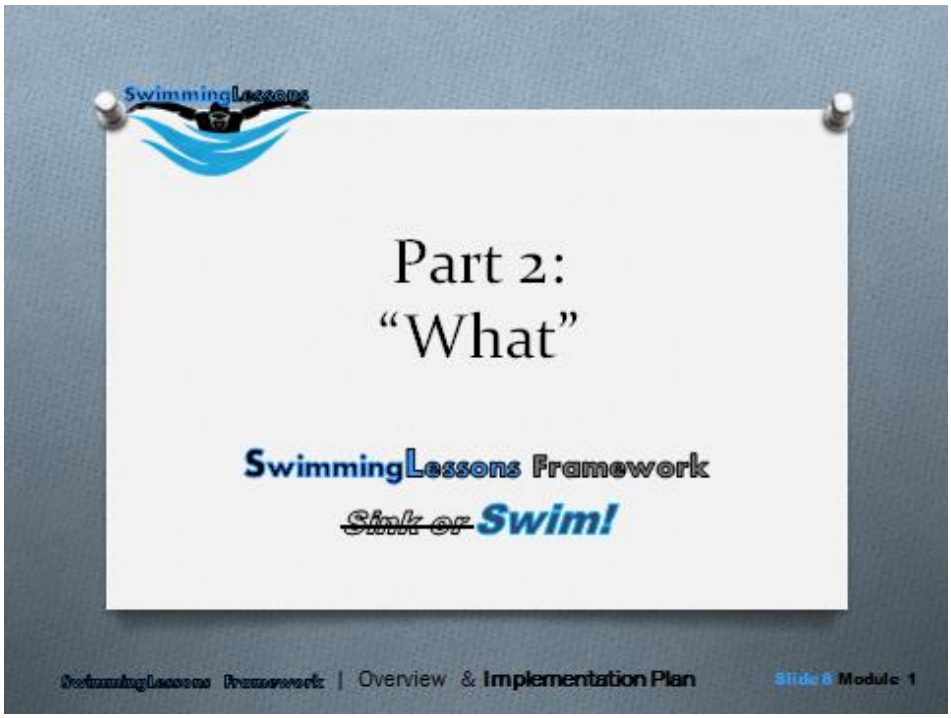
Slide 4

Slide 5

Slide 6

Slide 7

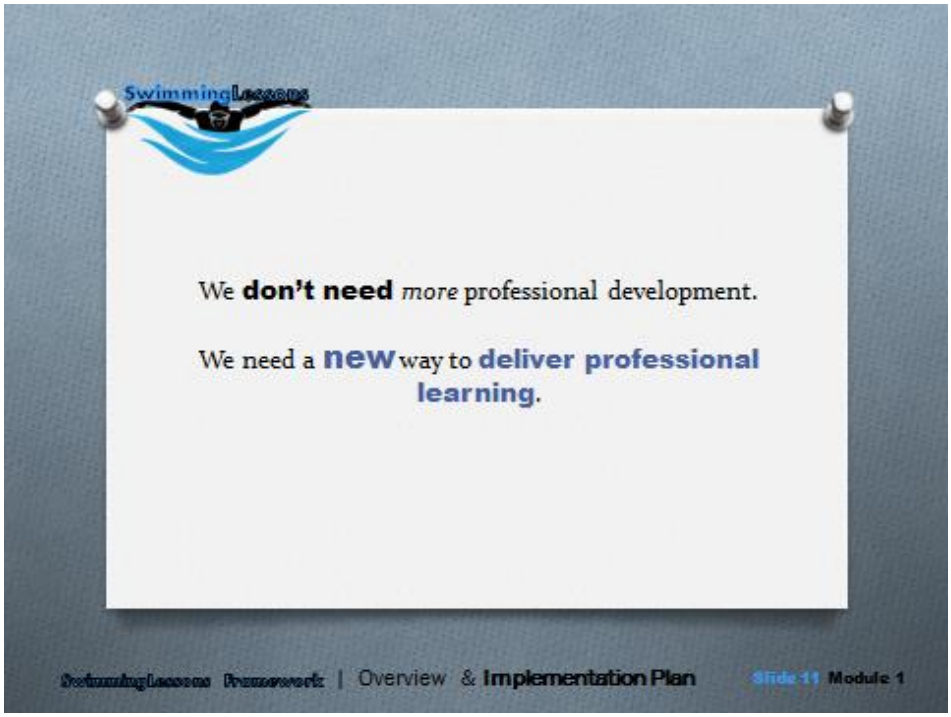
Slide 8



Slide 9

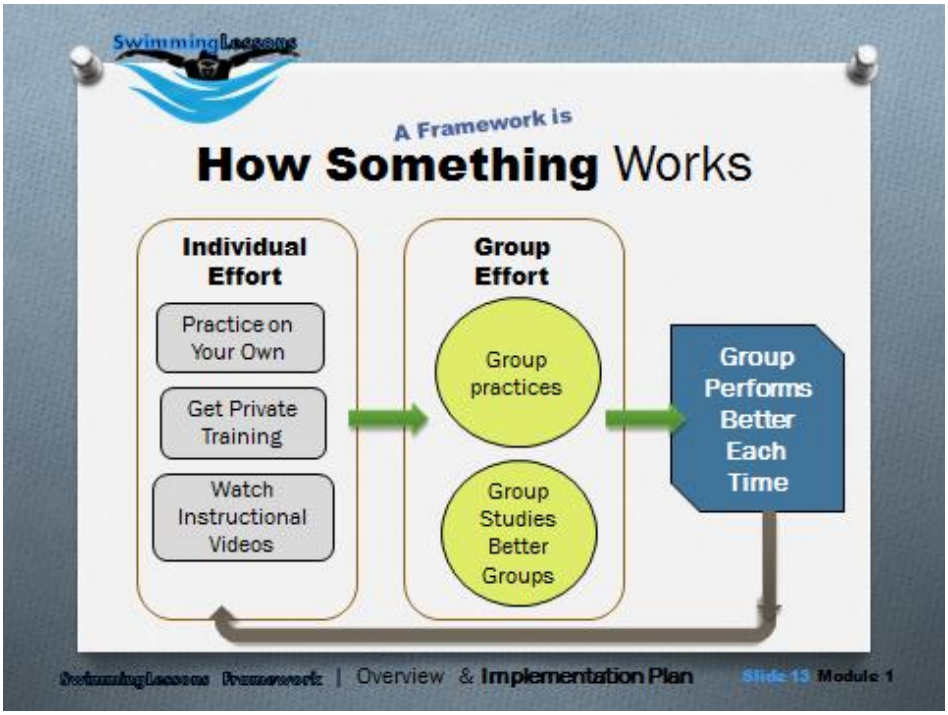
Slide 10

Slide 11

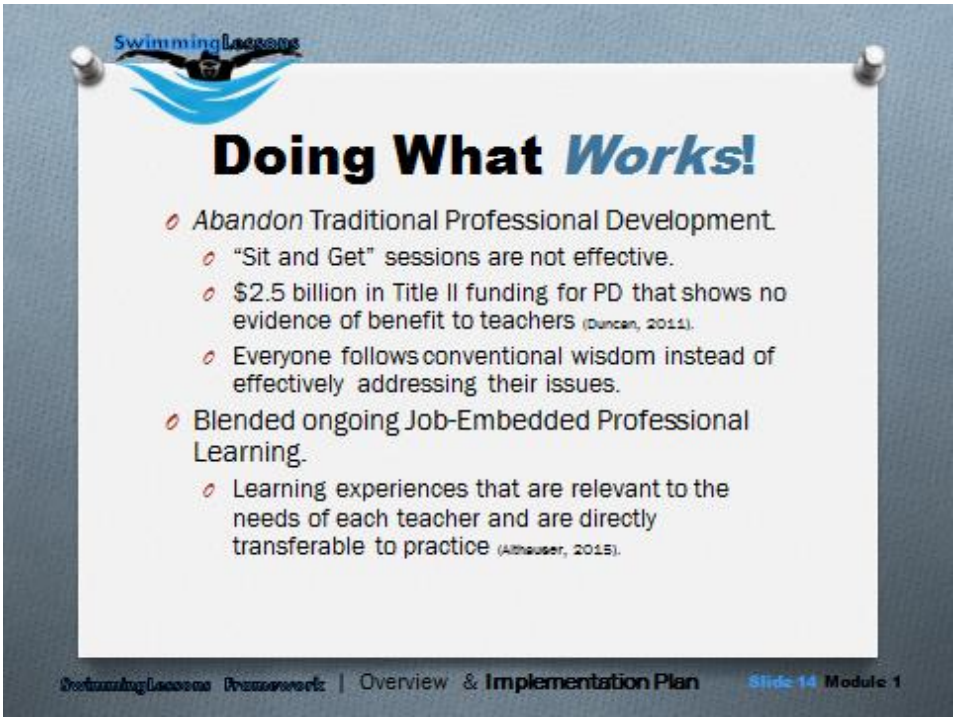


Slide 12

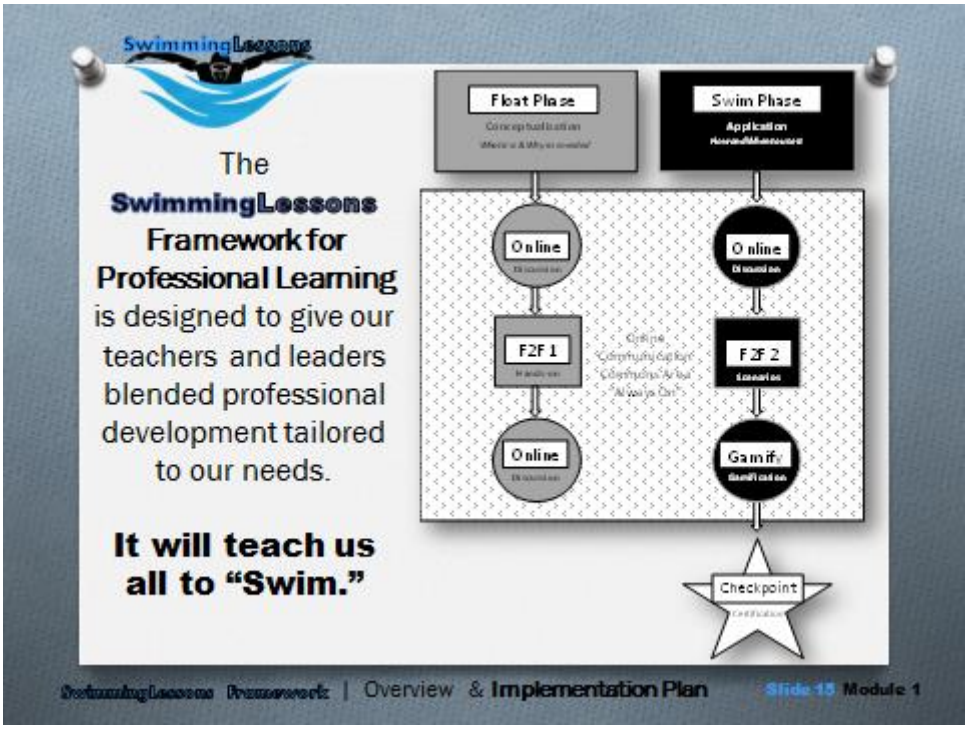
Slide 13



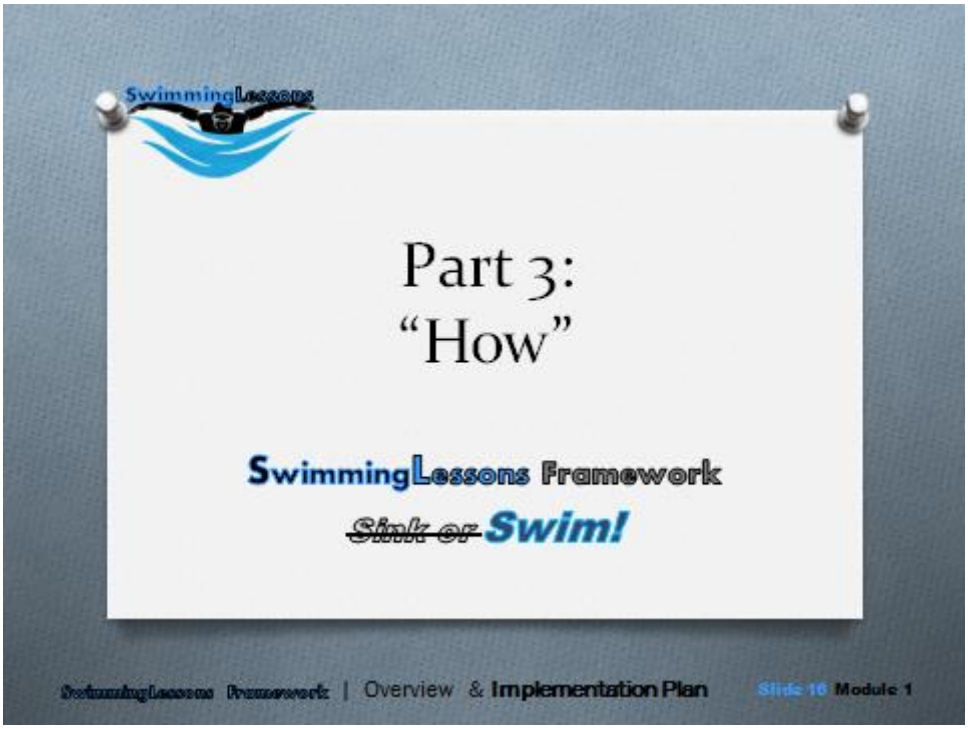
Slide 14



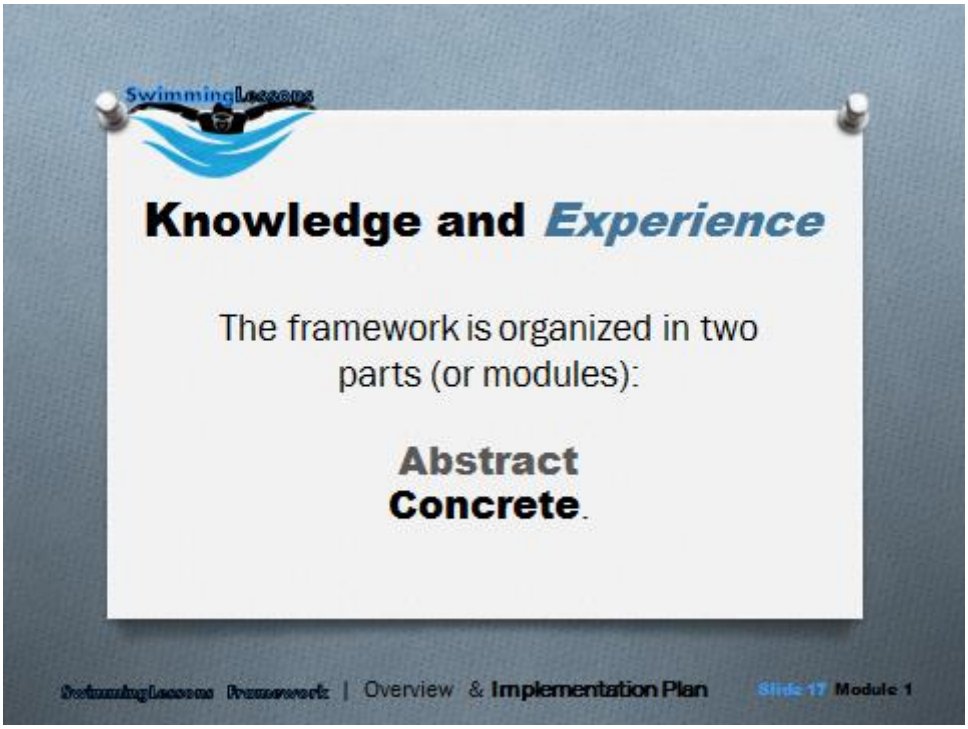
Slide 15



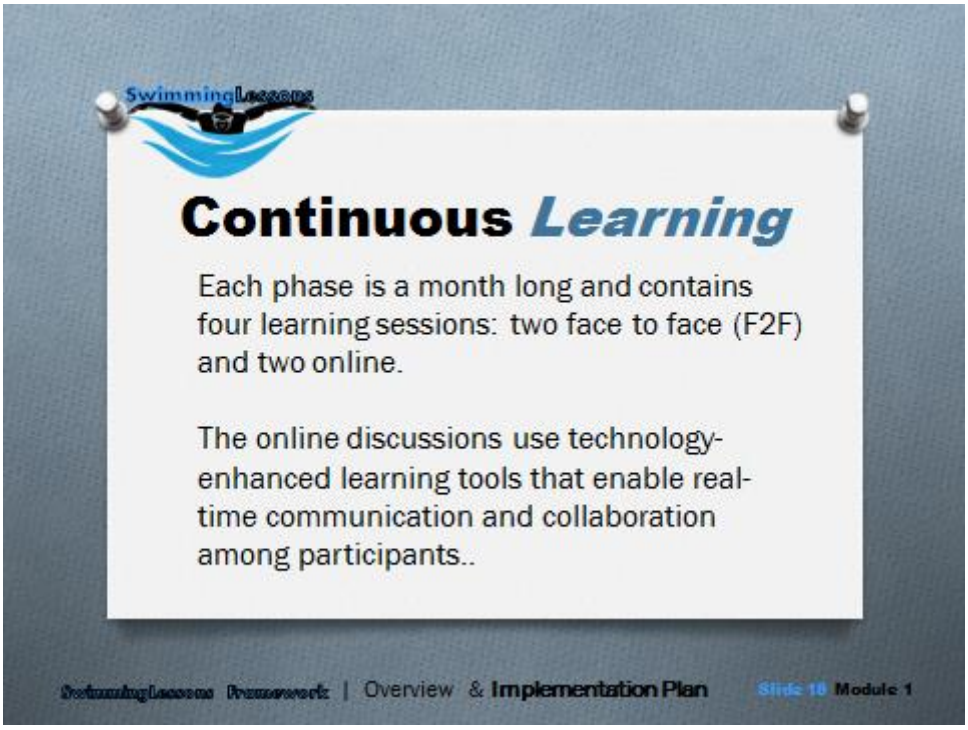
Slide 16



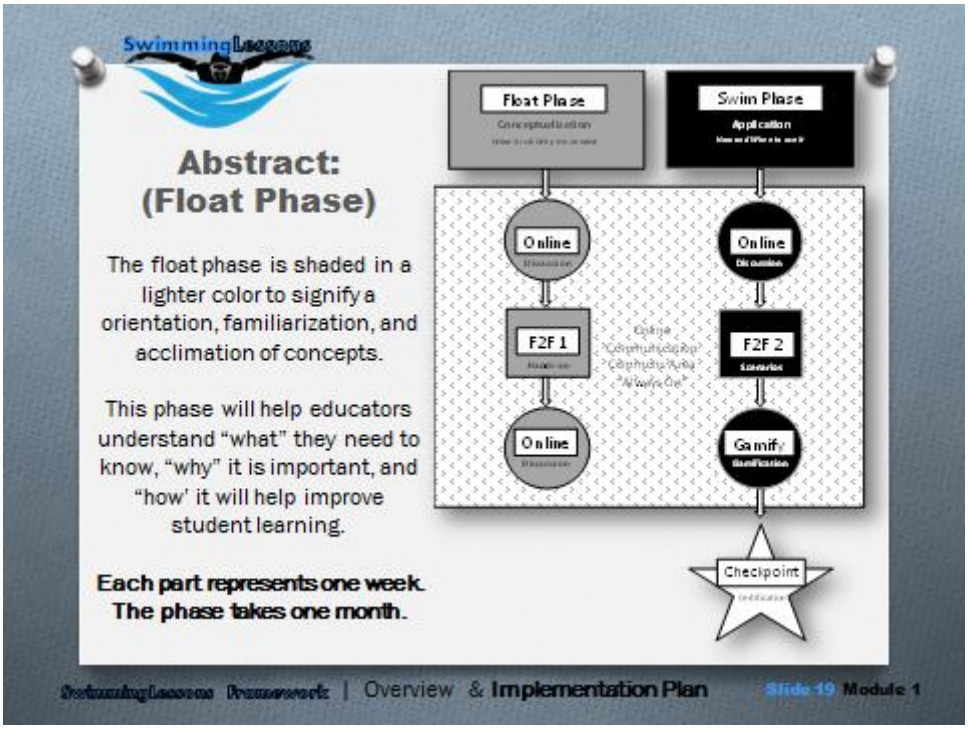
Slide 17



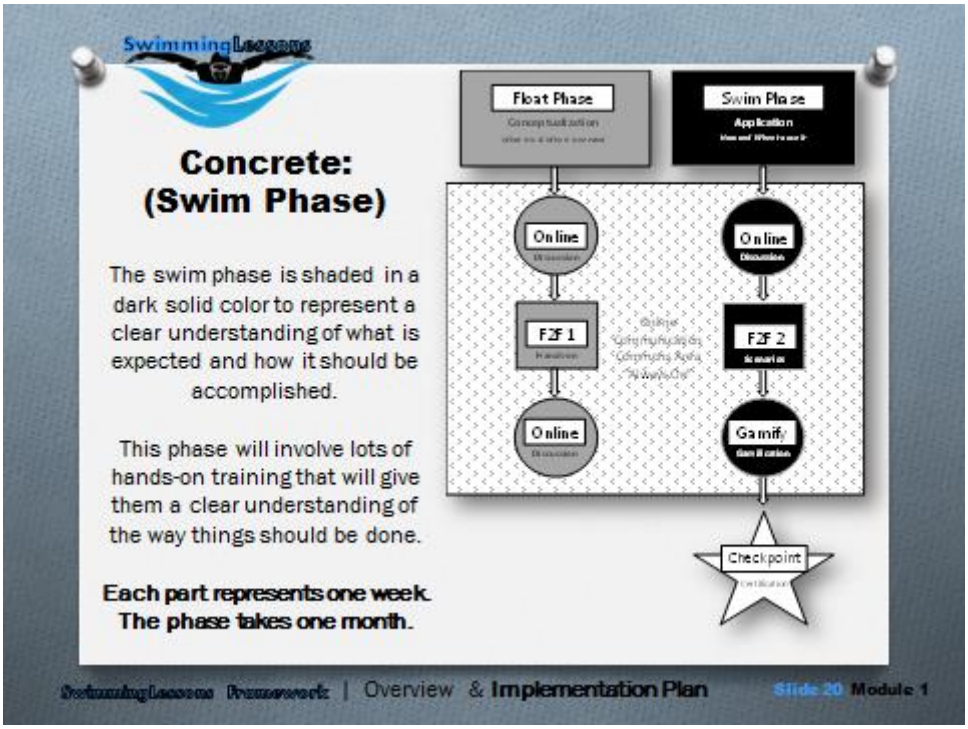
Slide 18



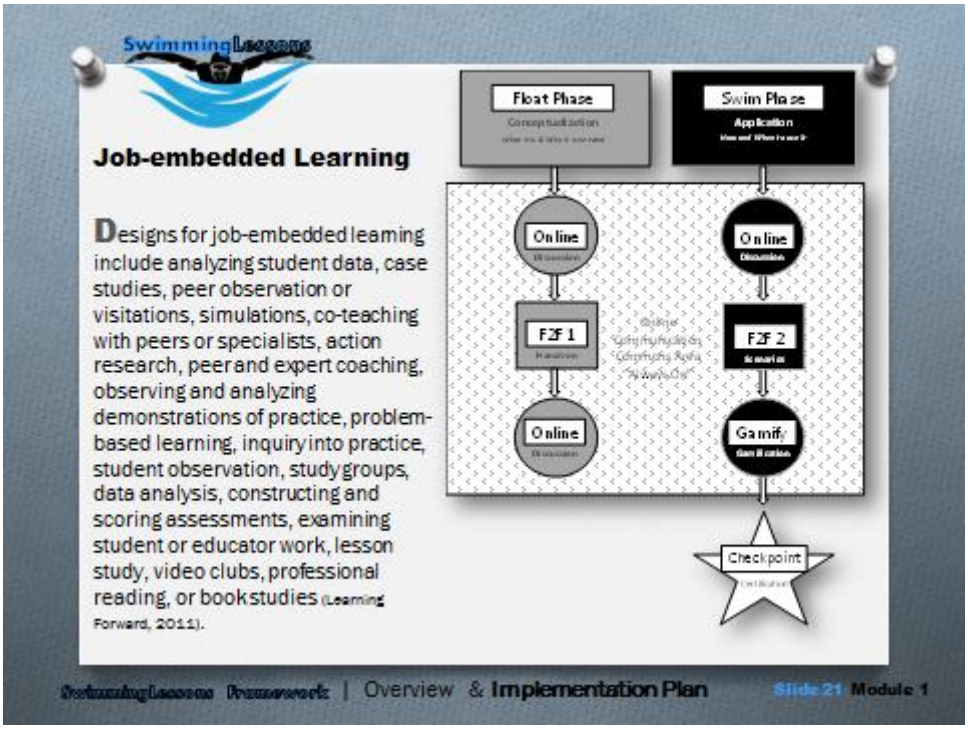
Slide 19



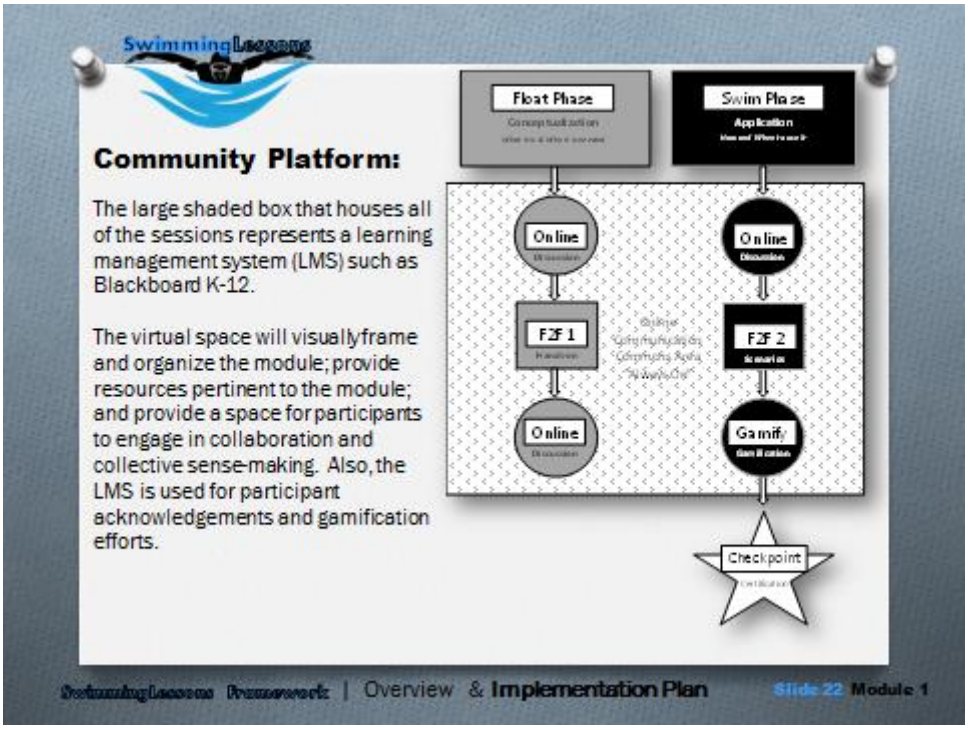
Slide 20



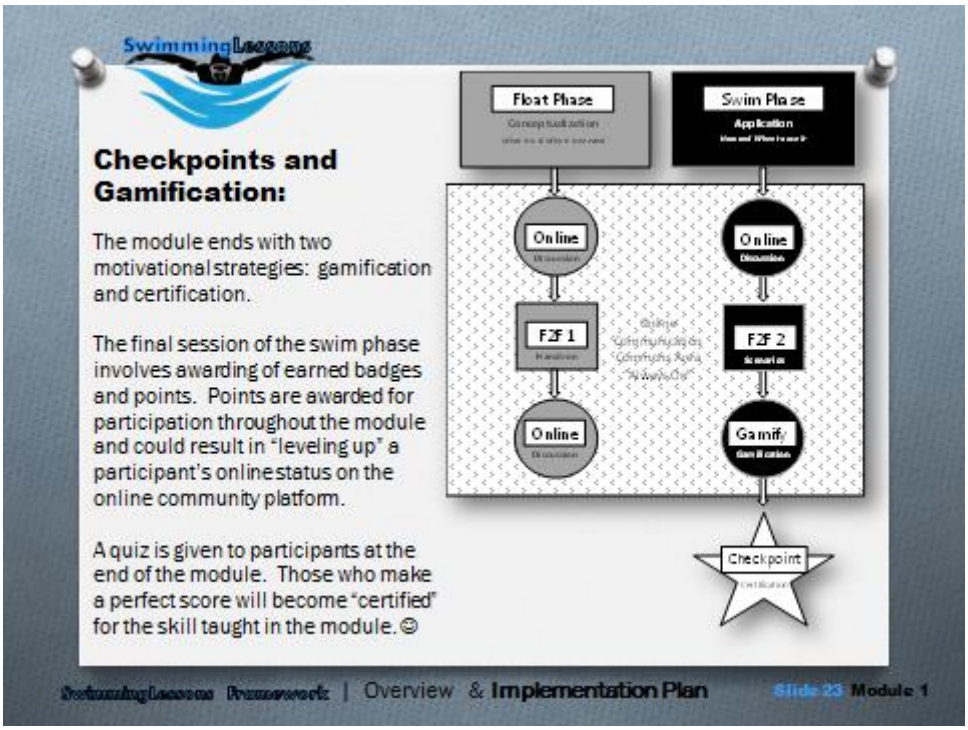
Slide 21



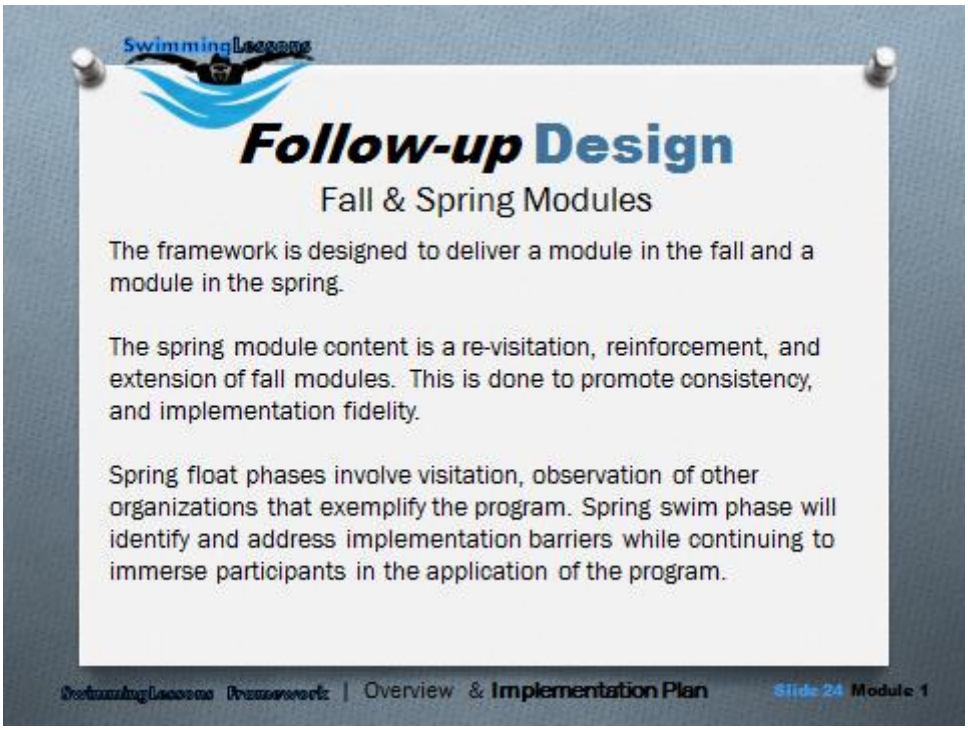
Slide 22



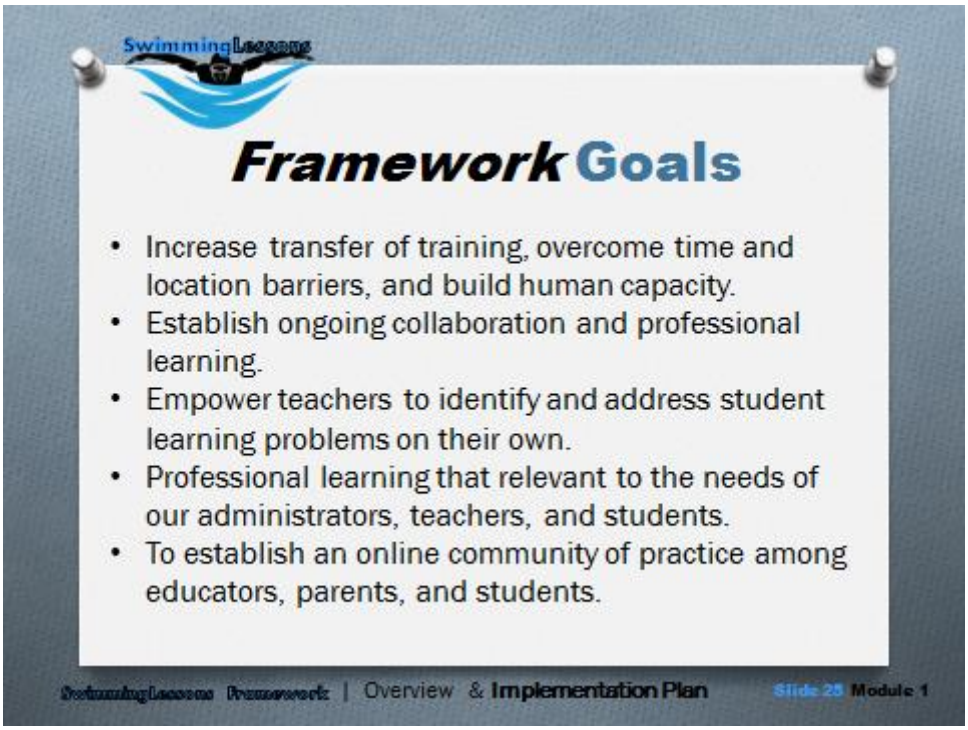
Slide 23



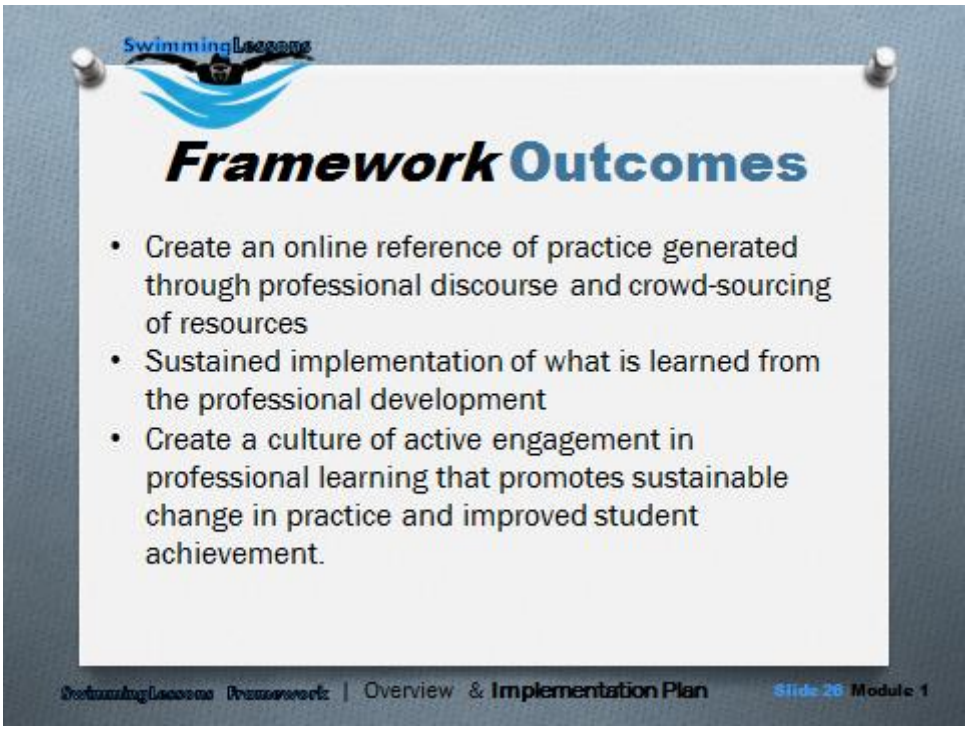
Slide 24



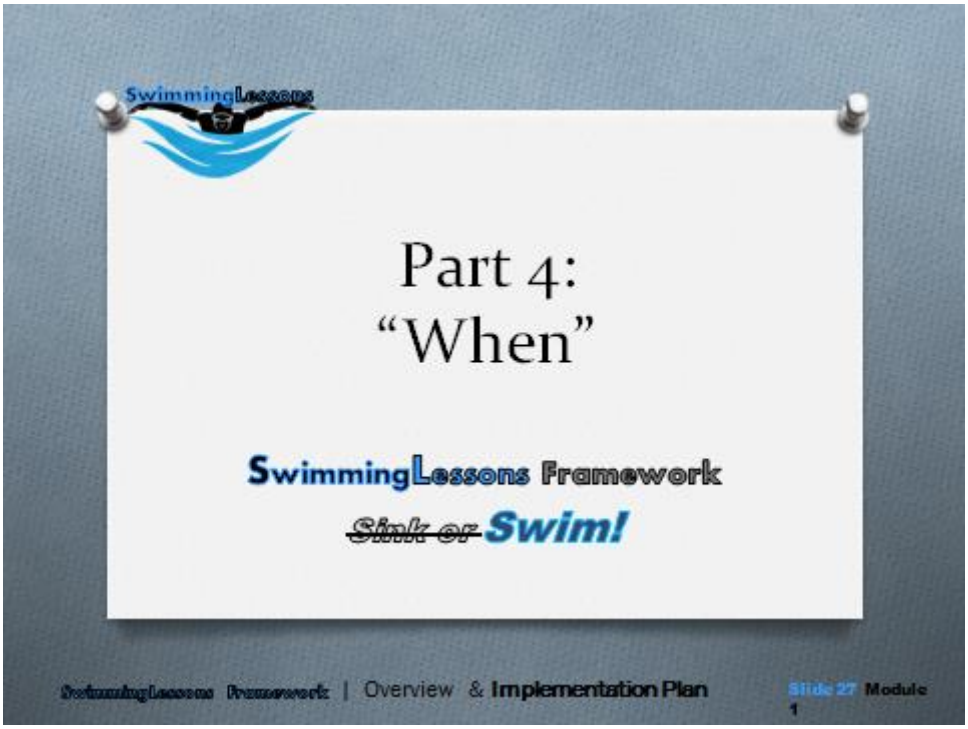
Slide 25



Slide 26

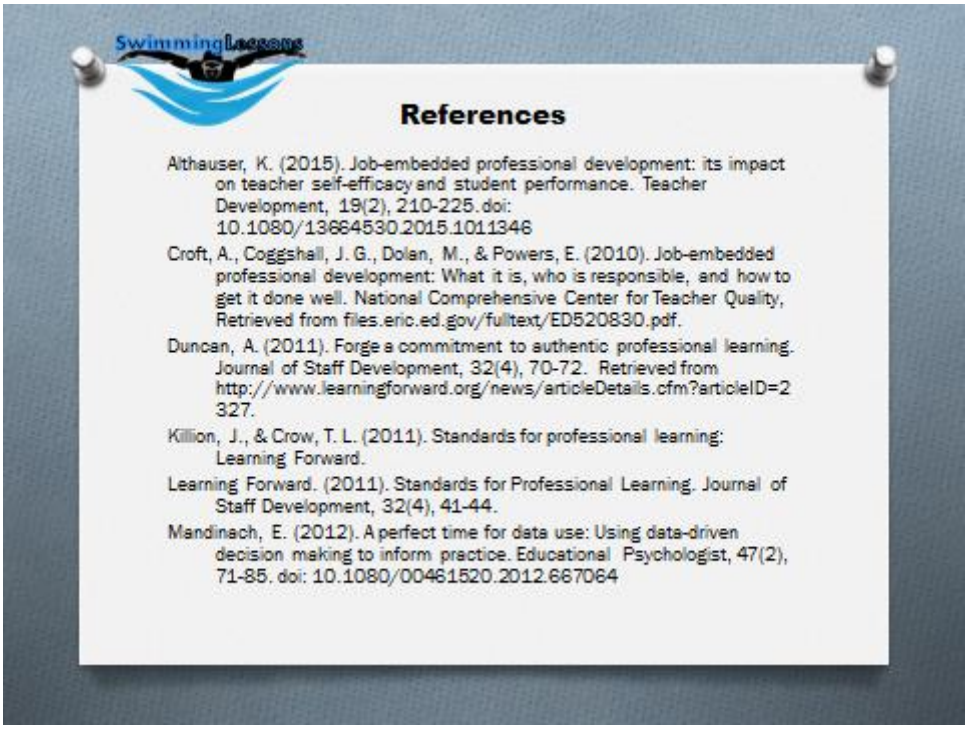


Slide 27



Slide 28

Slide 29


SwimmingLessons
References
Althauser, K. (2015). Job-embedded professional development: its impact on teacher self-efficacy and student performance. Teacher Development, 19(2), 210-225. doi: 10.1080/13664530.2015.1011346
Croft, A., Coggshall, J. G., Dolan, M., & Powers, E. (2010). Job-embedded professional development: What it is, who is responsible, and how to get it done well. National Comprehensive Center for Teacher Quality, Retrieved from files.eric.ed.gov/fulltext/ED520830.pdf.
Duncan, A. (2011). Forge a commitment to authentic professional learning. Journal of Staff Development, 32(4), 70-72. Retrieved from http://www.learningforward.org/news/articleDetails.cfm?articleID=2327.
Killion, J., & Crow, T. L. (2011). Standards for professional learning: Learning Forward.
Learning Forward. (2011). Standards for Professional Learning. Journal of Staff Development, 32(4), 41-44.
Mandinach, E. (2012). A perfect time for data use: Using data-driven decision making to inform practice. Educational Psychologist, 47(2), 71-85. doi: 10.1080/00461520.2012.667064

Appendix B: Planning for 2014-2015 PowerPoint

Plan for Addressing Achievement Gaps

Slide 1

SOL Data

SUBJECT	# Fail	Raw %	Estimated Adj 1 %	Estimated Adj 2%
Reading 3	44	54%	55%	59%
Reading 4	22	77%	77%	78%
Reading 5	29	63%	67%	68%
RCE Reading	**95**	**65%**	**68%**	**68%**
Math 3	40	58%	60%	64%
Math 4	17	82%	82%	83%
Math 5	25	69%	71%	73%
RCE Math	**82**	**70%**	**71%**	**74%**
Science 3	28	71%	71%	71%
Science 5	35	56%	59%	59%
RCE Science	**63**	**64%**	**66%**	**66%**
History 3	20	78%	79%	79%
VA Studies	3	96%	97%	97%
RCE History	**23**	**88%**	**88%**	**88%**
Reading 6	17	82%	86%	87%
Reading 7	14	84%	84%	84%
Reading 8	23	69%	70%	70%
RCI Reading	**54**	**79%**	**81%**	**81%**
Math 6	16	81%	81%	81%
Math 7	14	84%	84%	84%
Math 8	8	81%	81%	81%
Alg I	0	100%	100%	100%
Geometry	0	100%	100%	100%
RCI Math	**38**	**86%**	**86%**	**86%**

Slide 2

Subgroups- SPED and Eco Dis

SUBJECT	# Test Takers	# Fail	Raw %	Estimated Adj 1 %
Reading 3	16	14	13%	13%
Reading 4	17	13	24%	25%
Reading 5	12	10	17%	20%
RCE Reading	**45**	**37**	**18%**	**20%**
Math 3	16	12	25%	27%
Math 4	18	12	33%	33%
Math 5	12	10	17%	18%
RCE Math	**46**	**34**	**28%**	**27%**
Reading 6	12	7	42%	45%
Reading 7	11	2	82%	82%
Reading 8	10	8	20%	20%
RCI Reading	**33**	**17**	**48%**	**50%**
Math 6	11	5	55%	50%
Math 7	12	6	50%	50%
Math 8	9	2	78%	78%
Alg I	1	0	100%	100%
RCI Math	**33**	**13**	**61%**	**61%**

SUBJECT	# Fail	Raw %	Estimated Adj 1 %
Reading 3	33	44%	46%
Reading 4	17	69%	70%
Reading 5	20	57%	60%
RCE Reading	**70**	**68%**	**68%**
Math 3	30	49%	51%
Math 4	14	75%	75%
Math 5	18	63%	64%
RCE Math	**62**	**62%**	**63%**
Reading 6	11	76%	77%
Reading 7	8	82%	82%
Reading 8	17	54%	54%
RCI Reading	**38**	**72%**	**72%**
Math 6	13	68%	72%
Math 7	10	79%	79%
Math 8	8	72%	72%
Alg I	0	100%	100%
Geometry	0	100%	100%
RCI Math	**31**	**76%**	**76%**

Slide 3

AMOs- Reading

Group	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
All Students	85	66	69	72	--	
Gap Group 1	76	52	59	64	--	
Gap Group 2	76	49	57	64	--	
Gap Group 3	80	53	60	66	--	
SWD	59	30	42	54	--	
LEP	76	44	52	61	--	
Eco Disadv.	76	52	59	65	--	
White	90	74	75	76	--	
Asian	92	80	Continuous Progress			

Gap Group 1: SWD, Eco Dis, and LEP
Gap Group 2: Black; Gap Group 3: Hispanic

Slide 4

AMOs- Math

Group	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
All Students	61	64	66	68	--	--
Gap Group 1	47	52	57	63	--	
Gap Group 2	45	51	56	62	--	
Gap Group 3	52	56	60	65	--	
SWD	33	41	49	57	--	
LEP	39	46	53	59	--	
Eco Disadv.	47	52	57	63	--	
White	68	69	70	71	--	
Asian	82	Continuous Progress				

Gap Group 1: SWD, Eco Dis, and LEP
Gap Group 2: Black; Gap Group 3: Hispanic

Slide 5

State Accreditation Cut Percentages

- English- 75 percent
- Math- 70 percent
- Science- 70 percent
- History- 70 percent

- Can use the three year average to meet these goals

Slide 6

School Improvement

Priority/Focus	Did Not Meet AMOs
• Focus: Lowest 10 percent of schools in GG 1, 2, 3; must employ a school improvement coach • Priority: Lowest 5 percent of schools in all students; must implement a three-year plan	• Did not meet the state goals for reading/math in the following subgroups: SWD, LEP, Economically Disadvantaged, White or Asian; must develop a school improvement plan using Indistar

Slide 7

Assessment Calendar Changes

- Fountas and Pinnell (F&P) will be given to all students in the spring only. Students reading below expectations and new students will be given F&P in the fall and spring
- Testing team will administer IA benchmarks, allowing teachers time to plan/discuss other data
- Classroom teachers will administer PALs; testing team will act as substitutes and cover classes
- K-2 classroom teachers will give a locally developed math assessment three times per year; training on this will occur during Number/Number Sense in August, and in the fall for those who miss that
- Running Records are to be given monthly and data collected; any appropriate teacher selected text at the student's instructional level may be used
- A fall testing meeting will be held to discuss logistics and to go over how to administer various assessments

Slide 8

I/E

- 1-3 will use likely use Leveled Literacy Interventions (LLI) during I/E time for Tier II students
- 4th Grade will teach VA Studies in a shortened time block to add additional math intervention time
- 4th Grade will use paraprofessional help to watch regular class while teachers work with identified students
- Special education students need to be a part of intervention if they are not. Need to look closely at their schedules

Slide 9

Intervention

- A new paraprofessional will be hired for the centers
- A new reading intervention teacher has been hired

Intervention Meetings

- Students discussed will be those Tier III students whose plan's date range has expired. Assessment will be made to continue or change program
- Planning on intervention meetings in late October, 2nd week in December, 2nd week each month Jan through June

Slide 10

Intervention Plans

- Lois is developing a reading intervention plan for use next year.
- Plans for all Tier III students will be due in mid-October. A teacher will be coordinating the development of plans and collecting them.
- All service providers should be involved in developing the intervention plan.
- A teacher will watch a classroom teacher's class each day from 3:05 to 3:40 to assist with developing intervention plans.
- Tier II students will participate in a "standard protocol" and will have progress assessed each month at grade level meetings.

Appendix C: Interview Protocol

1. How long have you been a participant in the RTI process in this school?
    a. Probe: What has been your role(s) in the process?
2. Why do you think RTI is being implemented in this school?
    a. Probe: How do you feel about the decision to implement RTI?
3. How would you explain the purpose and goals of RTI?
4. How would you describe the RTI implementation process in this particular school?
    a. Probe: How effective is this school in using RTI to achieve the intended purpose and goals that you've described? What would make it even better?
5. Explain how a teacher can use data to improve a student's learning?
    a. How does your school's RTI process improve student learning?
6. Describe the steps your data team takes to problem solve in this school.
    a. Probe: How do you feel about the work accomplished in the RTI data team meetings?
7. How does the RTI data team use data to guide decisions about student learning?
    a. What kinds of interventions are used in each Tier?
8. What are some things that you think helps RTI and the RTI data teams work?
9. What are some barriers that you think prevent RTI and the RTI data teams from working?
10. Describe ways in which your RTI team meetings are collaborative.
    a. How are decisions made about interventions and student learning?
    b. What is the basis for most of these decisions?
    c. Who makes determinations about whether a student moves up or down in tiers?

11. How effective are the RTI problem-solving teams at finding ways to help low-performing students improve?

    a. Describe what steps are taken to help students progress out of Tier 2 and Tier 3?

    b. What are some Tier 1 interventions that prevent students from moving into higher tiers?

12. What has been done to prepare teachers to use data to improve student learning?

    a. How do you feel about your own ability to use data to inform decisions?

13. What needs to happen to close achievement gaps and exceed AMO targets?

    a. How will your RTI problem-solving data team accomplish this goal?

14. What are improvements that need to be made to the current RTI process?

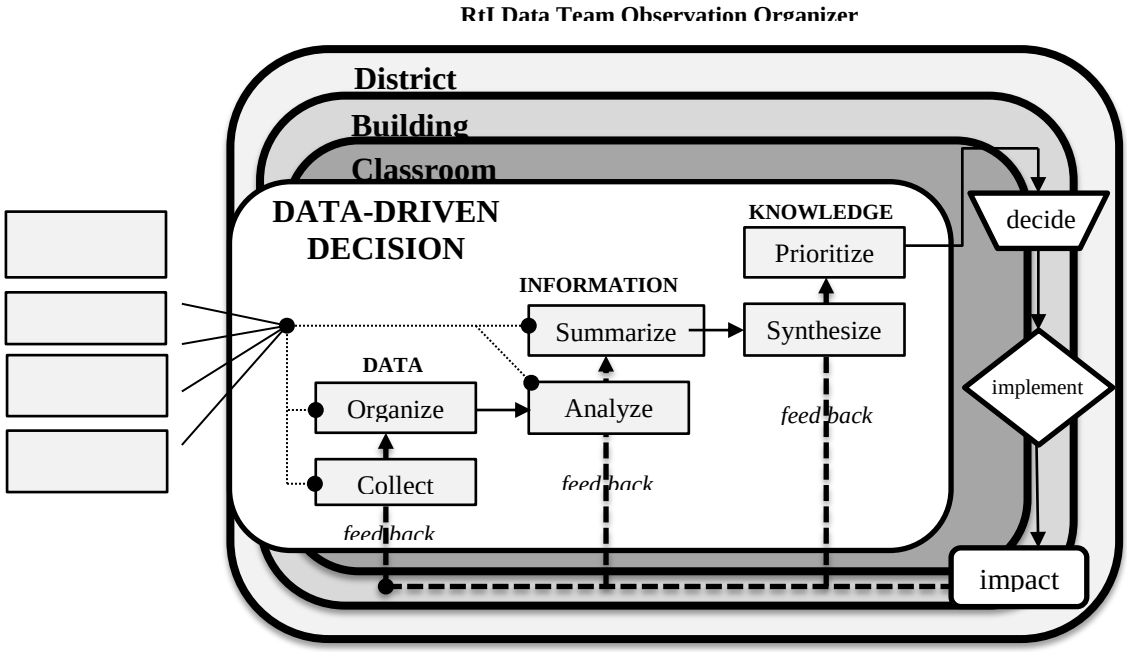
15. How is RTI improving teaching and learning in this school?

16. What changes would you make to the RTI process if you were the final decision maker?

    a. Probe: How much of that wish list is actually possible?

    b. Probe: What would need to be done to make those things happen?

Appendix D: Observation Protocol



Data Team Observed: K 1 2 3 4 5 Duration of meeting:
Data Sources:

Level of Data Work:

Evidence of **Data** level

Evidence of **Information** level

Evidence of **Knowledge** level

Evidence of **Collaborative Inquiry**:

Appendix E: Letter of Participation

Letter of Cooperation from the District's Superintendent

[redacted] Public Schools
[redacted]

January 20, 2015

Dear William Washington,

Based on my review of your research proposal, I give permission for you to conduct the study entitled Teacher and Administrator Perceptions of RtI Data Teams: How Data is used to Improve Student Learning within the elementary school located in our school district. As part of this study, I authorize you to conduct interviews, observations, reviews of documentation, member checking, and disseminate results in final report form. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include providing a room for interviews, permitting observations of meetings, and authorization to review documentation pertinent to RtI implementation. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,
[redacted]
Superintendent, [redacted] Public Schools

Walden University policy on electronic signatures: An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically. Electronic signatures are regulated by the Uniform Electronic Transactions Act. Electronic signatures are only valid when the signer is either (a) the sender of the email, or (b) copied on the email containing the signed document. Legally an "electronic signature" can be the person's typed name, their email address, or any other identifying marker. Walden University staff verify any electronic signatures that do not originate from a password-protected source (i.e., an email address officially on file with Walden).

Appendix F: Alignment Organizer

Project Study Organizer | W.Washington

Title: Teacher and Administrator Perceptions of RTI Data Teams: How Data is used to Improve Student Learning

Problem:
RTI data teams, formed to comply with a state initiative to address achievement gaps have not produced expected student gains after 4 years of implementation.

Purpose:
The purpose of this qualitative case study is to investigate how RTI data teams use data to improve student learning and close achievement gaps within the school being studied.

Overarching Question:
How are the RTI data teams using data to improve student learning and close achievement gaps within the school being studied?

Research Questions:

1. How do educators within the RTI data teams use data to inform their instructional decision-making?

2. How is the RTI process used to assist low-performing and at-risk students in the school being studied?

3. What are affordances and barriers to establishing effective RTI problem-solving data teams within the school being studied?

Data Collection Methods:

Research Question Alignment with Data Analysis Sources and Reporting Procedures

Research questions (RQ)	Data Source	Data analysis reporting
RQ1: How do RtI data team members use data to inform their instructional decision-making?	Interviews, observations, review of documentation	Qualitative narrative summary
RQ2: How is the RtI process used to assist low-performing and at-risk students in the school being studied?	Interviews, observations, review of documentation	Qualitative narrative summary
RQ3: What are affordances and barriers to establishing effective RtI problem-solving data teams within the school being studied	Interviews, observations, review of documentation	Qualitative narrative summary

Appendix G: Sample of Informed Consent Agreement

CONSENT FORM

You are invited to take part in a research study of the implementation of response to intervention (Rt) problem-solving data teams. The researcher is inviting educators who have participated in response to intervention data team meetings from 2010 to the present to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named William Washington, who is a doctoral student at Walden University. You may already know the researcher as a fellow colleague within your school, but this study is separate from that role.

Background Information:

The purpose of this study is to investigate how RTI data teams use data to improve student learning and close achievement gaps within the school under study.

Procedures:

If you agree to be in this study, you will be asked to:

- Participate in a face-to-face interview (approx. 40 mins).
- Look over the transcript of your interview(s) to ensure accuracy.
- Avoid disclosure of details of your interview discussion to avoid bias from other participants

Here are some sample questions:

1. What kind of work is done by the RTI problem-solving data teams in this school?
2. How well does the RTI data team use data to guide decisions about student learning?
3. What are some factors that are barriers to the RTI process?

Voluntary Nature of the Study:

This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one in your school division will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as discussion regarding frustrations and stressors related to school improvement efforts within your school. Being in this study would not pose risk to your safety or wellbeing.

The knowledge gained from this study may inform future professional development, curriculum planning, and policies that impact RTI implementation and student learning in your school.

Payment:

Your participation in the research study is voluntary and there is no compensation for participants.

Privacy:

Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Interview responses and transcripts will be stored in a secured location by William Washington. However, the data will be held in confidence to the extent permitted by law.

Contacts and Questions:

If you have any questions about this study, you may contact the principal investigator, William Washington, at drwresearchdata@gmail.com. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott at 612-312-1210. She is the Walden University representative who can discuss this with you. The doctoral committee has reviewed and approved this study. The Walden University Institutional Review Board approval number for this study is 04-30-15-0316567 and it expires April 29, 216.

Ideal Candidates for this study:

Educators who have participated in the RTI teams for two or more years will be considered for participation. Voluntary participants must have at least 2 years of full time employment within the school under study. In the event there are multiple respondents from the same grade level, the educators with the most experience with the process will be chosen.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. I understand that I am agreeing to the terms described above.

To protect your privacy, no consent signature is requested. Instead, your assent by return e-mail will indicate your consent if you choose to participate. By replying to this email with the words 'I Consent' I am indicating my consent to participate in the study. Please feel free to keep/print a copy of this consent letter. If you have any questions, please contact me at the secure confidential email that has been created for this study: drwresearchdata@gmail.com

With Respect,
William Washington
drwresearchdata@gmail.com

2015.04.30
14:26:23
-05'00'

Appendix H: Permission to Use Framework Figure 1

Gmail by Google

William Washington <william.washington@waldenu.edu>

Permission to use Framework Figure in Doctoral Study

William Washington <william.washington@waldenu.edu> Sun, Feb 1, 2015 at 1:37 PM
To: emandin@wested.org

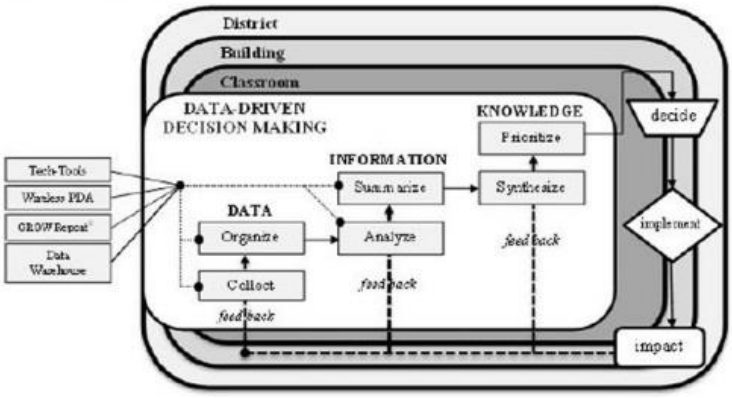
Dr. Ellen Mandinach,

I hope this message finds you well.
Note: This email will be put into the appendix of my doctoral study.

I am submitting a final draft of my doctoral study proposal and I am hoping to receive your permission to use an adaptation of an image from your book.

I have redrawn your framework for data driven decision making below and have placed it into my literature review along with the proper citation to your work.

Is it OK for me to include this into my proposal and final report?



With Respect,

William Washington

Gmail by Google

William Washington <william.washington@waldenu.edu>

Permission to use Framework Figure in Doctoral Study

Ellen Mandinach <emandin@wested.org> Sun, Feb 1, 2015 at 1:52 PM
To: William Washington <william.washington@waldenu.edu>

Of course and good luck.

Ellen
WestEd
202 674-9300
Sorry about typos
Sent from my iPhone
[Quoted text hidden]
> <Mandinach.jpg>
>
>
> With Respect,
>
> William Washington
>

Appendix I: Permission to Use Framework Figure 2

William Washington <william.washington@waldenu.edu>

RE: RTI Center » Contact Us

Response to Intervention at AIR <rticenter@air.org> Mon, Feb 2, 2015 at 2:22 PM
To: William Washington <william.washington@waldenu.edu>, Response to Intervention at AIR <rticenter@air.org>

Hi William,

All of the materials developed by the National Center on Response to Intervention and Center on Response to Intervention at American Institutes for Research are freely available for use and we would be happy for you to include in your doctoral work. While inclusion of these materials is encouraged, we ask that you cite our resources when used or adapted.

Thank you,
Center on RTI at AIR

-----Original Message-----
From: rticenter@air.org [mailto:rticenter@air.org] On Behalf Of William Washington
Sent: Sunday, February 01, 2015 6:40 PM
To: Response to Intervention at AIR
Subject: RTI Center » Contact Us

Submitted on Sunday, February 1, 2015 - 18:39 Submitted by anonymous user: 72.82.111.174 Submitted values are:

Your Name: William Washington
Your e-mail: william.washington@waldenu.edu
Subject: Permission to use Framework Figure
Message:
Hello,
I hope this message finds you well.
Note: This email will be put into the appendix of my doctoral study.

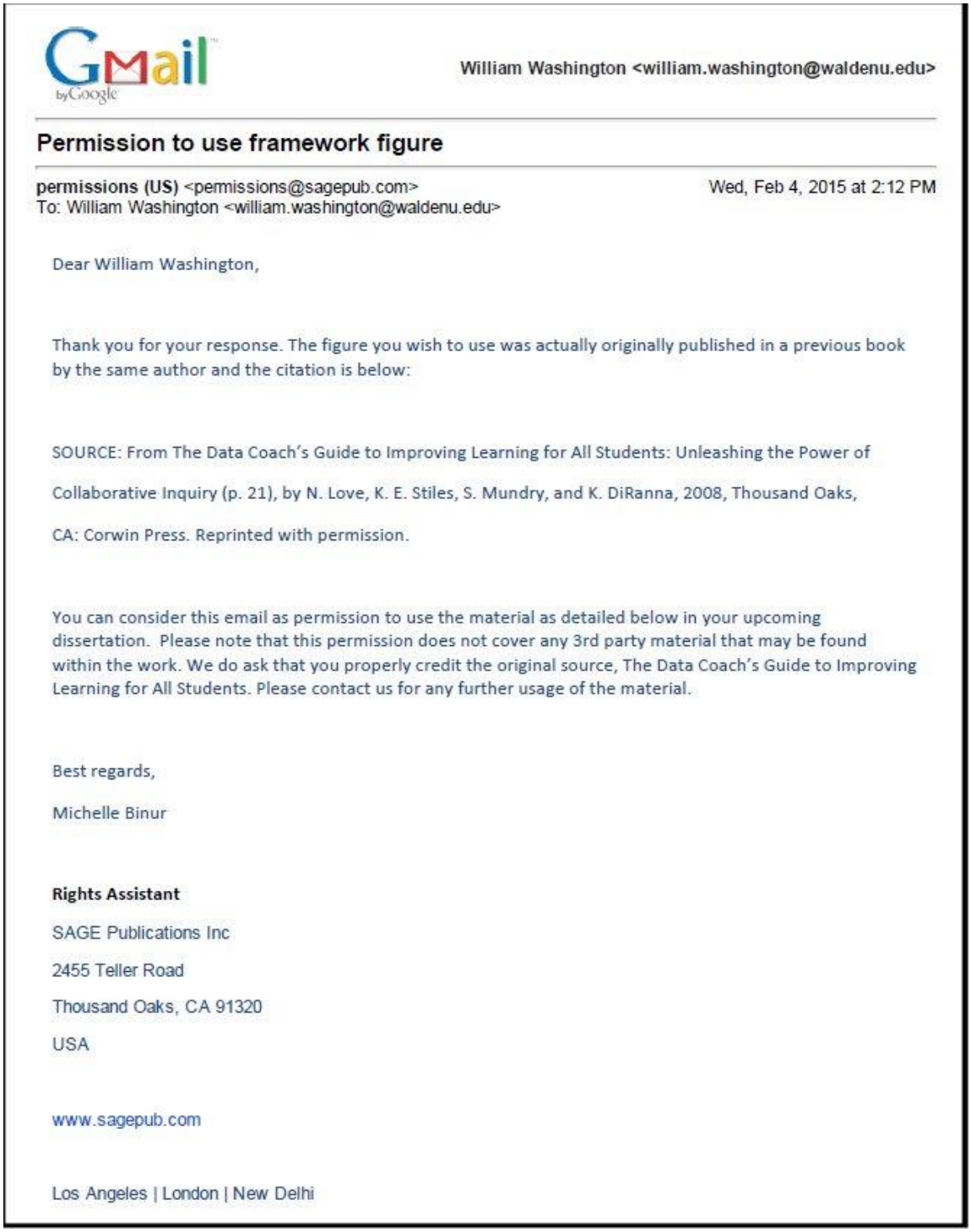
I am submitting a final draft of my doctoral study proposal and I am hoping to receive your permission to use an adaptation of the RtI pyramid image from your resource materials. I will, of course, use proper APA citations to credit the source.

Is it OK for me to include an adaptation of your RtI pyramid image in my proposal and final report?

With Respect,
William Washington
William Washington

The results of this submission may be viewed at:
http://www.rti4success.org/node/390/submission/395

Appendix J: Permission to Use Framework Figure 3



Gmail by Google

William Washington <william.washington@waldenu.edu>

Permission to use framework figure

permissions (US) <permissions@sagepub.com> Wed, Feb 4, 2015 at 2:12 PM
To: William Washington <william.washington@waldenu.edu>

Dear William Washington,

Thank you for your response. The figure you wish to use was actually originally published in a previous book by the same author and the citation is below:

SOURCE: From The Data Coach's Guide to Improving Learning for All Students: Unleashing the Power of Collaborative Inquiry (p. 21), by N. Love, K. E. Stiles, S. Mundry, and K. DiRanna, 2008, Thousand Oaks, CA: Corwin Press. Reprinted with permission.

You can consider this email as permission to use the material as detailed below in your upcoming dissertation. Please note that this permission does not cover any 3rd party material that may be found within the work. We do ask that you properly credit the original source, The Data Coach's Guide to Improving Learning for All Students. Please contact us for any further usage of the material.

Best regards,

Michelle Binur

Rights Assistant

SAGE Publications Inc

2455 Teller Road

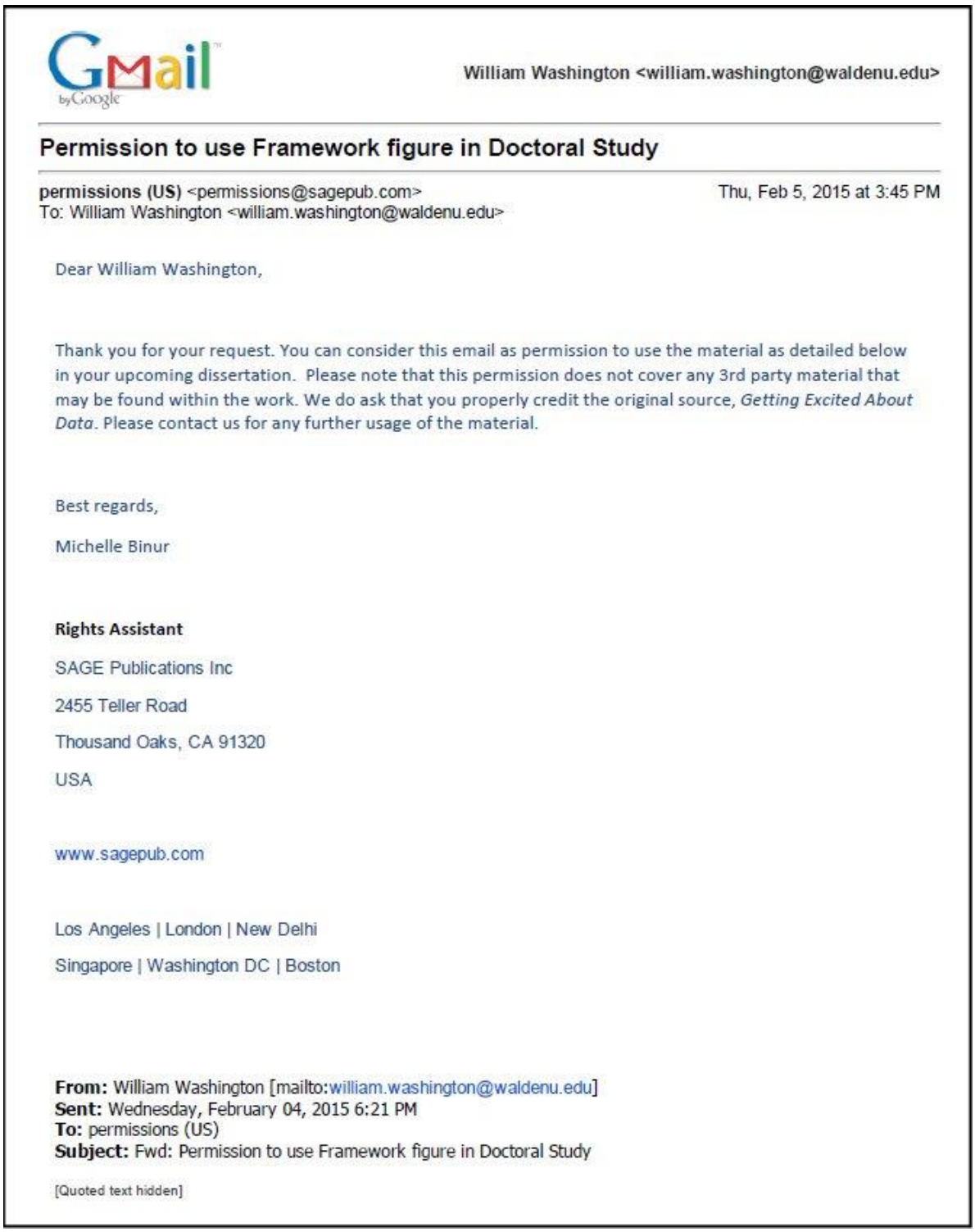
Thousand Oaks, CA 91320

USA

www.sagepub.com

Los Angeles | London | New Delhi

Appendix K: Permission to Use Framework Figure 4



Gmail by Google

William Washington <william.washington@waldenu.edu>

Permission to use Framework figure in Doctoral Study

permissions (US) <permissions@sagepub.com> Thu, Feb 5, 2015 at 3:45 PM
To: William Washington <william.washington@waldenu.edu>

Dear William Washington,

Thank you for your request. You can consider this email as permission to use the material as detailed below in your upcoming dissertation. Please note that this permission does not cover any 3rd party material that may be found within the work. We do ask that you properly credit the original source, *Getting Excited About Data*. Please contact us for any further usage of the material.

Best regards,

Michelle Binur

Rights Assistant

SAGE Publications Inc

2455 Teller Road

Thousand Oaks, CA 91320

USA

www.sagepub.com

Los Angeles | London | New Delhi

Singapore | Washington DC | Boston

From: William Washington [mailto:william.washington@waldenu.edu]
Sent: Wednesday, February 04, 2015 6:21 PM
To: permissions (US)
Subject: Fwd: Permission to use Framework figure in Doctoral Study

[Quoted text hidden]

Appendix L: Permission to Use Framework Figure 5 & 7

Gmail

William Washington <william.washington@waldenu.edu>

Permission to use Framework Figure in Doctoral Study

Datnow, Amanda <adatnow@ucsd.edu> Sun, Feb 1, 2015 at 3:27 PM
To: William Washington <william.washington@waldenu.edu>

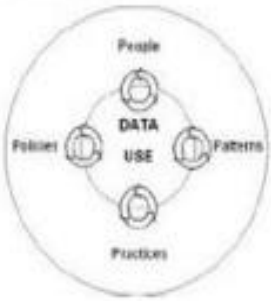
Hi William,

You have my permission to use these adapted figures in your dissertation. Please just put a line in below each of them that says that they were adapted from the book.

Thanks, and best of luck!

Amanda
[Quoted text hidden]
> <Datnow_Framework for DIDM.jpg>
>
> <Datnow_Four Ps Framework.jpg>
>
>
> With Respect,
>
> William Washington
>

2 attachments



Datnow_Four Ps Framework.jpg
22K

Datnow_Framework for DIDM.jpg
56K

Appendix M: Permission to Use Framework Figure 6

Gmail by Google

William Washington <william.washington@waldenu.edu>

Permission to use Framework Figure in Doctoral Study

William Washington <william.washington@waldenu.edu> Sun, Feb 1, 2015 at 1:43 PM
To: cynthia.coburn@northwestern.edu

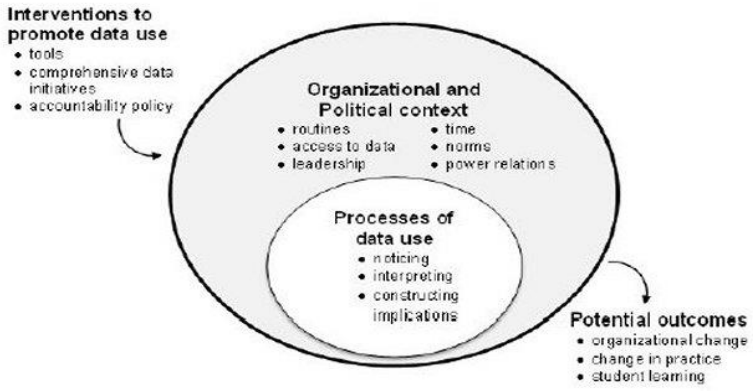
Dr. Cynthia Coburn,

I hope this message finds you well.
Note: This email will be put into the appendix of my doctoral study.

I am submitting a final draft of my doctoral study proposal and I am hoping to receive your permission to use an adaptation of an image from your book.

I have redrawn your framework for data use below and have placed it into my literature review along with the proper citation to your work.

Is it OK for me to include this into my proposal and final report?



With Respect,

William Washington

Gmail by Google

William Washington <william.washington@waldenu.edu>

Permission to use Framework Figure in Doctoral Study

Cynthia Coburn <cynthia.coburn@northwestern.edu> Sun, Feb 1, 2015 at 1:49 PM
To: William Washington <william.washington@waldenu.edu>

Sure. As long as you credit the source. Good luck finishing up the proposal.
[Quoted text hidden]
> <Coburn.jpg>
>
>
> With Respect,
>
> William Washington

Appendix N: Permission to Use Framework Figure 8

Gmail by Google

William Washington <william.washington@waldenu.edu>

Permission to use Framework figures in Doctoral Study

William Washington <william.washington@waldenu.edu> Sun, Feb 1, 2015 at 2:43 PM
To: julieama@usc.edu

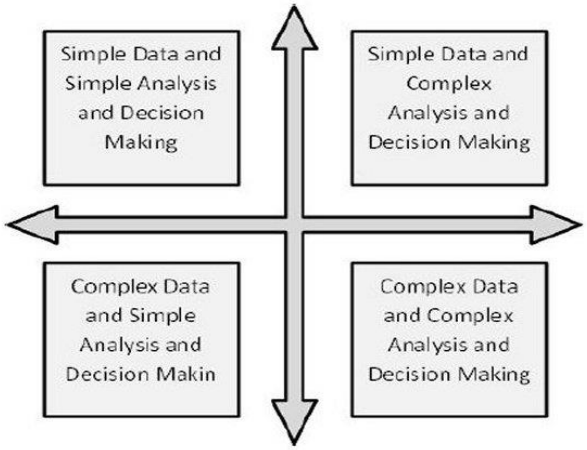
Dr. Julie Marsh,

I hope this message finds you well. It has been awhile since we last corresponded.
Note: *This email will be put into the appendix of my doctoral study.*

I am submitting a final draft of my doctoral study proposal and I am hoping to receive your permission to use an adaptation of an image from your book.

I have redrawn your Framework for simple versus complex DDDM below and have placed it into my literature review along with the proper citation to your work.

Is it OK for me to include this into my proposal and final report?



With Respect,

William Washington
Ed.D. Candidate, Walden University

Gmail by Google

William Washington <william.washington@waldenu.edu>

Permission to use Framework figures in Doctoral Study

Julie Marsh <julie.marsh@rossier.usc.edu> Sun, Feb 1, 2015 at 5:11 PM
To: William Washington <william.washington@waldenu.edu>, "julieama@usc.edu" <julieama@usc.edu>

Yes, you have my permission.
Good luck with the study!

Julie

From: William Washington [mailto:william.washington@waldenu.edu]
Sent: Sunday, February 01, 2015 11:44 AM
To: julieama@usc.edu
Subject: Permission to use Framework figures in Doctoral Study

[Quoted text hidden]

Appendix O: Sample Interview Transcript

RtI data teams in a Small Rural Elementary School
Participant D

1. How long have you been a participant in the RtI process in this school?

Since the first year, 2010.

a. Probe: What has been your role(s) in the process?

I've been on the leadership team. They just had to meet once a month with the lead implementer and the RtI coach. We did that during the summer and during the school year and that was ongoing for the first three years.

2. Why do you think RtI is being implemented in this school?

We did not make AYP for the SOL's.

a. Probe: How do you feel about the decision to implement RtI?

It's good. As tough as it was, it's probably the best thing that ever happened here. It adds more accountability.

3. How would you explain the purpose and goals of RtI? How does RtI work?

It's a response to intervention in that we are supposed to use different measures to collect data for reading and math and then use that data to better provide interventions on the student's level. It's supposed to target a little bit better.

a. Probe: How would you describe the RtI implementation process in this particular school?

Tedious. It was a lot of work because we had to come up with a set of indicators that had to be used during the school year and then you had to show proof of that. Like we have meetings and you have to show what proof you had for the level of parent involvement. We had to redo the lesson plan and come up with the criteria for the different tiers of kids. Like if I'm going to decide who's in tier 2, we had to figure out what the cutoffs were going to be.

We didn't have a guidebook or a program like AIMS Web that provided the cut scores. AIMS web is the best one for doing that for reading. Like next year, for math we have to figure out what our cut scores need to be because half the grade would've been considered Tier 3. We're either going to have to do more intervention or cut the scores a different way.

Probe: How effective is this school in using RtI to achieve the intended purpose and goals that you've described? What would make it even better?

It's better than it used to be, but we don't have enough time to really talk about all of our tier 3 kids. We only have 30 minutes a month to do this. That's if we meet once a month which we haven't for a while. That is, as an intervention team.

As a grade level, we discuss things all of the time. But the formal intervention meeting is only 30 minutes month, once a month, and it has even been every month.

Every grade has 60 minutes of I/E time. How each grade uses that time depends on how it's worked into the master schedule. Some grades do 30 minutes in the morning and 30 minutes afternoon. So we do math in the afternoon with the groups and in the morning and we do LLI, which is leveled literacy intervention; that is another program that were using. That's used for your tier 2 students only. Your tier 3 students go out of the class to the math and reading centers.

4. How could a teacher use data be to improve a student's learning?

If you're looking at reading, you have your AIMS WEB, there's the STAR Reading stuff that we do too, and you have your Fountas and Pinnell. You get your reading levels, and then you can get where they are with their fluency rate. You can start them exactly where they're supposed to be instead of wasting time trying to figure out whether supposed to be. There's the DSRA, the spelling features thing we use to get the word study group. So you can get that done the first week of school and by the second week of school you already have them in their groups. Then, you have to continually assess them - either with running records or you can do the Fountas and Pinnell again - periodically and get the aims web every quarter and then you can move them up or you can move them back. That way you're not stagnating. You're not just staying at the same place the whole school year.

a. How does this school's RtI process improve student learning?

This year in particular, I think we've use the data better to improve student learning. It's been a learning process; we haven't had that much time to get comfortable with it. There are some people that aren't doing it the way it's supposed to be done. But, from what I see and hear - and talking to other teachers - I think from kindergarten up, it's been working. For example, there are only eight kids that didn't pass the PALS tests in the spring and that's just amazing! However, as a school I think we're getting much better with it.

5. Describe steps that are taken by the RtI data teams to problem solve?

There's not much problem solving that happens at the intervention meetings, but you can request to have a problem-solving meeting with one of the specialists. I have one student that has really benefitted from that.

a. Probe: How do you feel about the work accomplished in the RtI data team meetings?

Not too good, but it's because we don't have much time. I don't feel like we get much done. Everything is just very glossed over and we only go over one or two kids at a time. But we have a lot of kids talk about.

There's all kinds of stuff we need to talk about: if there's anything new with their scores will bring that up; their grades; if we have to have a problem-solving meeting on a child; are we going to do something different; will we keep doing what we're doing. But, There's just *not* enough time to get into any detail about anything.

We had one training meeting where we were shown a video. These training videos that we were shown, they had this team of people sitting down and having these deep collaborative discussions. Our meetings are not like that. Because you've got so many kids that you've got to get through in just 30 minutes; it's just not enough time.

6. How well does the RtI data team use data to guide decisions about student learning?

We are using the data to define what tier they are in at first and then we're using whatever other data we've collected during the school year to either modify the plan, take kids out of it that don't need it anymore, or have a problem-solving meeting to come up with more specific things to do to help.

a. What kinds of interventions are used in each tier?

We use the reading or math centers - or special education for tier 3 students. Classroom teachers used to have time to work with their tier 3 students as well. But we can't do that anymore because now we do LLI with tier 2 students. Tier 1 is like basically just getting enrichment stuff like that.

7. What are some enabling factors that help RtI and the RtI data teams work?

I think there's more accountability now. It's better than it used to be, but it's not where it needs to be. The fact that you have to have your data with you whenever you come to a meeting. There's a chart that needs to be filled out. Even though some people don't do that, it's better but it could be much better.

The specialists know their stuff and that helps and that's good.

8. What are some barriers to RtI and the RtI data teams that impede the process?

Time. Thirty minutes every month is just not enough time. The building's leadership doesn't really know the curriculum, RtI, or what we're doing. The principal is not involved enough.

9. How collaborative are the RtI data team meetings?

In the intervention meetings, we can collaborate, but there's only time to do that with one or two kids. We can talk about aspects of how to help one or two kids, but that's all we have time for; there's just 30 minutes.

The follow-up meetings, the problem-solving meetings, are collaborative. That is just with a specialist and the classroom teacher. That's when you're really discussing specific

strategies that will help that kid. Then, you're really getting into the curriculum and thinking about strategies that helps the students function better.

a. How are decisions made about interventions and student learning?

Our data notebooks have different strategies you can use in the classroom. Some teachers have like notebooks they got from trainings where they have all of these different ideas for different things like fluency.

b. What are most of the decision based on?

Looking at the data. I'm looking at the data and I'm looking to see who is the most at risk according to their scores.

c. Who makes determinations about whether a student moves up or down in Tiers?

The data is going to do it. It's got to be in the numbers. The team looks at the numbers. We haven't had anybody in reading move out of Tier 3, but we've made some decisions in math. We did move kids out, but that was based on benchmark scores and how much they improved.

10. How effective are the RtI problem-solving teams at finding ways to help low-performing students improve?

I've seen it work on our grade level. I think a lot of things that we've done or we've suggested have been working. There have been things that the specialist has suggested, but some people are not on board. It's a consistency issue. It's not just on one grade level, it's across the board too. This is also a reflection of our building leadership. We haven't really had anyone in a leadership role that's going to say, "this is what you need to do, now do it."

a. What sorts of things are done to help students progress out of Tier 2 and Tier 3?

We're pretty much working on Tier 3. For Tier 2, it's more less just getting them to where they're supposed to be by the end of the grade level. Some are already where they are supposed to be, but we've been working on some test strategies and high-level thinking questions. But, that hasn't even been talked about; like how to get Tier 2 kids out of Tier 2.

b. What are some Tier 1 interventions that prevent students from moving into higher Tiers?

I don't really think there's a strategy or anything to keep them from slipping, but maybe all of the work that's done in Tier 2 keep them from slipping.

11. What has been done to prepare teachers to use data for improving student learning?

I can't think of any actual expert who has come in and worked with us on that. I know that the RtI coach met with some of the teachers, I can't remember if that was the whole faculty or not. But, all of that was only during the first couple of years of the process. We had a lot of training on AIMS Web. But, other than that, there's never really been any

professional development on using data for RtI. Our AIMS Web training was probably the only time we actually had to sit down and work with the data. That was a class in the summer. It was one of those 24 hour class things.

a. How do you feel about your own ability to use data?

Since we've gotten more programs that help you get the data, I feel like I can really focus on where students are and I can use data. Before that, we didn't have enough assessment to get the data from and we weren't showing "How are we going to move them up? How are we going to move them down?" students needed to move up or move down. Now there's a lot more fluidity in the class where they need to move up a little bit or move down a little bit.

I'm seeing movement within whatever group kids are in. I've moved kids up and I've had to move kids back down if they're not getting something that we've talked about.

12. What needs to happen to close achievement gaps and exceed AMO targets?

There has to be more consistency in how we're teaching. There needs to be more accountability, not just in the testing grades, but there needs to be accountability in the non-tested grades. They need to make sure they do what they're supposed to be doing. Within this school, there's inconsistency. There's some teachers who are not jumping on board and they're still doing things the way they've always done it and they're not changing.

There needs to be more of a connection between the community and the school system; I don't feel supported. I have the most trouble with the parents of my kids' parents not being involved.

a. How will the RtI problem-solving data teams accomplish this goal?

If people are held accountable. If somebody in charge will say, "Do you have your Fountas and Pinnel? I need to see that. Do you have your reading levels? Do you have your AIMS Web? I need that print out." You have to be accountable for having your stuff. You can't just show up and say, "I did it" and have nothing to show for it.

13. What are improvements that need to be made to the current RtI process?

We need more time to meet as an intervention team. We really do need more time to do it effectively. The math specialist gets brushed over every meeting because all we're doing is talking the reading kids. We barely get to talk about math. It's really hard, it's been rough. Last year was better because we had more time. This year, it's been more focused because we have someone who's really running the meetings, everything is planned out, and it's very structured but we don't have enough time.

14. How is RtI improving teaching and learning in this school?

I feel like I have taught better in the past few years since we've been doing this. There's more accountability now. You can't just let the kid slide along, you have to have proof. The results of the data are a reflection of what you've done. I think it's been better.

15. Here's a fun question: What changes would you make to the RtI process if you were the final decision maker?

The assessments need to be streamlined. We have our fingers in too many pots. You've got your PALS, AIMS Web, Fountas and Pinnel, STAR Math, STAR Reading, LLI, and SOL stuff. There's a lot of stuff. I feel like we're over assessing these kids sometimes. Some of it's informal and you can get it done in a few minutes, but I feel like all we're doing is testing.

More time, streamline the assessments, engagement by building level administrators, and more teacher accountability.

a. Probe: How much of that wish list is actually possible?

It is all possible.

b. Probe: What would need to be done to make those things happen?

We need an administrator who is not afraid of people. There has to be some accountability. We have some members of the faculty that do whatever they want to do; you can't be afraid to take them on and demand that they do what they need to do.

Appendix P: Assessment Calendar 2014-15

Assessment Calendar 2014-2015

Assessment Type	Grades	Tool	Who Administers?	Purpose?	Who Takes It?	Other?	When?
Universal Screening	1-5 (R) K-2 (M) 3-5 (M)	**AIMS Web** **Locally Developed STAR Math**	Testing Team Classroom Teacher Classroom Teacher	RtI; Determine Oral Fluency Rate	1-5: all	Math assessments may take longer	Sept 8-12; Jan 5-9; April 27 – May 1
Fountas and Pinnell	K-5	**F&P**	Classroom Teacher	Guided Reading Level	K-5: all 1-5: new students; Tier III students		Spring- before end of year By middle of October- new students only; those below expectations
Benchmark	2-5	**Interactive Achievement**	Testing Team	Curriculum Alignment and Pacing	3-5: all-reading and math 2: math and spring reading	Classroom teachers meet to discuss data	Nov 3-7 Jan 13-17 April 13-17
Running Records	K-5	**Appropriate teacher selected text at instructional reading level**	Classroom Teacher	Monitor Progress	K: all 1-3: all 4-5: all (fall and winter)	Bring data to monthly data meeting	K: **Students with concept of word (Jan, Feb, March, Apr) 1-3: One per month for each student (Oct/Nov, Dec, Feb, March, April, May) 4-5: Oct/Nov; Jan
Progress Monitoring	K-5 (R) K-2 (M) 3-5 (M)	**AIMS Web/PALS Quick Checks** **Locally Developed Star Math**	Intervention Teacher- Tier III Classroom Teacher- Tier II	Monitor Progress	K-5: intervention students		TIII: 2x per month TII: 1x per month
PALS Fall	K-3	**PALS**	K-3: Classroom Teacher	Reading Readiness; Word Study	K: all 1-2: all 3: those who "failed" spring 2nd grade	* Bring data to fall data day- more detail to follow * Testing Team to monitor classrooms	K: Window opens Oct 13 1-3: Window opens Sept 15
PALS Spring	K-2	**PALS**	Classroom Teacher	Reading Readiness; Word Study	K-2: all	Use results to plan fall groups	Window opens Apr 27
SOLs	3-5	**SOLs**	Classroom Teacher	State Accountability	3-5: all		May
Access for ELLs	K-12	**Access for ELLs**	ESL Teacher	Language Proficiency	ESL students	Contact: Marissa Stapleton or Sarah Schmidt	Jan-March
Gifted Achievement Test	K-11	**Stanford 10, Abbreviated Ed.**	Gifted Coordinator	Identification	K-11: select students	Contact: Sarah Schmidt	Fall, Window TBD
Gifted Screening Test	3rd	**NNAT, 2nd Ed.**	Gifted Coordinator	Identification	3rd: All	Contact: Sarah Schmidt	Fall, Window TBD

Appendix Q: National Institute of Health Certificate

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **William Washington** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 06/28/2013

Certification Number: 1182786