A QUALITATIVE CASE STUDY OF TEACHER-LED PROFESSIONAL DEVELOPMENT:
MIDDLE SCHOOL SCIENCE AND THE CLOSE READ INITIATIVE

BY

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TEACHER-LED PROFESSIONAL DEVELOPMENT

ABSTRACT

In response to the adoption of the Common Core State Standards for Language Arts Literacy by the New Jersey Department of Education, Chesterport K-8 Public School District implemented a district-wide program to promote reading skills across all academic subjects called the Close Read Initiative (CRI). This study reviews and analyzes the Stanton Middle School science teachers’ professional development (PD) for the CRI. It specifically looks at teachers’ perspectives about the needs and challenges of PD for implementing the CRI, as well as their perceptions of efforts to provide research-based PD to support the implementation of the CRI. In addition, the study documents challenges and supports that I experienced as an emerging teacher leader who attempted to provide research-based PD to support the district’s overall CRI. A qualitative research approach was used for this case study. The PD program began in November 2012 and ended in March 2013. The science teachers at Stanton made up a purposeful sample with nine teachers in the department, and all volunteered to participate in the study to some degree. The group consisted of sixth, seventh, and eighth grade teachers with three per grade. I taught science honors to all three grades and served not only as a colleague implementing CRI in my own classroom but also as a PD designer, facilitator, and evaluator. Findings are based on my reflexive analysis of the data as I, a classroom teacher, stepped out of my traditional role to act as researcher and PD facilitator. Results suggest teachers were very receptive to research-based PD but needs varied greatly from teacher to teacher, requiring flexibility and creativity to individualize the learning experience. The study also revealed cultural and structural challenges encountered by an informal teacher leader.
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I would also like to thank my science teacher colleagues and the administrators who supported me during the Close Read Initiative Professional Development Program that I designed and implemented. Without their participation and support, I would not have had a study.

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CHAPTER 1: INTRODUCTION

In 2009, the first draft of the Common Core Standards (CCS) for the nation was released. Unlike those created during the standards movement in preceding decades, the CCS enjoyed broad support. These standards were adopted by 48 states, two territories, and the District of Columbia. The U.S. Department of Education, the American Federation of Teachers, ASCD (formerly the Association for Supervision and Curriculum Development), and the National Parent Teacher Association all issued statements supporting the CCS. One of the fundamental goals of the CCS for reading is that all students must be able to comprehend texts of increasing complexity (Council of Chief State School Officers & National Governors Association, 2018).

To be prepared for college and today’s careers that demand more complex cognitive skills, research indicates that the ability to independently read and make sense of complex texts, particularly informational texts, is imperative (Adams, 2009).

The New Jersey Department of Education (NJDOE) adopted the standards for mathematics and Language Arts Literacy (LAL) in 2010 and adapted high-stakes standardized tests already in use to measure student progress toward meeting them. The New Jersey Assessment of Skills and Knowledge was aligned with the New Jersey Core Curriculum Content Standards (NJCCCS) for students in Grades 3 through 8. This standardized test measured achievement in LAL, math, and science (NJDOE, 2014). During the 2014–2015 school year, the New Jersey Assessment of Skills and Knowledge was replaced with a much more rigorous exam: The Partnership for Assessment of Readiness for College and Careers (PARCC) test in mathematics and LAL. According to the NJDOE (2016, para. 3), “The PARCC assessments more accurately measure the higher-level skills developed under the New Jersey Student
Learning Standards and provide parents and educators with meaningful information to improve teaching and learning.” The NJDOE places great weight on standardized test performance in an attempt to ensure compliance with federal No Child Left Behind legislation that aims to have all students achieving at grade level. The Adequate Yearly Progress (AYP) report, published annually, tracks every school’s performance toward meeting this goal as a way to ensure accountability under No Child Left Behind. “AYP is a complicated measuring tool with many components. Should a school fail any of the components, it cannot pass AYP standards” (NJDOE, 2010, para. 1). Therefore, even if only a small percentage of students in a school do not meet standards, the NJDOE takes this very seriously and may impose sanctions on a school district as a result.

Chesterport K-8 School District, where I work, experienced just this situation. A small percentage of students who struggled to meet testing requirements posed a risk to negatively affect the district’s AYP report. To better prepare these students and their peers to succeed on the state’s high-stakes assessments, the district implemented a new literacy program, the Close Read Initiative (CRI), across the curriculum. However, implementation required not only a change in practices, but also a paradigm shift for most content-area teachers. The need for the substantive change required to implement the CRI effectively suggested the need for intense professional development (PD) as teachers strived to integrate LAL instruction with instruction on the content they teach. Non-LAL teachers would need to be prepared to conduct Close Read (CR) activities that were designed to help students develop the reading skills necessary to demonstrate positive outcomes on the PARCC (American Federation of Teachers, 2009; ASCD, 2010).
The Close Read Initiative

Prior to the CRI and in response to the new literacy standards, the Chesterport School District adopted the goal that each teacher would have some text-centered instruction in every class, every day, and every period during the 2011–2012 academic year. All teachers were instructed to modify their classroom instruction to include reading a relevant text during the first 5 to 10 minutes of class, followed by giving students questions that required them to delve deeply into the text in order to respond. The following year, the district launched the more demanding CRI program. I assume this initiative was implemented because district administrators observed students needing additional support in developing their LAL skills. CRI required teachers across all disciplines to have students engage in careful and purposeful readings of a passage using text-dependent questions to guide the process. CRI lessons required multiple readings of a text in order for students to provide evidence-based answers to text-based questions. It was estimated by the Director of Curriculum that completing a CR lesson would require three to four full class periods. This was in contrast to the text-centered initiative of 2011, which took only a portion of one class period to complete. CR lessons took longer because they required much more in-depth and multiple readings of challenging material and included several activities that had to be carried out along with the reading.

At Chesterport, the expectations for a typical CR lesson consisted of students paraphrasing, summarizing, answering four kinds of text-dependent questions, completing a vocabulary study, solving a mathematics problem, and completing a writing prompt. The process starts with students silently reading a challenging piece of informational text. A difficult paragraph from that text is chosen by the teacher for closer study, and that section is reread by
the class. Students then paraphrase several sentences from the paragraph by choosing appropriate synonyms that convey the meaning of the original text without changing the author’s tone or length of the selection. Next, students summarize the text they just paraphrased. A summary is defined as a shortened version of the original text in which only key points are included. In the next part of the lesson, each student independently writes answers for four types of text-dependent questions. As defined by Liben & Liben (2013), there are four types of text-dependent questions that “can only be answered by referring explicitly back to the text being read.” They group such questions into four types: Type 1 Questions are literal and require students to search the text for explicitly stated facts and details; Type 2 Questions are also literal but require connecting information from the text; Type 3 Questions are inferential which require students to search for clues in the passage to support their answers; and Type 4 Questions require students to analyze the text from a craft and structure perspective (Liben & Liben, 2013). Viewed through a science lens (which is relevant to the focus of this study), they would analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic (Council of Chief State School Officers & National Governors Association, 2018). After students respond to the text-dependent questions individually in writing, the class as a whole reviews the answers and agrees upon the strongest responses. Then students share challenging words from the passage and the members of the class point out context clues to define the words. In the Chesterport School District, this is followed by the students doing a math problem related to the reading topic (although this is not typical of CR lessons). Lastly, students must write a paragraph in response to a writing prompt. Evaluation criteria for that paragraph, depending on student level, may include the following: introduces the
topic clearly; organizes ideas; uses classification, comparison/contrast, and cause/effect; develops the response with facts, definitions, quotes, and other details; uses transitions to create cohesion and clarify the relationships among ideas and concepts; and provides a concluding statement or section that supports the information or explanation presented (Achieve 3000, 2013).

**Problem of Practice**

The CRI required science teachers in Chesterport, who had not previously been required to focus intensively on reading and writing instruction with their students, to teach a minimum of two CR lessons per marking period during the 2012–2013 academic year. To prepare teachers for this significant addition to their teaching responsibilities, in June 2012 the entire staff was introduced to CR at a 1-hour PD workshop conducted by district LAL teachers. It consisted of a lecture supported by PowerPoint slides (see Appendix A) and a sample of text accompanied by a worksheet with text-dependent questions, a math problem, and a writing prompt (see Appendix B). Participants worked together to complete the worksheet.

After this session, not surprisingly, it seemed the teachers felt their knowledge of how to implement CR in the classroom was incomplete. I observed many teachers leaving the workshop asking each other how they were going to implement this new requirement with no further support. They were not wrong to be concerned. Researchers have found that for content-area teachers across the nation, integrating of LAL into instruction requires a paradigm shift and intense PD if it is to be implemented effectively (ASCD, 2010). They had good reasons to doubt the efficacy of the PD they had received and little reason to believe there would be more.
PD programs are thought to be the primary way for teachers to improve or change their practice; however, teachers have found much of traditional PD to be fragmented, disconnected, and irrelevant to the real problems of their classroom practice (Lieberman & Mace, 2010). Or as in the case at Chesterfield, the PD simply was not long or intensive enough to enable teachers to make major changes. In other cases, many teachers have perceived PD programs to be ineffective, impractical, and not useful (Fullan, 2007; Garet, Porter, Desimone, Birman, & Yoon, 2001; Wilson & Berne, 1999). Given the challenges many content-area teachers were likely to face in implementing CRI lessons, it was clear that the common model of one-shot, one-size-fits-all PD—exemplified in the workshop on CR in which we had participated—would be inadequate (Covay Minor, Desimone, Caines Lee, & Hochberg, 2016; Yezierski & Herrington, 2011).

Clearly, if content-area teachers were to successfully teach CR lessons, they would need more effective, long-term PD. The district provides in-service PD a few times during the school year, but many of my colleagues and I believed that this would not be enough to support the addition of a major new element into our practice. Even if CR were included as a PD topic, it would be insufficient because it was a significant departure from teaching from our content-area expertise. Our feelings were based on prior experiences with PD in the district that had failed to meet our needs. For example, experts were brought into train staff on how to use new presentation software in a day-long PD event. Teachers had been organized into levels based on responses to an e-mail that asked them to rank themselves as beginning, intermediate, or advanced users of the software. They were also asked to prepare specific questions for the presenters to address. I signed up for the advanced level, but I had a number of issues with the program that neither my colleagues nor I could solve. My colleagues and I were dismayed when
the expert could not answer any of my questions and recommended that we use the online “Help” feature—which we had already done. During another equally fruitless in-service PD session, an expert came to lecture on mathematics activities that teachers could incorporate into their science lessons. None of the activities presented were appropriate for my level of students, and I did not learn anything of use to help increase student achievement. Therefore, when the CRI was launched, I found myself asking, “Where will we get the PD we need? Who will provide it?”

In the past, I would not have known the answers to these questions. As a result of my training in the leadership-focused doctoral program at Rutgers University, in which I was enrolled, however, the answer was clear. My self-image of what I could do to lead and support teacher change had expanded, and I now saw myself as an influencer (Patterson, Grenny, Maxfield, McMillan, & Switzler, 2008). I realized I could lead site-based, inquiry-focused PD (Ravitch & Lytle, 2016). I decided the answers were all around me: To meet these unprecedented demands, the science department would learn how to do it together, and I would facilitate this effort. I took a deep breath, informally assumed the role of teacher leader (TL), stepped up to volunteer, and then went about designing and facilitating PD to help science teachers implement CR in their classrooms.

Leadership in the context of education is often associated with district and school administrators. Teacher leadership, however, specifically refers to leadership skills enacted by teachers who remain in the classroom. TLs perceive themselves as teachers, not managers, but their influence extends beyond their students to their colleagues and the education environment more broadly (Danielson, 2006). TLs mobilize and energize others not by wielding positional
power but by deploying a more egalitarian approach that leverages their expertise and passion for teaching (Danielson, 2006; Harrison & Killion, 2007; Katzenmeyer & Moller, 2009; Lai & Cheung, 2015; Nolan & Palazzolo, 2011) to help colleagues grow and develop. The description of TLs with which I identify was written by Katzenmeyer and Moller (2009, p. 7):

Drawing from their expertise and passion for teaching, these teachers influence other teachers informally through having casual conversations, sharing materials, facilitating professional development, or simply extending an invitation for other teachers to visit their classrooms.

Researchers have noted that teacher leadership can be influential in improving teaching and learning practices of peers (Lieberman & Miller, 2004; Reeves, 2010; York-Barr & Duke, 2004). In reference to the problem of practice at Chesterport, this meant that taking up the role of TL and working collaboratively with colleagues might be of benefit in closing the PD gap for the CRI. There was no model for teacher leadership in my school, and this was a completely new role for me. I was breaking ground both in trying to provide research-based PD and doing it from the position of informal TL sanctioned by school administrators. This was also an opportunity to study and learn from my practice as I took up this new role.

**Purpose of Study**

As a self-appointed TL who perceived a need in my school, I stepped into the role of PD designer and facilitator to help colleagues respond as effectively as possible to a challenging new mandated instructional initiative. The purpose of this study was to improve practice with regard to the CRI and focus on developing my own knowledge and skills as a TL. In addition, I wanted to derive lessons learned that could hopefully benefit other TLs taking up similar responsibilities in their schools. The questions that guided my research were as follows.
Research Questions

1. What are teachers’ perspectives about the needs and challenges regarding PD for implementing the CRI?

2. How do teachers perceive efforts to provide research-based PD to support the implementation of the CRI?

3. What are the challenges and supports experienced by an emerging TL when attempting to provide research-based PD to support the implementation of the CRI?

Although my research questions are specific to supporting the implementation of the CRI, I believe that what I learned about TL in this specific context has broader implications for TL practice, regardless of the instructional challenges at hand.

Theoretical Framework

The purpose of PD is to help teachers learn to improve their practice to better serve students and increase student achievement. This requires adding to and transforming teachers’ knowledge. I saw teachers as adult learners in this process. Therefore, when I explored how best to step up as an informal TL to provide PD for the CRI, it was important to consider principles of adult learning. As a middle school teacher, I am very familiar with the challenges associated with creating an optimal learning environment for adolescent students. Doing so for colleagues, however, was another matter. I turned to the adult learning principles of andragogy to guide my thinking about design and facilitation and thus they served as the study’s theoretical framework. I chose this particular theory because I felt it was a good fit for my case study. As an education undergraduate student, I learned to teach using the pedagogic model. During the subsequent two decades of my tenure in the classroom, methods of teaching have shifted from a predominantly
teacher-centered practice to one that is more student-centered that encourages students to take more responsibility for their own learning. As described below, andragogy allows for a spectrum of strategies depending on the needs of students ranging from teacher-directed to student-directed depending on the needs of the learner. I knew colleagues’ learning needs would be as diverse as those of my classroom students. Therefore, I chose andragogy, a foundational theory of adult learning (Merriam, 2001), as my theoretical framework. The section that follows includes a brief history of andragogy, discusses its developments and critiques, and addresses how it was used to frame my literature review, to design the PD, and to analyze my findings.

The term andragogy has been in use for over a century and has elements that can be traced as far back as Plato (Loeng, 2017). The term was first associated with adult learning by German high school teacher Alexander Kapp in the 19th century. Kapp’s book (as cited in Loeng, 2017) is predominantly about education for younger students; however, it includes a section that refers to education in adulthood. Kapp did not present andragogy as a theory of how adults learn or how to teach them but did justify the importance of developing one’s character and continuing one’s education beyond adolescence. This is accomplished, according to Kapp, not only with the help of teachers but also through self-reflection and life experiences (Loeng, 2017). In Germany after World War I, thought leaders believed that andragogy could be used to lift the country out of postwar misery by educating adults to reflect on and learn from history to ensure past failures were not repeated (Henschke, 2010).

Lindeman, an American who traveled to Germany during that time, brought the concept of andragogy back to the United States as a method for teaching adults. His aim was to assist learners in the transition to adulthood (Brookfield, 1986). In 1926, Lindeman (as cited in
Knowles, Holton & Swanson, 1998) posited five assumptions that provided a foundation for adult learning theory: (1) Adults are motivated to learn as they experience needs and interest that learning will satisfy; (2) Adults’ orientation to learning is life centered; (3) Experience is the richest source for adults’ learning; (4) Adults have a deep need to be self-directing; and (5) Individual differences among people increase with age. Interestingly, Lindeman did not dichotomize adult versus child education. The implication, according to Knowles, et al. (1998), is that youths might learn better, too, “when their needs and interests, life situations, experiences, self-concepts, and individual difference are taken into account” (p 40).

Lindeman was ahead of his time because before 1950, many educators assumed the same theory of learning and instruction worked for both adults and children (Holmes, Abbington-Cooper, 2000). As a result, learning was based on the ideology of pedagogy. The pedagogical model was based on views of teaching and learning that evolved during the Middle Ages in monasteries in Europe out of their experience in teaching basic skills to young boys (Knowles, et al., 1998). As the only educational model in existence, it was implemented in public schools in the 1800s, and its tenets persist to this day. The goal of instruction is to transmit information and skills. For example, the teacher chooses what knowledge or skill needs to be transmitted, organizes the content into units, selects the means for transmitting this content (lectures, readings, lab exercises, films, tapes, for example), and develops a plan for teaching and evaluating success (Holmes, Abbington-Cooper, 2000). The pedagogic model is teacher centered, and the student is submissive (Knowles, et al., 1998).

Because of advances in the social sciences in the 1950s, our understanding of learning and what it means to be an “adult” changed. Clinical psychologists such as Freud, Jung, Erikson,
Maslow, and Rogers made significant contributions to adult learning. As stated by Knowles et al. (1998), “Freud identified the influence of the subconscious on behavior; Jung introduced the idea that human consciousness possesses four functions: sensation, thought, emotion, and intuition; Erikson provided the “eight ages of man”; Maslow emphasized the importance of safety; and Rogers conceptualized a student-centered approach based on five “basic hypotheses” (p 71). Using this new knowledge, efforts were made to create an integrated theoretical framework. They were, however, largely unsuccessful (Knowles, et al., 1998).

Approximately four decades had elapsed before the concept of andragogy appeared again in adult learning literature in English (Henschke, 2015). Although the term appeared in England and Yugoslavia, it was Malcolm Knowles from the United States who developed and popularized the American version of andragogy in the 1970s by infusing the term with his own meaning based on his experience educating adults (Henschke, 2010). In 1970, Knowles wrote The Modern Practice of Adult Education: Andragogy vs. Pedagogy. Notice the term “versus.” Knowles presented andragogy as a model that was the opposite of pedagogy. Pedagogy was teacher directed and teacher centered whereas andragogy was not. According to Henschke (2015), the andrological model took the form of a process design rather than a content design. At this time, Knowles presented four assumptions about adult learners: They are self-directing, their experience is a learning resource, their learning needs are focused on their social roles, and their time perspective is one of immediate application (as cited in Henscke, 2015). In contrast to what was believed at the time about how children learn, the adult-learning theory of andragogy asserted that adult learners wanted to be actively involved in establishing the learning climate, diagnosing their needs, setting objectives, conducting activities and evaluating their own
progress (Henschke, 2015). Knowles attempted to create a comprehensive learning theory for adult education. His efforts were not met with universal acceptance.

In 1972, Houle (as cited in Holmes & Abbington-Cooper, 2000) preferred to view education not as an adult vs. child dichotomy, but rather as a single human process and felt that even though there were differences between children and adults, the learning activities of all ages were essentially the same. He rejected andragogy as an organizing principle in adult education and perceived it as a technique. Critics also questioned andragogy’s general utility and its theoretical status (Holmes & Abbington-Cooper, 2000; Henschke, 2015). In 1984, Jarvis (as cited in Henschke, 2015) thought andragogy did not have grounding in sufficient empirical research to justify its dominant position.

By the mid-1980s, in response to criticism and a deepening understanding of how children learn, the andragogical model evolved. Teachers of children and young adults had experimented with andragogical principles and found that their students learned better and conversely some trainers discovered that teaching techniques grounded in andragogy were unsuccessful with a number of their adult students (Knowles, Holton & Swanson, 1998). At this time Knowles noted that the andragogical model does not replace the pedagogical model (Knowles, 1980). He asserted that it provides another way to view learners and learning that includes both pedagogical and andragogical assumptions. A big difference between these two models is that

the pedagogue, perceiving the pedagogical assumptions to be the only realistic assumptions, will insist that the learners remain dependent on the teacher; whereas the andragogue, perceiving that the movement toward the andragogical assumptions is a desirable goal, will do everything possible to help learners take increasing responsibility for their own learning. (Knowles, 1980, p. 49)

In 1984 and 1989, Knowles added two more assumptions to the original four about adult
learners: Although adults are responsive to external motivators the most important ones are internal (the desire for increased job satisfaction, self-esteem, quality of life) and adults need to know why they need to learn something before undertaking it (Knowles, et al., 998).

Another interpretation of andragogy that focused on learner-centered education was presented by the Nottingham Andragogy Group (1983). This model identified 12 features of the andragogic process (p. 40 – 42): a nonprescriptive attitude, issue-centered curricula, problem posing, praxis, continuous negotiation, shared responsibility for learning, valuing process, dialog, equality, openness, mutual respect, and integrated thinking and learning. The power and responsibility for this process are shared as learners reflect on their learning.

Andragogy was not met by all without controversy. Brookfield criticized the notion of adults being self-directed as a cultural, class specific construct. In addition, the assertion that learning needs to be focused on social roles and that the new knowledge is meaningful only if it is immediately applicable is simplistic. It does not take into consideration that much of what adults learn and find personally meaningful “is undertaken with no specific goal in mind” (Brookfield, 1986, p. 99). In 1990s, Welton (as cited in Henschke, 2015) criticized that andragogy inadequately serves the interests of the disenfranchised in North American society. In 1996, Hanson (as cited in Henschke, 2015), proposed that andragogy be abandoned altogether because many of its assumptions were based on almost utopian beliefs about adult learning linked to un-contextualized views of learning and empowerment.

In part to respond to critiques, Knowles et al. (2015) later referred to andragogy as a “conceptual framework that serves as a basis for an emergent theory” (p. 321). A theoretical framework serves to build a foundation for and conceptualization of a study (Merriam &
Simpson, 2000). To that end, I used the principles of adult learning as presented in andragogy to guide my selection of literature to include in the literature review. I looked for PD literature that viewed the adult learner as one who is self-directed; who has valuable life experience and whose readiness is dependent on the learner’s need to solve real-world problems (Knowles, et al., 2015). I looked for PD designs that incorporated the andragogical element of learners taking responsibility for their own learning (Knowles, 1980; Nottingham Andragogy Group, 1983). In addition, studies of PD with andragogic features of problem posing, dialog, equality, and reflection, as described by the Nottingham Andragogy Group (1983), were included.

For the purpose of this study, I define andragogy as the body of knowledge that provides guiding principles about adult learning that range from teacher-centered to student-centered approaches, depending on learners’ needs. These principles, therefore, also provided a reference point for interpretation of my findings (Merriam & Simpson, 2000). The theoretical framework of andragogy was used in analysis by providing initial coding categories based on the principles discussed above such as “self-directed,” “problem oriented,” “time for reflection,” etc. In my conclusion, I return to andragogy where I relate CRI PD findings to characteristics of adult learners to inform future PD efforts.

Summary

Given the demand to improve practice and increase student achievement (ASCD, 2010), it is clear that research-based approaches to PD are needed (Wei, Darling-Hammond, Andree, Richardson & Orphanos, 2009). TLs can be an effective resource to help fill this need (Danielson, 2006; Harrison & Killion, 2007; Katzenmeyer & Moller, 2009). This investigation aimed to understand the process and evolution of an emerging TL who stepped into the role of
professional developer to provide research-based PD to support the implementation of a challenging initiative. Relevant research and practice that informed by role as a TL and the PD I designed are explored in Chapter 2, the literature review. Design of the PD program and the research design I developed to study the effort are presented in Chapter 3, Methodology. The data analysis approach as well as the way my researcher role influenced the study are also discussed in this chapter. Results of the analysis of the qualitative data collected during the study as well as implications for practice are discussed in Chapter 4, Findings. The dissertation study culminated in a usable product in Chapter 5 targeted at school administrators, supervisors, coaches, and TLs in the form of a practitioner-oriented article submitted to the journal *Kappa Delta Pi Record*, published by Kappa Delta Pi.

This study is significant because it addresses the dearth of literature within which it is situated: PD led by an informal TL. Little research documents the experiences of informal TLs. The CRI PD study is significant in terms of lessons learned that can inform TLs who identify gaps in PD or other problems of practice that they feel compelled to address. The study can also inform school administrators and district leadership about how to minimize obstacles to creating more meaningful teacher-led PD opportunities, as well as how best to support teachers who want to step into informal leadership roles. In addition, findings from this study may also be of use to university faculty who wish to design and provide teacher leadership curricula to better prepare teachers for leadership roles and help them learn strategies to overcome the structural as well as cultural obstacles associated with stepping out of the traditional teacher role to be a leader among peers.
CHAPTER 2: LITERATURE REVIEW

In Chapter 1, I asserted that in order to meet the challenge of ambitious instructional initiatives, effective professional development (PD) would be necessary to support substantive changes in practice. Teachers at Stanton Middle School were introduced to the Close Read (CR) approach at a 2-hour workshop-style PD session in June 2012. Based on the research literature and my 15 years of teaching experience, I knew additional intensive PD would be needed, because teaching reading was something most teachers in the science department had not been trained to do. My colleagues and I needed new skills and knowledge to add this element to our practice. To aid in this process, I informally assumed the role of teacher leader (TL) (Katzenmeyer & Moller, 2009), sanctioned by school and district administration, drawing on my doctoral training, experience, and passion for teaching to influence others by designing, facilitating, and studying a PD program for the CRI.

The goals of this study were to explore teachers’ perspectives about the needs and challenges regarding PD for implementing the Close Read Initiative (CRI) as well as their perceptions of efforts to provide teacher-led, research-based PD to support the implementation of the CRI. In addition, I wanted to document the challenges and supports that I experienced as an emerging TL when attempting to provide research-based PD to support this initiative. To support this process, I explored four bodies of literature using andragogy as the theoretical framework: (a) general characteristics of effective PD, (b) successful PD activities, (c) Language Arts/Literacy (LAL) in the science curriculum, and (d) teacher leadership.
Literature Search

In an effort to design a research-based PD program, I looked for literature on practices associated with effective PD with corresponding activities that were in line with the principles of andragogy. For example, since an andragogic approach includes shared responsibility for learning, equality, openness, and mutual respect (Nottingham Andragogy Group, 1983), I looked for research on PD that manifests these principles. Active PD with opportunities to collaborate, such as during peer observation of teaching (POT), are a good fit with the principles of andragogy. Because the CRI called for skills associated with LAL, I also searched databases for research on PD that focused on integrating LAL across content areas. Andragogy asserts that adult learners’ experiences become rich resources for learning but can also be sources of resistance and create obstacles (Knowles et al., 2015). Therefore, I wanted to explore potential barriers to integrating LAL into the science curriculum. Since adults’ orientation to learning is life centered (Knowles et al., 2015), I also wanted to learn how literacy pertains to our subject area in the hope of making it more relevant to science teachers. Lastly, as an aspiring TL, I viewed myself through an andragogical lens, as an adult with a self-concept of being responsible for making my own decisions about how to enhance my learning; although I am responsive to some external motivators, my most potent motivators are internal (Knowles et al., 2015).

Intrinsically motivated to improve the potential impact of the CRI PD endeavor, I chose to explore literature on teacher leadership to discover what others have learned about taking up this role. This literature review is based on a search from a variety of sources, including bibliographies from graduate coursework syllabi, searches on databases through the Rutgers University library, and leads from reference lists of studies discovered during that process, as
well as related articles found through Google Scholar. In the following section, I elaborate on each of the four domains of literature used to prepare for the CRI PD: (a) characteristics of effective PD, (b) activities that enact PD best practices, (c) LAL in the science curriculum, and (d) teacher leadership.

**Characteristics of Effective PD**

Being responsible for the development of LAL skills in classes other than language arts is a change in basic assumptions and responsibilities for many content-area teachers. Intense PD is generally necessary if these new literacy programs and related assessment tasks are to be implemented effectively (ASCD, 2010). Although participation in PD programs is thought to be the primary way for teachers to improve or change their practice, research has shown that most PD does not translate into changed practices or increased student learning (Darling-Hammond, Hyler, & Gardner, 2017), and many teachers report that most PD available to them is not useful (Fullan, 2007; Garet et al., 2001; Wilson & Berne, 1999). This may be because they have found many of their opportunities to participate in PD to be fragmented, disconnected, and irrelevant to the actual challenges in their classroom practice (Lieberman & Mace, 2010). In contrast, effective PD is defined as “structured professional learning that results in changes in teacher practices and improvements in student learning outcomes” (Darling-Hammond et al., 2017, para. 3). The characteristics of high-quality PD, as summarized by Snow-Renner & Lauer (2005), that I shall explore below to inform the design of the CRI PD are (a) focused on specific content and/or instructional strategies, (b) coherent, (c) based on an active rather than a stand-and-deliver model, and (d) of considerable duration.
Focused

To have a positive impact on teacher instruction, PD must focus on specific content or instructional strategies grounded in the curriculum (Blank, 2013; Cohen & Hill, 2000; Desimone & Garet, 2015). PD that lacks focus can hinder teacher learning and lead to inconsistent implementation of the innovation (Petrie & McGee, 2012; Saderholm, Ronau, Rakes, Bush, & Mohr-Schroeder, 2017). Conversely, PD focused on teaching strategies associated with specific curriculum content supports teacher learning (Garet, Heppen, Walters, Parkinson, Smith, Song, Garrett, Yang, Borman, & Wei, 2016). This is crucial because teacher “learning that has shown an impact on student achievement is focused on the content that teachers teach” (Darling-Hammond et al., 2017, p. 15).

In one study, Garet and colleagues (2016) make a critically important point when they note that the content of PD could be misdirected—that, is not focused on the actual teaching knowledge and skills that are needed to support student learning. It is obviously most important that what teachers are taught reflects the practices that can actually make a positive difference for student learning. That is, the content of professional development matters, along with its form.

Coherent

Another important quality of PD associated with teacher instructional change and student achievement is coherence. Coherent PD programs have content, goals, and activities that are consistent with the curriculum. State reforms and policies, teacher knowledge and beliefs, and the needs of the students, the school, and the district are all taken into consideration (Bayar, 2014; Cohen & Hill, 2000; Desimone & Garet, 2015). Research indicates that PD is more effective when it is connected to classroom instruction and is embedded in instructional
materials, student assessments, and policies (Desimone & Garet, 2015; Reed, 2009; Saderholm et al., 2017).

For the CRI PD program to be effective, therefore, it would have to assess and address teachers’ knowledge and beliefs about LAL in science and consider the needs of students as well as the goals of the school and district, while integrating the LAL Core Curriculum Content Standards (CCCS) for Science. The ease with which the new content or strategy can be integrated into teacher lessons should be considered and discussed as a group.

**Active and Collaborative**

Since the CRI PD is focused on science at the middle school level, teachers can work together as a department or by grade level. Such groupings can create an environment in which colleagues are active and collaborative. During active learning, participants do not passively sit and listen to a generic lecture. Effective PD incorporates active learning using principles of adult learning (Darling-Hammond et al., 2017, p. 15). Activities that are adult oriented support dialogue, equality, openness, and mutual respect with the power and responsibility for this process shared by the group (Nottingham Andragogy Group, 1983). A study of Earth science teachers showed their PD to be particularly effective because it cast teachers in a role that gave them responsibility for designing instructional experiences (Penuel, Gallagher & Moorthy, 2011). Another example, peer observation of teaching, discussed below, may provide participants with opportunities to pose problems, engage in dialog, praxis, share responsibility for learning, and integrate thinking and learning. The power and responsibility for this process is shared as individuals observe, discuss, and reflect on their practice with fellow teachers. These formative observations contrast with traditional, formal summative observation conducted for the
purpose of evaluation. It generally involves a superior and culminates with a rating that impacts the teacher’s end-of-year evaluation.

PD that is active sharply contrasts with sit-and-listen lectures; it engages teachers during interactive activities while they participate in the same types of sense-making activities that their students should be doing (Corcoran, McVay, & Riordan, 2003; Cohen and Hill, 2000; Garet, et al., 2016). Such activities often offer participants the opportunity to collaborate. According to andragogy’s principles of adult learning, adult learners should engage in critical and creative thinking to synthesize learning in group settings (Nottingham Andragogy Group, 1983). This can help them implement new practices because, “by working collaboratively, teachers can create communities that positively change the culture and instruction of their entire grade level, department, school and/or district” (Darling-Hammond et al., 2017, p. v). Therefore, when designing PD, it is important that activities be active and collaborative. They may include leading instruction, engaging in discussion with colleagues, observing other teachers, or developing resources (Blank, 2013; Desimone & Garet, 2015).

Sustained

While workshop-style PD is usually completed in one day, the high-quality PD described above takes considerably more time. Research in the United States shows that most teachers receive PD that lasts less than 8 hours on any one topic (Darling-Hammond et al., 2017). This is distressing because PD that is most likely to positively affect teacher instruction is of considerable duration ranging from 20 to 160 hours (Corcoran, McVay, & Riordan, 2003; Cohen and Hill, 2000; Garet, et al., 2016). This range depends on the type and frequency of activities in the PD design. Although programs may vary considerably, high-quality PD “provides
opportunities for learning across multiple engagements, along with the ongoing connected learning that occurred for teachers within their classrooms as they applied the curriculum ideas and teaching” (Darling-Hammond et al., 2017, p. 26). Such PD designs contribute to teachers’ ability to collaboratively generate new knowledge through critique and reflection, in addition to increasing the strength and sustainability of their learning (Bayar, 2014; Desimone & Garet, 2015).

Time is also necessary to discover what teachers need and get their input on how to best meet those needs (Reed, 2009). However, teachers are seldom given the authority or opportunity to plan their own PD or to be actively involved in its design or implementation (Wei et al., 2009). Given that andragogy asserts that adults have a self-concept of themselves capable of making their own decisions about their learning (Knowles et al., 2015), it is not surprising that this failure to include teachers in the planning, implementation, and evaluation of their PD is characteristic of ineffective programs (Glickman, Gordon, & Ross-Gordon, 2009). Therefore, PD designed to span months rather than a few hours provides opportunity to assess and respond to teachers’ needs and to engage them in active, collaborative discourse about their learning.

In summary, although participation in PD programs is thought to be the primary way for teachers to improve or change their practice, research has shown that most PD is perceived by teachers as irrelevant and ineffective (Lieberman & Mace, 2010) and not useful (Fullan, 2007; Garet et al., 2001; Wilson & Berne, 1999). Such PD programs are not based on andragogical principles of shared responsibility for learning, equality, openness, and mutual respect as social beings (Nottingham Andragogy Group, 1983) whose orientation to learning is centered around solving authentic problems of practice (Knowles et al., 2015). Therefore, most PD misses the
mark and does not translate into changes in teacher practice or increased student learning (Darling-Hammond et al., 2017). In contrast, are PD programs that use the principles of adult learning to create highly effective learning experiences.

**Activities That Enact Best PD Practices**

With dimensions of high-quality PD identified, the question of how to enact them remains. What do activities focused on specific instructional strategies characterized by collective participation look like? How are they coherent, and what kinds of activities engage participants in a meaningful timeframe? These questions are addressed in the next section, which features activities that enact best practices in PD.

**Needs Assessment**

A feature of successful PD design is the selection of content or strategies that are matched to teachers’ perceived needs (Bayar, 2014; Reed, 2009) To ascertain these needs, assessment tools such as surveys or interviews (Bryant, Linan-Thompson, Ungel, Hamff, & Hougen, 2001; Nichols, Young, & Rickleman, 2007; Saderholm et al., 2017) can be utilized. These data can help determine which PD experiences would likely be most effective in a particular setting (Karagiorgi, 2012; Linder, Rembert, Simpson, & Ramey, 2016). As part of the needs-assessment process, teachers should be asked to formulate goals that guide the PD focus, selection or development of resources, and activities (Hagen & Park, 2016; Linder et al., 2016). To help address needs as they surface during implementation of an initiative, needs assessments can be embedded throughout. This ongoing process of assessing needs requires participants to reflect on their practice and can be used in learning activities as well as informing design (Avalos, 2011).
Discussion Protocols: Opportunities for Collaboration and Enhanced Professionalism

As indicated above, collective participation is characteristic of effective PD. Operationalizing this can be a challenge due to the structure of most U.S. schools.

Given the prevalence of an “egg-crate model” of instruction—whereby each teacher spends most of the day in a single room, separated from other adults—the American teaching profession has not yet developed a strong tradition of professional collaboration. (Wei et al., 2009, p. 11)

To create an effective PD experience, therefore, opportunities must be made available that reduce isolation and provide necessary supports to enable teachers to interact in a collegial manner. In contrast to congenial exchanges, which are personal and friendly, collegial exchanges are characterized by substantive discussions about practice. These can include sharing successes and challenges, sharing knowledge, observing one another, and providing feedback with meaningful questioning and critique (Barth, 2006). Unfortunately, however, teachers may be apprehensive about engaging in this type of interaction due to a sense of personal or professional risk (Nelson, Slavit, Perkins, & Hathorn, 2008). To reduce risk and facilitate such interactions as a way to promote teacher learning, protocols can be used to establish norms that promote substantive work focused on teaching and learning rather than venting, careful listening, synthesizing, and critical analysis. Their use helps discourage “center-stage” individuals from dominating the group (Dana & Yendel-Hoppey, 2008; Sprouse, 2016). The structure provided by protocols promotes balanced participation and optimizes a group process that can support learning as individuals work together to develop implications for practice, deepen understanding, and new perspectives (Brookfield & Preskill, 1999; Fullan, 2007; George, Hall, & Stiegelbauer, 2006; Reed, 2009; Roseberry & Puttick, 1998; Spiro, 2011).

The Critical Friend (CF) process developed by the Annenberg Institute for School
Reform (AISR) is an example of this type of PD. Using protocols, a Critical Friends Group (CFG) of teachers meets regularly to discuss issues of practice and collaboratively identify ways to improve student learning (Storey & Wang, 2017). Storey and Wang (2017) state that participants in a CFG can pose challenging and uncomfortable questions that stimulate new understandings and ideas, provide another viewpoint, and facilitate reappraisal of taken for granted practices. A CFG can only thrive, however, when trust has the opportunity to grow and develop. The presence of trust may keep teachers engaged which in turn may enhance teacher professionalism (Storey & Wang, 2017). The use of discussion protocols, which scaffold collegial exchange, may help build the trust necessary to enable professionalism to grow.

**Peer Observation of Teaching (POT)**

In his book Reframing Teacher Leadership, Reeves (2008) asserted that with systemic support, school systems could be dramatically transformed. Reeves stated, “the single greatest influence on the professional practice of teachers is the direct observation of other teachers” (p. 70). There is great PD potential in each classroom if only teachers could observe their peers. Peer observation of teaching (POT) falls into three general categories in the literature: (a) evaluative, (b) developmental, and (c) collaborative (Gosling, 2002). The evaluative type of POT involves observation to assess a teacher’s competence to make a judgment. Here, the observer is positioned as an authority and/or expert. The relationship between the observer and the observed is characterized by a hierarchy of power. The developmental type of POT involves expert teachers whose goal is to assess teaching and provide an action plan for improvement; the relationship between observed and observer is characterized by a hierarchy of expertise. The
evaluative and developmental approaches are the type of POT one would most likely encounter in the elementary and secondary/high school settings.

An example of developmental POT is described in Taylor’s and Tyler’s study (2012) of 105 Cincinnati public school teachers. They conducted a quantitative, quasi-experimental study of mid-career elementary and middle school teachers in a highly structured teacher-evaluation program which included classroom observations. They investigated whether such a program could have a direct and lasting effect on individual teacher performance. The researchers found that teachers were more effective at raising student achievement during the school year when they were being observed than they were previously. The teachers were observed four times during the year by highly trained “peers” and administrators. The first observation was announced while the remaining three were not. The researchers also found that teachers were even more effective in the years after evaluation with the greatest improvements gained by teachers whose performance had been lowest prior to evaluation. Taylor and Tyler suggest that a rigorous evaluative and developmental POT program can be an effective form of teacher PD.

The collaborative approach to POT differs from both the evaluative and developmental. Here, teachers, regardless of level of expertise, observe other teachers with the goal of improving their practice through dialog and reflection in an equal relationship rather than hierarchy (Gosling, 2002). Research shows that when POT is truly collaborative and characterized by a trusting and mutually beneficial relationship between peers, it can serve as an effective PD activity. (McMahon, Barrett & O’Neill, 2007; Mento & Giampetro-Meyer, 2000; Pressick-Kilborn & te Riele, 2008). An example of this approach to POT is illustrated by Rorschach & Whitney (1986).
These two NYU professors decided to engage in POT to try and determine why some successes and failures in their classrooms contradicted theoretical predictions (Rorschach & Whitney, 1986). Discussing these instances was not fruitful, so the authors decided to observe each other’s freshman writing classes as a way of gaining insights about what might be going on. Their qualitative study used a participant/observer approach; each recorded observations in a notebook as they explored how their roles as teachers affected the culture of the classroom. As the semester progressed, they discovered significant differences in their classroom environments which prompted them to start video recording classes for later analyses. After engaging in reflection and probing discussion around the data they collected, the researchers hypothesized that the difference in the feel of the classrooms was due to their own behavior. To test the hypothesis, they worked out ways Professor Whitney could change his behavior during the next freshman writing course he taught. He implemented the strategies they created and noted a significant change in his classroom environment. The effort of two peers to explore classroom practice with a desire to become better teachers and show genuine development was reflected in Professor Whitney’s new approach to his practice.

In this example, the colleagues chose with whom to engage in POT and how to shape the process. These are significant points. When the observee trusts the observer and has control over who that is, the focus of the observation, the form and method of feedback, the resultant data-flow, and what happens next, it is much more likely the POT experience will yield positive changes in practice (Kohut, Burnap, & Yon, 2007; McMahon, Barrett & O’Neill, 2007). In addition, Professor Whitney engaged in critical self-reflection. This element of purposefully challenging assumptions is an important part of the process that can be supported through
interactions with trusted peers (Peel, 2005).

For the CRI PD, therefore, opportunities for collaborative POT with time for reflection were provided. Participants who chose to participate in this part of the PD had control of when they engaged in POT, whom they observed, and who observed them. Three optional protocols from the National School Reform Faculty were offered to guide teachers through the POT process: Observer as Learner, Interesting Moments, and Focusing Debrief (Appendices H, I, and J). These observations were collaborative and provided colleagues opportunities to explore how peers teach CRI and to engage in reflection and dialog about their practice in implementing it.

**Language Arts Literacy in Science**

Researchers have described reading across the curriculum in two ways: Content-area literacy and disciplinary literacy. Research on content-area literacy focuses on the use of reading and writing as generic tools for learning from content-area texts (Bean, Readence, & Baldwin, 1995). This encourages teaching strategies that can be applied universally across content areas (Fang & Coatoam, 2013). Disciplinary literacy, however, acknowledges that content disciplines are distinct from one another in that acts of inquiry produce different kinds of knowledge represented in different ways (Moje, 2008). Disciplinary literacy contrasts with content-area literacy because of its focus on distinct ways of reading and writing in different domains.

According to Shanahan and Shanahan (2014),

Disciplinary literacy refers to the idea that we should teach the specialized ways of reading, understanding, and thinking used in each academic discipline, such as science, history, or literature. Each field has its own ways of using text to create and communicate meaning. Accordingly, as children advance through school, literacy instruction should shift from general literacy strategies to the more specific or specialized ones from each discipline. (p. 636)
In accordance with the disciplinary literacy model, science teachers help students develop literacy skills that are used by scientists in the field would, on the assumption that scientists (and experts in the field) study, create, and critique knowledge in distinct ways (Shanahan & Shanahan, 2017).

An example of the content-literacy approach is using copy change with trade books (Bintz, Wright & Sheffer, 2010). As explained by Rasinski & Padak, (as cited in Bintz, et al., 2010), this is an instructional strategy in which students use an author’s text pattern to guide their own writing. Students can use children’s trade books as the source of patterns on which to model the writing of their own books. This genre may be less intimidating and more engaging than traditional textbooks and offers students a qualitatively different opportunity to learn science (Bintz, et al., 2010).

In a study of the use of the copy change method (Bintz, et al., 2010), fifth-grade teachers used this strategy to integrate science and literacy. For example, one teacher, a district Title I specialist, and a teacher educator worked collaboratively over a 10-day period. For one hour on days 1-9, students focused on researching, learning, and recording information about earth science topics they were exploring. On the tenth day, students worked for three-hour period and focused on writing, illustrating, and publishing earth science books. The project consisted of three phases: (1) reading, researching, journal writing, and note-taking, (2) organizing and selecting concepts, and (3) writing, illustrating, and publishing. It resulted in student publication of five books on earth science. After publishing, one child stated, "I liked this project, because now I feel like I'm an author. I never felt like that before" (Bintz, et al., p. 114).
The Next Generation Science Standards (NGSS) draw on disciplinary literacy ideas. As noted by Goldman et al. (2016), the NGSS emphasize argumentation as a central practice of science learning. Therefore, special importance is placed on articulating claims, entertaining alternative explanations, and providing evidence. This requires students not only to read effectively in general but in ways that are distinctly scientific.

An example of the disciplinary literacy approach is to teach domain specific strategies for making arguments (i.e., making a case for a specific assertion or position) (Washburn & Cavagnetto, 2013). Argument, in layman’s terms, is often associated with a heated exchange or altercation. In science, according to Walton (2006), argument is understood as providing an assertion or claim about a problem and having a reason for the assertion. The construction and critique of evidence-based explanations and arguments are critical elements of doing science (Ford, 2008; Goldman et al., 2016; Chen, Hand & Park, 2016). One of the best documented approaches to developing science disciplinary literacy to teach science argumentation is to use the Science Writing Heuristic (SWH).

The SWH instructional approach is designed to use reading, writing, speaking, and listening as a tool for making meaning from scientific concepts (Hand, Therrien, Shelley, & Society for Research on Educational Effectiveness, 2013). This is accomplished by using a set of prompts that support students as they pose questions, make observations, interpret data, construct evidence-based knowledge claims, and communicate their findings to others. The PONG cycle is a planning tool to help teachers use the SWH. PONG is an acronym for problem, observation, negotiation and goal (Washburn & Cavagnetto, 2013). With PONG, the teacher first, poses a problem or shares a focused question. Then, students make observations. Next, as is done in the
scientific community, they negotiate to reach a consensus about the validity of a hypothesis that attempts to answer the focus question. This encompasses three activities. Students make evidence-based or reasoned claim(s), share and critique claim(s), and revise their evidence-based claim(s). The goal at the end is for students to learn content while constructing and critiquing each other’s ideas in an authentic inquiry environment (Washburn & Cavagnetto, 2013). The cycle may then repeat. The PONG cycle helps teachers provide more opportunities for students to construct and critique scientific argument via reading, writing, speaking, and listening.

Unfortunately, after decades of research about the importance of developing literacy skills across content areas as well as specific to the discipline of science, reading instruction still resides primarily within the LAL domain (Baker et al., 2008; Goldman et al., 2016). In the section below, I explore two barriers to integrating LAL into science instruction. The first barrier is the perception that it is not the science teacher’s job to teach reading and writing. The second is the lack of know-how among science teachers for teaching LAL skills, much less how to integrate LAL skill development with science content.

“I’m Not a Reading Teacher”

During the training session at Chesterport in June 2012, a teacher asked, “How am I going to cover what I have to cover if I have to teach reading too? I’m not a reading teacher!” This sentiment summed up two barriers for content-area teachers to integrate LAL in their curricula—lack of time and knowledge of teaching reading. Researchers report that when they are expected to integrate reading instruction into their curriculum, many science teachers perceive this as a burdensome “extra” they must teach while maintaining the pace of instruction in their own subject matter (Baker et al., 2008). For example, Herman and Wardrip (2012) report
that science teachers say that they are too busy teaching science to actively help students increase their reading comprehension skills. Additionally, many simply do not see it as part of their job. However, as far back as 1941, reading experts questioned prevailing assumptions that teaching students how to read is the responsibility of elementary teachers, not middle or secondary teachers (Bintz, 1997; Hanrahan, 2009). Yet, content-area teachers in middle and secondary schools, as well as non-LAL middle and secondary teacher education students, often take for granted that their students will have the necessary skills to comprehend their subject matter texts (Fleming et al., 2007; Hanrahan, 2009).

This belief is reinforced for content-area teachers by receiving little to no training in how to integrate LAL into their classroom practice (Hurst & Pearman, 2013). This lack of training is not limited to reading instruction. Content-area teachers seldom learn how to teach writing in their preservice or in-service experiences (Monte-Sano, Paz, Felton, Plantedosi, Yee, & Carey, 2017). Although the expectation that content-area teachers would integrate LAL into content-area classes was new in Chesterport, this is not a new challenge for content-area teachers elsewhere. However, it is well documented in the research literature that science teachers who have had no formal training in LAL often lack the necessary know-how to support the development of their students’ domain-specific reading and writing skills (Baker et al., 2008; Bintz, 1997; Fang & Coatoam, 2013; Greenleaf, Litman, Hanson, Rosen, Boscardin, Herman, & Schneider, 2011; Hanrahan, 2009).

This lack of capacity may stem, in part, from teacher preparation programs. In reference to preparing content-area teachers, some professors of literacy education methods struggle to prepare single-subject teachers for the demands of teaching reading and writing across the
content areas (Fleming et al., 2007). According to Clark, Helfrich, and Hatch (2017), a balance must be struck between content and pedagogical knowledge as well as knowledge about the components of reading instruction. This problem is not limited to the United States. Clark et al. (2017, p. 229) reported that

as concerns about the number of children worldwide who are experiencing reading difficulties continues to increase, it will become more and more important to examine the impact that the different elements of teacher education programs have on building teacher knowledge and competency.

More effective reading methods courses need to be designed to ensure content teachers can address growing literacy concerns. In science, for example, text-based investigation in science is largely unfamiliar to both teachers and students (Clark et al., 2017; Goldman et al., 2016). Therefore, if professors of literacy education methods courses want to help new content-area teachers move toward the kinds of literacies envisioned in the CCSS and the NGSS, college courses must evolve (Clark et al., 2017; Goldman et al., 2016).

Most teacher preparation programs at colleges and universities align their curricula with state education agency teacher licensing requirements. As a result, many secondary non-LAL teachers lack training on how to support the development of reading and writing. Surprisingly, this is also true of secondary LAL teachers. (Lovette, 2013). Lovette, conducted a survey of state licensure requirements for LAL secondary teachers and found they vary considerably across the United States with only 18 state education agencies requiring knowledge of reading development at both the middle and secondary levels (2013). These minimal requirements for LAL teachers exceed that of content area teachers. Sadly, on a document that indicates requirements for the Middle School Science for grades 5 – 8 Standard Certificate published by the New Jersey Department of Education, no coursework in reading in secondary school is indicated (2019).
Dillon, O’Brien, Sato & Kelly assert that preservice teachers in most content area reading courses are expected to integrate generic reading strategies into their content areas without a full understanding of the fundamental reading processes needed to comprehend the material (2011).

Perceptions of teaching reading and writing as the responsibility of elementary teachers and LAL secondary teachers as well as the demands on content area teachers’ time, may lead to feelings of “it’s not my job.” In addition, lack of training during teacher preparation in teaching reading and writing at the secondary level, for content area teachers as well as LAL teachers, creates a predicament in reference to the ability and willingness to works towards developing middle school students’ literacy skills.

Teacher Leadership

Faced with implementing of a challenging initiative to integrate LAL and science with a lack of PD, I felt compelled to use what I had learned in my doctoral program at Rutgers University to help support my colleagues. The program was oriented to leadership development, and I perceived stepping into a teacher leadership role as an opportunity to apply what I had studied. In my search of the literature, I was looking for ways that I could help my colleagues and myself rise to the challenge of integrating LAL into the science curriculum. Based on past experiences, I believed that if we did not get the necessary support and professional development, it would be unlikely that we could successfully implement the CRI. Unfortunately, I did not know what that support would look like or if I, a classroom teacher, had the ability to provide it. In the section that follows, I first present an overview of teacher leadership and how it has evolved. Next, I describe the research on the benefits of schools that have classroom teachers
who take on the TL role. Lastly, I explore the barriers to effective teacher leadership and possible solutions.

**The Evolution of Teacher Leadership**

In the past, prevailing views held that leadership was based on formal, hierarchical administrative roles (Murphy, 2005), but TLs were sometimes used to reduce costs by doing the work of central office administrators while still earning a teacher’s salary (Reeves, 2008). Over time, however, the concept of teacher leadership has changed. At the turn of the 21st century, in an effort to shift some of the responsibility for instructional leadership away from school principals, district and school administrators created new TL positions to support instructional improvement in a variety of ways including functioning as instructional coaches (Mangin, 2005). Currently, teacher leadership more often refers to the leadership skills demonstrated by teachers who remain in the classroom because they perceive themselves as teachers, not managers, but whose influence extends beyond their students to their colleagues and the education environment more generally (Danielson, 2006). TLs mobilize and energize others not by wielding positional power but by leveraging their expertise and passion for teaching in an egalitarian manner (Danielson, 2006; Harrison & Killion, 2007; Katzenmeyer & Moller, 2009; Lai & Cheung, 2015; Nolan & Palazzolo, 2011).

The concept of teacher leadership and the roles of TLs continue to evolve. Murphy (2005) states that effective teaching is a prerequisite for teacher leaders. Ideally, teacher leadership is grounded in the work of classrooms, collaborative, anchored in the community, and generates knowledge of teaching that is co-constructed. When these concepts are put into practice, TLs can assume numerous roles to contribute significantly to the success of their
schools. Harrison and Killion (2007) list ten possible ways of doing so. TLs can act as (1) resources by sharing instructional materials; (2) instructional specialists who help with the implementation of instructional strategies; (3) curriculum specialists who lead colleagues to agree on standards, implement them, and develop shared assessments; (4) classroom supporters who work in classrooms to help teachers implement new practices by teaching demonstration lessons, coteaching, or observing and providing feedback; (5) facilitators of professional learning opportunities; (6) mentors for novice teachers; (7) school leaders who serve on committees and support school initiatives; (8) data coaches who lead conversations about how peers can utilize data to effectively drive classroom instruction; (9) catalysts for change who challenge the status quo; (10) learners who model lifelong learning.

**Benefits of Teacher Leadership**

Although research has shown that school principals are instrumental in increasing student achievement (Marzano, Waters, & McNulty, 2005), the role has grown increasingly complex, making it advantageous for them to look to TLs to share the responsibility for facilitating instructional improvement. In the past, it was believed that decisions about school management had to be made solely by principals. Heller and Firestone (2011) showed, however, that although particular functions need to be accomplished during a change effort, it does not necessarily matter who executes those functions. The implication is that teachers, in addition to administrators, can help enact changes that were previously the sole domain of principals. This is significant because the complex nature of schools makes it impossible for a single individual to lead lasting change efforts; it takes an entire team, of which teachers can be a fundamental part.
In a time of unrelenting change when teams of educators are seeking to increase student achievement, Tls can play an important supporting role. Change literature indicates that cultural change in a school system happens incrementally and takes time (Fullan, 2007; Hall & Hord, 2010; Lieberman & Mace, 2010). Therefore, part of the value of teacher leadership is related to the professional longevity of Tls. Danielson (2006) asserted that teacher leadership is important because teacher tenure can extend into decades—as contrasted with a school principal, whose tenure usually lasts 3–5 years at a given school. Due to their longevity, therefore, Tls are positioned to make the substantive changes required over the long term (Danielson, 2006).

Also, unlike consultants and experts who come in for a day or two to (supposedly) fix things, teachers are there all the time. Therefore, Tls can play a crucial role in facilitating and sustaining learning communities and change efforts. Teacher leaders can promote professionalization and important organizational outcomes because they can reinforce or help build positive, meaningful, and constructive elements of learning communities (Murphy, 2005). This is significant because schools with teacher led learning communities are generally more adaptable and better able to improve student achievement than their counterparts where teachers and administrators are in rigid, bureaucratic roles (Fullan, 2007).

**Barriers to Teacher Leadership**

Despite the significant potential of teacher leadership, the literature reveals barriers to teacher leaders that are a result of organizational structure and/or school culture. Structural barriers arise from how schools are organized as systems. Cultural barriers arise from how people interact in those systems and are linked to the very structure of the organization itself. In the next section, I explore these two types of barriers.
In organizations with an autonomous structure, such as medical clinics and law firms, professional staff tend to have control of most professional activities but delegate administrative tasks to support staff. American public schools, however, have traditionally been organized as hierarchical bureaucracies in which many administrators and school boards control most professional activities (Barth, 2001; Cox and Wood, 1980; MacDonald, 2013). Köybaşı et al. (2017) observe that schools have a range of bureaucratic features including a division of labor, specific positions at schools filled by those with corresponding professional qualifications, laws and regulations that are binding, and teachers who are held accountable by school administrators or group leaders.

This division of labor can lead to teacher alienation which, as defined by Clark, is the degree to which people feel powerless to achieve the roles they have determined to be rightfully theirs in specific situations (1959). Such a sense of powerlessness may subsequently thwart teacher leadership. Almost three decades later, Katzenmeyer and Moller report that “feelings of isolation, powerlessness, and meaninglessness explain the vast numbers of teachers leaving the profession, regardless of whether they are trained as teachers in traditional university or alternative programs” (p. 84, 2009). This may obstruct the likelihood of effective teacher leadership (Cox & Wood, 1980; Donaldson & Weiner, 2017; Köybaşı, Uğurlu, & Bakir, 2017; Lai & Cheung, 2015; Reeves, 2008).

The structural barriers mentioned above impact school culture which may hinder the development of teacher leadership (Barth, 2001). Culture is “the underground stream of norms, values, beliefs, traditions, and rituals that has built up over time as people work together, solve problems, and confront challenges” (Peterson & Deal, 1988, p. 28). Although restructuring
school is necessary, re-culturing it should be a high priority to ensure teachers and other stakeholders can work in a more collaborative and supportive culture (Hargreaves & Fullan, 1998; Peterson & Deal, 1988). For teacher leadership to thrive, both structural and cultural barriers must be addressed.

**Going Forward**

In their current form, public schools are bureaucratic institutions where change tends to be incremental, piecemeal, and strongly resisted (Curtis, 2013). The situation, however, is not hopeless. Research shows that some barriers can be overcome which could enable TLs to make positive contributions. In part, this includes establishing new kinds of relationships between teachers and administrators that are more egalitarian (Murphy, 2005). When power is more evenly shared, TLs can move outside their classrooms to help build learning communities that can cultivate teacher learning (Reeves, 2008). Additionally, principals and other administrators can encourage the development of a collaborative culture in schools, reshape organizational structures to support TLs, and provide time and resources for teachers to carry out decision-making responsibilities (Lai & Cheung, 2015). When school and district leaders invest their energy to purposefully create environments that are democratic and supportive, teacher leadership can thrive (Katzenmeyer & Moller, 2009; Murphy, 2005; Reeves, 2008).

The literature indicates, however, that challenges are inevitable. The structure and culture of the school where I work are such that multiple barriers were sure to be encountered during my attempt to implement a research-based PD program. The literature indicates that challenges might include resistance from those who are unwilling to share power and from those who are unwilling to follow my lead. I expected to be limited in what I could accomplish but was hopeful
because my principal was supportive of us teachers. This is encouraging because the literature indicates school principals play a key role in the success of teacher leaders (Donaldson & Weiner, 2017).

**Situating the CRI PD Study in the Literature**

To inform the design of the CRI PD program, I searched three bodies of literature for information about effective PD, teaching LAL in science, and teacher leadership. Looking across the literature has informed me about the kind of PD that might help middle school science teachers effectively implement the CR teaching strategy. Although valuable insight is present in the literature, there are gaps.

As a form of active PD situated in practice and aligned with andragogy, the theoretical framework, the CRI PD includes a variety of collaborative activities and options for participants. This is important because reducing isolation among teaching staff, spreading best practices, increasing teacher capacity, and ultimately increasing student achievement may be possible (Reeves, 2008). A striking gap related to effective PD and teacher leadership is that none of the studies were conducted by informal TLs. Considering the significance of teacher leadership in enacting change over the long term, lack of research by TLs is of concern. This qualitative study about the CRI PD program was designed by an informal TL to assist in integrating LAL into a middle school science program. It addresses each of these three gaps.

The CRI PD program was sustained over time and embedded in practice (November 2012—March 2013) to be in line with best practices suggested by much of the research on PD (Darling-Hammond et al., 2017; Garet et al., 2001; Putnam & Borko, 2000; Snow-Renner & Lauer, 2005; Wei et al., 2009). There were two major components of the PD: sessions I provided
in which collaborative, active learning was enacted; and POT, in which participants learned about CR implementation by visiting each other’s classrooms and engaging in reflective activities before and after doing so. In addition to learning specific skills that could be used to implement the CRI, opportunities were provided for reflection and sharing successes and obstacles encountered (Putnam & Borko, 2000; Wilson & Berne, 1999).

There was also time for collaborative problem solving as participants began to implement CR lessons in their classrooms. POT conducted concurrent with Sessions 2–5, consisted of a pre-observation planning conference, an observation, and a post-observation conference that encouraged participants to reflect on observation notes. Research indicated that peer observations can help build new knowledge and skills and provide encouragement (Hipp & Huffman, 2010) for implementing the CRI. In addition to department meetings and POT designed to help sustain and strengthen implementation of the initiative, informal opportunities for continued PD related to the CRI included communicating as needed via school e-mail and phone calls, texting, talking between classes, and making myself available for participants before and after school on an as-needed basis.

**Summary**

Looking across the literature showed me how research-based PD could help my colleagues and me effectively implement the CR teaching strategy. Using the theoretical lens of andragogy, I focused on literature that was aligned with the assumptions of andragogy including that adults have a life-centered orientation to learning and a self-concept of capacity to make decisions about their own learning (Knowles et al., 2015). In addition, to inform the design of the CRI PD program, I looked for studies that focused on shared responsibility for learning, equality,
Based on the literature about effective PD, I designed the CRI PD to provide time for participants to collaborate, engage in reflective, collegial conversations, and to assist one another as they worked their way through the learning process. The program was sustained. It spanned four months and included a variety of activities designed to ensure that participants were engaged in active learning. Participants’ needs were assessed throughout the program. To help create structure and facilitate collegial exchanges, discussion protocols were used to support and guide participants during the PD. In addition, participants had the opportunity to reflect, pose problems for the group to consider, and offer suggestions to colleagues who requested guidance.

Andragogy states that although adult learners have experience which can be a rich resource for learning, it can also be a source of resistance (Knowles et al., 2015). This is evident in the LAL in science literature. Challenges associated with teaching reading in science class include perceptions about reading (Bintz, 1997; Fleming et al., 2007; Hanrahan, 2009; Herman & Wardrip, 2012; Loranger, 1999) and teacher capacity (Bintz, 1997; Fleming et al., 2007; Greenleaf et al., 2011; Herman & Wardrip, 2012). Therefore, perceptions about reading were explored in the CRI PD and teacher needs were addressed by giving participants opportunities to develop specific LAL strategies to use in the classroom, as well as instructional resources that they created collaboratively.

Although the CRI PD was designed to help my colleagues implement a challenging new practice, the teacher who stood to learn the most was me, the TL. Knowles et al. (2015) asserted that adult learners are intrinsically motivated, and that certainly described me. I chose to design
and implement the CRI PD as a result. As defined by Katzenmeyer & Moller (2009), TLs draw on their experience and passion for teaching to influence others. Unfortunately, however, there are often structural and cultural obstacles that may interfere. The literature informed me that lack of time, overwhelming responsibilities, resistance from colleagues, and power issues would likely arise. However, it was important to me to move forward to solve the problem of how to educate students more effectively, because the literature shows that TLs can be an important part of the solution (Curtis, 2013). The ways in which the participants and I experienced the barriers explored above will be explored and discussed in subsequent chapters.
CHAPTER 3: METHODOLOGY

Faced with the requirement to teach LAL strategies with little PD provided by the district, I assumed the role of informal TL to design and implement PD to help science teachers learn how to do this. The purpose of this study was to explore teachers’ perceptions of this effort to provide research-based PD to support the implementation of the CRI. In addition, I wanted to document the challenges and supports of providing research-based PD as a TL. In this chapter, I briefly describe each session and indicate procedures used for data collection throughout the program. Then I share strategies employed during the data analysis process by explaining how I prepared, organized, analyzed, and represented the data. In addition, I present procedures employed to strengthen the trustworthiness of my findings. In the last section, I discuss limitations of the study.

Research Approach

A qualitative research approach was used for this study. This approach was chosen as it is best suited to capture participants’ feelings and perceptions in a natural setting. Specifically, using Creswell’s (2009) definition of a case study as a guide, I collected detailed information using multiple data collection procedures over a sustained period. This case was bounded by time and activity. A sustained data collection approach not only enriched my ability to draw conclusions from my analysis but also aided in the process of triangulation by providing opportunities to collect confirming or disconfirming data that could then be validated by teachers in the study via member checking.

In addition to seeking to understand how participants experienced the PD program, I wanted to explore how the process could be improved to inform future efforts (Coffey &
Atkinson, 1996). The foci of this study, therefore, were the design, implementation, and “utilization-focused” (Patton, 2008, p. 305) evaluation of one PD program. Patton (2008) defined a utilization-focused evaluation approach as one that provides stakeholders with actionable information that can help improve program design and delivery. I wanted to know the strengths and weaknesses of the program in addition to how the process could be improved. My aim was to give local stakeholders such as the director of curriculum, the supervisor of science teachers, the principal of Stanton, and fellow teachers information that could be used to improve the current PD program. In addition, I wanted to make this information available to a broader national audience of practitioners who could also benefit from exposure to actionable strategies that inform the effective implementation of teacher-led PD.

**Research Site**

This study was conducted at Stanton Middle School in the Chesterport K-8 School District in central New Jersey. In Chesterport, standardized test scores are closely reviewed and used to engage in data-driven decisions in a very serious way. Chesterport has a reputation among parents, staff, and surrounding districts for providing an outstanding education. During the 2010–2011 academic year, approximately 1,000 students were enrolled in the school. Stanton Middle School is organized into Grades 6, 7, and 8. Each grade level is organized into “quads,” each with a reading/LAL teacher, a mathematics teacher, a social studies teacher, and a science teacher. Also on staff are teachers of art, music, physical education, health, and world languages; they work with students across quads.

All teachers in the district participate in PD activities throughout the school year. PD is generally offered on the district as well as on the school level. A few times a year at the district
level, students have the day off while teachers have in-service PD. During these days, teachers may meet at a central location where they are addressed by an expert on one of that year’s initiatives, or they may meet by department for mandated safety training, such as Occupational Safety and Health Administration Right-to-Know. A few times a year at the school level, students have a half day of instruction after which teachers usually meet by department to learn about new technology and to develop curricular resources, such as common assessments.

**Research Participants**

Teachers in Chesterfield are required to participate in PD activities during the school year. Since no PD specific to the CRI for science teachers was planned, however, I designed and implemented the CRI PD for science teachers at Stanton. Although the PD was required of all science teachers in the school, participation in the study was not. PD hours, which counted toward the NJDOE PD requirement for teachers, were granted by the district to science teachers regardless of whether they participated in the study. Those who did choose to participate were offered three levels of engagement. I told my colleagues that any participation in the study was strictly voluntary and that any information shared with me was confidential, meaning that their responses would be not be shared with administration or other teachers and that pseudonyms would be used to mask their identities. Teachers were also informed that they could stop participating in the study at any time without consequences; data generated by their participation in the study would be removed from the data set and destroyed. Happily, all teachers participated in some way, and no one withdrew from the study. Each participant received an identification number to write on surveys and other PD documents to allow for coding of participant data while
ensuring confidentiality. I recorded the names with the corresponding numbers in my research journal and otherwise used pseudonyms for the district, the school, and the participants.

To assure participant comfort and to minimize risk, I designed this study to have three levels of involvement from which participants could choose. Individuals indicated their selected level of involvement on their consent forms. Those who agreed to be Level 1 Participants allowed me to use all the materials and documents that were created while they participated in the PD program for research purposes. Level 2 Participants granted me the use of the same program-generated materials as Level 1 Participants, as well as a digital audio recording of their participation in an activity during a PD session called the “Cheers and Fears” protocol. Finally, Level 3 Participants allowed me to use all these data and also agreed to participate in POT and an interview at the end of the program regarding their perceptions of the PD activities.

All nine Stanton science teachers participated in the study of the PD program to some degree. There were two Level 1 Participants, one sixth grade teacher and one seventh grade teacher; three Level 2 Participants, one eighth grade teacher and two seventh grade teachers; and four Level 3 Participants, two eighth grade teachers and two sixth grade teachers (see Table 1).
Table 1

*Level of Participation by Grade Level and Years of Teaching Experience*

<table>
<thead>
<tr>
<th>Subject, grade level</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth Science, 6</td>
<td>Ms. Russo (4)</td>
<td>Ms. Smith (1)</td>
<td>Ms. O’Shea (8)</td>
</tr>
<tr>
<td>Life Science, 7</td>
<td>Ms. Lytle (15)</td>
<td>Ms. Jones (4)</td>
<td>Ms. Park (20)</td>
</tr>
<tr>
<td>Physical Science, 8</td>
<td>Ms. Salwi (4)</td>
<td>Mr. Banks (2)</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* $(n)$ = years of teaching experience. All names are pseudonyms.

All nine teachers in the Stanton science department reported that they were highly qualified to teach in their areas. The NJDOE (2014) defined highly qualified teachers as those who have at least a bachelor’s degree, have valid state certification, and demonstrate content expertise in the core academic subject they teach. Teaching experience for the sixth grade teachers ranged from 1 to 8 years, while the seventh grade teachers reported 4 to 20 years of experience; the eighth grade teachers had between 2 and 4 years of experience teaching at the middle school level. Eight of the nine participants were trained in traditional teacher education programs; one had been certified through an alternate route. All participants held a bachelor’s degree in education. One participant was in the process of earning her master’s degree, and two held master’s degrees in education as well as additional graduate credits in other programs. Ages of the participants ranged from 30 to 45 years. All participants reported their race as Caucasian.
Professional Development Design

Three years before the CRI, I began the Doctor of Education program at Rutgers University. The doctoral program is designed to help graduates act as change agents who can solve problems of practice to improve instructional quality as well as the lives of those around them. Because of my involvement in the Rutgers leadership-focused doctoral program, I knew I could tackle the CRI PD issue by engaging in site-based inquiry and by taking up the role of TL. After the initial district-sponsored CRI training session in June, I communicated to my principal the desire to help support the district initiative by designing and studying a PD program for colleagues in the science department at Stanton the following fall. The principal encouraged me and recommended I speak with the Director of Curriculum. Both building and district administrators agreed to allow me to take on this informal leadership role and conduct a study of this effort, and I designed and implemented the PD.

The goal of the PD was to help teachers develop the knowledge and skills they needed to implement the CRI to integrate science and LAL effectively; therefore, the design of this PD program focused on the CR instructional strategy. Specifically, the PD focused on how to compose Type 3 and Type 4 Questions, since participants expressed the most concern about these components of the CR lesson. Type 3 Questions are inferential; readers must search for clues in the passage to sufficiently support their answers. Type 4 Questions require students to analyze the text from a craft and structure perspective. To increase coherence (Snow-Renner & Lauer, 2005) with respect to the district initiative, the science curriculum, and the PD, I integrated CR Type 3 and 4 questions with the LAL for science standards. LAL Standards 5 and 6 for science were used as a framework to learn about and write these types of questions (see
Appendix E) for our CRI lessons. We used the terminology from the standards as a starting point for our CRI questions. For example, Standard 5 requires students to “analyze the structure an author uses to organize a text,” and Standard 6 requires students to “analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text” (Council of Chief State School Officers & National Governors Association, 2018, CCSS.ELA-LITERACY.RST.6-8.6). Throughout the PD activities, teachers referred to these two standards as we wrote CR questions. We used LAL Science Standard 5 as a template for Type 3 Questions and Standard 6 for Type 4 Questions.

At the end of Sessions 2–4, the group and I discussed what content they felt would be helpful to include in the CRI PD. In my field notes, I recorded their suggestions as well as my observations of what participants appeared to find challenging during the sessions. Objectives of subsequent sessions were shaped by the needs expressed by participants during the CRI PD program as the program progressed. Table 2 summarizes objectives, resources, and activities for each session. A specific description of each CR PD science meeting follows.
### Table 2

*CRI PD Objectives, Resources, and Activities for Stanton Middle School Science Teachers*

<table>
<thead>
<tr>
<th>Session</th>
<th>Objectives</th>
<th>Resources</th>
<th>PD activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Know the goal of the CRI study; reflect on and communicate concerns about the CRI</td>
<td>Stages of Concern Questionnaire PowerPoint slides</td>
<td>Interactive lecture Survey completion</td>
</tr>
<tr>
<td>2</td>
<td>Be informed of LAL Standards for Science Identify the frequency of implementation of standards in one’s own practice Extend thinking by applying standards to parts of a CR</td>
<td>PowerPoint slides from initial training session presented during Chesterfield PD June 2012 NJCCCS LAL Standards for Middle School Science Template for CR lesson</td>
<td>Review selected slides, engage in a collaborative activity with grade-level colleagues to determine frequency of implementation of standards</td>
</tr>
<tr>
<td>3</td>
<td>Reflect on one’s own practice Strengthen teacher community by sharing successes and challenges associated with the CRI Brainstorm possible solutions to these challenges Develop skill of analyzing structure of an article using CR techniques</td>
<td>“Cheer and Fears” reflection sheet Template for CR lesson Article: “Reading to Learn: Helping Students Comprehend Readings in Science Class”</td>
<td>Read article individually Analyze together Engage in round-table discussion</td>
</tr>
<tr>
<td>4</td>
<td>Develop skill in writing Type 3 and 4 CR questions</td>
<td>NJCCCS: LAL for Middle School Science Template for CR lesson Article: “Solar Cells”</td>
<td>Collectively define Type 3 and 4 questions as they pertain to science Use Craft and Knowledge Common Core Curriculum Standards for</td>
</tr>
</tbody>
</table>
The first objective of Session 1 was to familiarize participants with the CRI PD for science teachers. To communicate PD objectives and the purpose of this study, I gave an interactive PowerPoint presentation. Since a feature of successful PD design is the selection of content or strategies based on feedback from assessment tools (Bryant, Linan-Thompson, Ungel, Hamff, & Hougen, 2001; Saderholm et al., 2017) that are matched to teachers’ perceived needs (Bayar, 2014; Reed, 2009), I also administered the Stages of Concern Questionnaire (SoCQ) (George et al., 2006) to enable teachers to communicate concerns about the CRI (see Appendix D). This gave me an opportunity to assess training needs (Silberman & Auerbach, 2006).

| 5 | Learn how to write a variety of Type 4 CR questions | NJCCCS: LAL Standards for Middle School Science Template for CR lesson Qualtrics online survey | LAL in Science as a framework to write questions |
| POT | Develop awareness of how others teach a CR lesson Develop one’s own skill | NSRF protocols: “Observer as Learner” “Interesting Moments” “Debriefing Focus Point” | Colleagues schedule time to observe or be observed Reflect on experience and meet for post-observation conference to discuss thoughts |

Note. NSRF = National School Reform Faculty.
Session 2 (01/14/13; 30 Min)

Because colleagues shared during Session 1 that they were unaware of LAL Standards for Middle School Science, the objectives of Session 2 were for participants to learn about these standards, to reflect on their own practice in reference to how often to implement these standards, and to extend their thinking about the standards by applying them to parts of a CR activity. Resources used included the PowerPoint from the June CR training session (Chesterfield, personal communication, June 2012), “A Guide to Teaching a Close Read Using Text Dependent Questioning” (see Appendix A), the NJCCCS LAL Standards for Middle School Science (see Appendix E), and a district-provided template for a CR lesson (see Appendix C). Activities in Session 2 consisted of reviewing the steps of a CR, collaborating with grade-level colleagues to create a visual model of which standards were implemented in practice and with what frequency, and working in pairs to match LAL science standards with corresponding components of a CR lesson to help teachers see the connections between the standards and the instructional strategy in concrete ways.

Session 3 (02/01/13; 50 Min)

Session 3 occurred during the first of two scheduled PD days in February, in the second marking period of the school year. By this time, teachers had had the opportunity to teach several CR lessons and had the experience needed to express their challenges and collaboratively troubleshoot. I decided to take this opportunity to establish group norms because, although most teachers in the group had worked with each other for years, colleagues rarely interacted as an entire department. Most departmental meetings were run by a supervisor, with little opportunity for the entire group to interact. In addition, some individuals tended to dominate conversations.
Establishing norms with a focus on shared participation could provide the structure to ensure that all teachers had the opportunity to express themselves (Brookfield & Preskill, 1999; Dana & Yendel-Hoppey, 2008). The objectives of this session were to reflect on our own teaching practice, strengthen our teacher community by sharing successes and challenges associated with the CRI, brainstorm possible solutions to these challenges, and develop the skill of analyzing the structure of an article using CR techniques. Data from teacher reflection were used in this session’s activities and informed PD design (Avalos, 2011).

Resources used included the National School Reform Faculty (NSRF) protocol called “Forming Ground Rules” (Wentworth, n.d.; Appendix E), the “Cheers and Fears” protocol based on the “Fears and Hopes” protocol by School Reform Initiative (n.d.; Appendix G), a template for a CR lesson, and the article “Reading to Learn: Helping Students Comprehend Readings in Science Class” (Herman & Wardrip, 2012).

**Session 4 (02/11/13; 30 Min)**

The objective of Session 4 was to increase participants’ understanding of how to write Type 3 and 4 CR questions. Type 3 Questions are inferential, requiring readers to search for clues in the passage to support their answers. Type 4 Questions require students to analyze the text from a craft and structure perspective. Activities consisted of (a) collectively reviewing Type 3 and 4 questions as they pertain to science using Standards 5 and 6, which were discussed during Session 3; (b) practice in writing questions; and (c) sharing the questions written. Resources included a PowerPoint presentation that showed my analysis of the responses on the grade-level poster activity in Session 2, the LAL Standards for Middle School Science, template for a CR lesson, and the article “Solar Cells.” I chose this article because it focused on NGSS,
thereby increasing coherence by connecting it to instruction (Darling-Hammond et al., 2017; Desimone & Garet, 2015; Reed, 2009; Saderholm et al., 2017; Snow-Renner & Lauer, 2005).

**Session 5 (03/07/13; 50 Min)**

The objectives of this session were to create a CR text repository by adding articles teachers brought to the session and to continue to develop skill in creating CR questions. These were selected based on participant feedback shared at the end of previous sessions. During the “Cheers and Fears” activity from Session 2, participants stated that finding relevant articles aligned with their curriculum was a significant challenge that consumed a great deal of their time. To address this concern, I decided that participants should collaboratively create a repository from which all could choose appropriate articles to use for CR lessons. Each teacher was asked to bring three copies of a relevant article to discuss and share with grade-level colleagues that could be used during the next unit of study and placed in the repository for future use. By engaging in discussion with colleagues and developing resources, active learning methods associated with effective PD were enacted (Blank, 2013; Darling-Hammond et al., 2017; Desimone & Garet, 2015).

**Peer Observation of Teaching (December 2012–February 2013; 45–70 Minutes for Each POT)**

Effective PD includes multiple professional learning activities and active learning methods (Bayar, 2014; Blank, 2013; Darling-Hammond et al., 2017; Kennedy, 2016). One method to achieve this is through POT (Blank, 2013; Desimone & Garet, 2015). The objective of POT was to continue to develop knowledge and skill related to designing and implementing CR lessons by observing and/or being observed by colleagues teaching CR lessons. To offer teachers
a choice and provide flexibility with limited time during the school day, each POT cycle invited teachers to engage in any or all of the following components: a pre-observation conference, a classroom observation of a CR lesson, and a post-observation conference for sharing feedback and reflection. Teachers were free to choose to use one of the following NSRF protocols if they wished to provide structure for the POT experience: “Observer as Learner” (NSRF, n.d.b; Appendix H); “Interesting Moments” (NSRF, n.d.c; Appendix I); and “Debriefing Focus Point” (NSRF, n.d.a; Appendix J). “Observer as Learner” and “Interesting Moments” were used during the observation, and “Debriefing Focus Point” was used during the collegial post-observation discussions if applicable. Not every colleague who participated in POT chose to engage in all three parts of the process; this will be discussed in Chapter 4, Findings. I coordinated with the administrative staff of the school when substitute teachers were required to cover classes so that teachers could complete observations of others. Reflections on the POT experience for teachers who had volunteered to be Level 3 Participants were added to the data set, as were my observations of facilitating the POT process recorded in my field notes.

Data Collection Procedures

Data collection occurred throughout the process and at times helped shape the design of the PD. The first two research questions for this study addressed participants’ perceptions, while the third pertained to my perceptions as the informal TL who designed and implemented the PD. Therefore, there are two sets of data. The first is composed of data regarding teachers’ perceptions of the PD and the POT experience, and the second documents my experience. In the section that follows, I describe the collection of each data set.
Data that informed me of teachers’ perceptions of the PD were collected during each meeting and at the end of the PD program. At the close of each meeting, I verbally asked participants if there were particular needs they would like to address during the next session. At the end of the CRI PD program, all participants completed an end-of-program survey (see Appendix K), and Level 3 Participants engaged in an interview (see Appendix L). At the conclusion of the CRI PD program, a survey was completed online using Qualtrics. All nine participants completed the survey. Questions sought feedback about each session, POT, and aspects of presenter skills. On the first two parts of the survey, participants used a 5-point Likert-type scale to rate each PD session (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree). In addition, space was provided after each session item for open-ended responses to the prompt, “Did you encounter any obstacles to learning during the session? If so, please explain.” In the second section, two survey items used the scale listed above to ascertain perceptions of POT for those who participated, along with space to include an open-ended response to a prompt about obstacles encountered in implementing POT. In the third section, 17 items asked for participant feedback on presenter skills in the categories of organization, voice, and physical expression. All criteria in this section were rated as poor, fair, good, very good or excellent. Questions about presenter skill were based on past PD experiences of presentations that, because of presenter skills, were perceived as unengaging. If sessions of the CRI PD were perceived as unengaging, I wanted to be able to rule out presenter skills as a factor. Lastly, respondents were asked to list any resources or supports that would help them implement the CR initiative more effectively.
At the end of the CRI PD, the four case-study participants were interviewed about their perceptions of the program. Questions were written with the goal of ascertaining teachers’ perspectives about the needs and challenges regarding PD for implementing the CRI. I wanted to know what resources and supports were needed during the program, as well as what teachers thought might be helpful moving forward. In addition, I asked for participant reactions to the design, content, and presentation of the PD sessions. If obstacles were encountered, I asked them to identify what they were (see Appendix G for the interview protocol). To be as flexible as possible when scheduling interviews, I offered to meet participants at their convenience; all chose to meet after students were dismissed at the end of the school day and readily agreed to be interviewed in my classroom, although I offered to meet them anywhere in school or off site. Interviews were semi-structured and averaged 15 minutes in length.

The second data set captured my experience throughout the process beginning in August 2012, when I first coordinated with the Chesterfield administration to create and study this PD and continued through May 2013. Next, I describe the data collection procedures used to inform my first two research questions about teachers’ perceptions, which is followed by a description of the data collection procedures that informed the last research question about my own experiences as an informal TL.

**Session 1**

Immediately following Session 1, I recorded in my field notes observations of supports and obstacles I encountered while trying to deliver the presentation and administer the survey, as well as the feeling in the room, placement of individuals, and teachers’ facial expressions and body language during different parts of the session. Other data collected consisted of responses
to the SoCQ, a survey with 35 closed-ended questions and four open-ended questions. Later that day, I input participant responses online at the Southwest Educational Development Laboratory site for SoCQ analysis. Data from the survey revealed where teachers were on the concerns continuum about the CRI. The results from the SoCQ, in addition to comments made by colleagues while collecting the survey, helped shape the PD design for subsequent sessions.

**Session 2**

Two types of data were collected during Session 2. First, digital photos were used to document the way participants had charted the frequency of each grade level’s implementation of LAL Standards for Science. Photos were uploaded into NVivo for coding and analysis and helped inform the design of subsequent activities. Second, my observations of participants’ apparent lack of knowledge and understanding of the standards were recorded.

*Figure 1. Grade 7 science teachers indicated frequency of implementation of LAL for science standards.*
**Session 3**

Data collected, as a result of Session 3 activities, were the written reflections from the article analysis activity and the recording of the group implementing the “Cheers and Fears” protocol. Written responses were incorporated into the data set only for Level 2 and 3 participants who had agreed to share these data. My observations focused on participants’ reactions to the format and content of the session. Observations were recorded in my field notes immediately after the session. Responses to the end-of-session survey that included questions about this session were also added to the data set.

**Session 4**

Data collection during Session 4 consisted of the audio recording of the group’s analysis of the structure of the article from a craft and structure perspective, as well the participants’ discussion of how the structure correlated to the standards and Type 4 Questions in a CR lesson. Responses were incorporated into the data set only for Level 2 and 3 participants who had agreed to full study participation. My observations focused on participant behaviors when they responded to the format of the activities and to each other. These were recorded in my field notes immediately after the session. Responses to the end-of-program survey were also added to the data set.

**Session 5**

Data collection for Session 5 consisted of my observations, recorded in my field notes immediately after the session, of colleagues engaged in discussion as they developed resources and participant responses to the end-of-program survey.
POT

Data collection related to POT consisted of e-mails about POT sent to and received from participants, my field notes written during instances when I observed colleagues, reflections shared by teachers during the post-observation conferences with me, and responses to questions about POT on the end-of-program survey. Since this was my first time observing colleagues teach, my field notes focused on my experience participating in POT.

The PD design and the data collection procedures were intertwined throughout Sessions 1–5 and POT. As such, the descriptions of both are integrated (see Table 3).

Table 3

Research Questions and Data Collected

<table>
<thead>
<tr>
<th>Research question</th>
<th>Data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are teachers’ perspectives about the needs/challenges regarding PD for implementing the CR initiative?</td>
<td>End-of-program survey, “Cheers and Fears” protocol, interviews, field notes</td>
</tr>
<tr>
<td>How do teachers perceive efforts to provide research-based PD to support the implementation of the CR initiative?</td>
<td>End-of-program survey, interviews, field notes</td>
</tr>
<tr>
<td>What are the challenges and supports experienced by an emerging TL when attempting to provide research-based PD to support the implementation of the CRI?</td>
<td>Field notes, research journal, stakeholder e-mails</td>
</tr>
</tbody>
</table>

Data Analysis

Data analysis occurred both concurrent with and after the CRI PD program. Creswell’s (2009) six-step general model was used as a guide during the data analysis process. The steps are
to (a) organize and prepare the data for analysis; (b) read through all the data; (c) begin detailed analysis with a coding process; (d) use the coding process to create a description of the setting or people as well as categories or themes for analysis; (e) advance how the description and themes will be represented in the qualitative narrative; and (f) interpret or make meaning of the data. Although this list is presented as linear, the process was iterative at times.

Data were prepared and organized on an ongoing basis. All data were uploaded and managed using NVivo 09. Session 3 papers used to record successes and challenges associated with implementing the CRI shared during the “Cheers and Fears” protocol were collected, scanned, and imported into NVivo. The MP3 audio recording of the same activity during that session was uploaded as well. Interviews with Level 3 Participants were recorded, uploaded, and transcribed in NVivo 09. Participant responses on the end-of-program survey were compiled within Qualtrics, and graphs and tables were then generated using Microsoft Excel. The initial Qualtrics report and subsequent Excel graphics were all imported into NVivo and added to the complete dataset. Entries in my research journal and all field notes, whether hand written and scanned or recorded digitally, were imported into NVivo. To keep POT as confidential as possible, no field notes related to particulars observed in any lessons were entered into the data set. General observations by colleagues about the process were noted during interviews, and my own reflections about the process were recorded in my research journal, imported into NVivo 09, and transcribed.

Next, I read through and listened to the entire dataset to get a sense of the whole and to reflect on what it may mean. During the coding process, I further organized the material by clustering together related chunks of data. For example, as I read through the participant-
generated reflections from the “Cheers and Fears” protocol, I noticed most participants commented that it was a challenge to find relevant articles for students. In addition, most participants commented it was difficult to find material at appropriate levels to respond to the variation in students’ reading ability. I clustered these two topics into a category I called “Problems Finding Material.” I proceeded in this manner and accumulated chunks that helped create a description of the participants’ perceptions of the CRI and the PD I designed and facilitated. As I did so, I created memos about my thoughts of how these descriptions related to the theoretical framework of adult learning theory and the literature on characteristics of effective PD, PD activities that enact best practices, and LAL in science classes.

When I found related categories, I created a theme. Ultimately the “Problems Finding Material” category was added to the “Challenges Implementing CRI” theme. Although data were provided by all science teachers, most themes related to the first two research questions were based on data from the four teachers who agreed to be case-study participants. I used a threshold of 75% of participants stating something to identify chunked data as major themes. Therefore, if three of the four Level 3 Participants responded with similar sentiments regarding each category that made up a theme, it was classified as such. For example, when Level 3 Participants reflected on what additional PD they needed to successfully implement the CRI, three expressed the need for specific training in teaching LAL because none of them had had coursework or experience in this area. I identified this as the first major theme, “Foundation of LAL Needed.” Identified themes were not limited to topics that were discussed by the majority of respondents, however, because counterexamples were present and were included in the findings.
Lastly, I offered my interpretation of the data and described lessons learned. This process allowed me to consider potential findings from the specific to the general, involving multiple levels of analysis (Creswell, 2007) which I visually depicted using text, tables, and graphs. For example, tables were used to show participants’ perceptions of attributes of the PD program such as “Perceived Usefulness.” Graphs were used to compare perceptions of different PD sessions. For example, one graph clearly shows that the grade-level lesson development session was perceived as the most useful and engaging.

Trustworthiness

To ensure my findings represented as closely as possible the experiences of participants, several strategies were employed to check the authenticity of my findings. The first strategy I used was to check the accuracy of transcripts of PD sessions, interviews, and field notes. I listened to all audio recordings multiple times and inspected the transcripts immediately after they were completed to correct any errors. This procedure of verifying accuracy of transcripts by listening to recordings was conducted a second time prior to uploading them into NVivo. The second strategy I employed was to ensure I did not drift in the definition of my codes (Creswell, 2009). I did this by systematically comparing my data with the codes and by reviewing my memos about the codes and their definitions captured in NVivo.

To increase accuracy of findings from the participants’ perspectives as well as from my own, I triangulated data, sought feedback from participants about thematic accuracy, used rich description to capture experiences, sought to address researcher bias, looked for contradictory data, and spent a prolonged period on site (Creswell, 2009). Triangulation was accomplished by using multiple data collection strategies: a preassessment survey, PD artifacts, e-mails,
interviews, an end-of-program survey, field notes, and my researcher’s journal. During the analysis process, I shared identified themes with participants and discussed the accuracy of the representations of the CRI PD experience. Participants agreed with representations and offered additional thoughts that helped enrich descriptions of the setting, as well as their perceptions of their interactions during each PD session. These discussions also helped develop the thick descriptions of the challenges and supports associated with facilitating the PD.

**Researcher Positionality**

In reference to my own bias, it is important to explore my previous experiences with PD. With more than a decade of experience as a classroom teacher who was required to attend numerous PD workshops over the years, I can honestly say that I left most of them feeling frustrated because they seemed like a waste of my time. For example, I attended a required workshop for science educators where the presenter, an outside “expert,” talked about math problems and hands-on activities that were inappropriate for the level of students I taught. That workshop failed to increase my knowledge of how to serve my students better. A few experiences, however, were engaging, collaborative, highly relevant, and encouraged reflection. These experiences entailed serving on curricular committees that met over the course of a year or more to co-create placement exams. They required members to unpack their educational philosophies and try to see other professionals’ viewpoints as they worked together to create usable products. Unfortunately, this kind of PD was not the norm, which usually consisted of sitting in a room with other teachers while someone who knew very little about my practice or my needs lectured us. Therefore, before this study began, I was biased toward believing a research-based endeavor grounded in adult learning theories and research-based practice for
designing and implementing PD would be perceived by participants as significantly different, more useful, and more engaging than what they had previously experienced.

To counter my own bias, in addition to searching for emergent themes that supported my beliefs, I purposefully looked for data that contradicted my assumptions. Interestingly, these contradictory perspectives of participant perceptions gave rise to an additional theme I had not previously seen, which was variability. Although most teachers rated each session similarly, not one session was unanimously rated as maximally engaging, useful, and so on. Digging into the data revealed that it was not the same participant who consistently rated sessions lower. Rather, I could see that it was different teachers giving lower ratings to different sessions, presumably because each session met each teacher’s specific situations and needs to a greater or lesser extent. Since the CRI PD extended from the fall into the spring, I had ample time to observe, collect evidence about what occurred, and discern how it was experienced by the participants during the program. Because the individuals involved were not only research participants but also my colleagues whom I saw daily, I had many opportunities to clarify data, validate themes, and engage in member checking.

Although as a qualitative researcher I functioned as the “primary instrument for data collection and analysis” (Merriam, 2009, p. 15) and have biases and shortcomings, I have systematically worked to ensure trustworthiness in the findings by member checking, triangulating data, seeking feedback from participants about thematic accuracy, using rich description to capture our experiences, addressing researcher bias, looking for contradictory data, and spending a prolonged period on site (Creswell, 2009).
Limitations

One possible limitation of this study was the impact of my position as peer among participants on the quality of data I could collect. Colleagues might have been reluctant to criticize the PD program because they did not want to hurt my feelings. Their reluctance might have been based on perceptions of the long-standing cultural norm in schools for teachers to be congenial rather than collegial and not to criticize one another (Barth, 2006). I tried to address this limitation when I collected feedback during the program by repeatedly stressing that their honesty would help me and others in the district design better PD in the future. My position as colleague, however, may also have been a benefit: Teachers might have been more likely to share criticisms about the CRI with me than with an administrator. Since colleagues might have been overly generous with their praise, I looked for specificity and detail in their accounts of their experience during the CRI PD rather than just simple statements that they liked the PD and thought I did a great job. I paid particular attention to responses that provided specific information about neutral or negative CRI PD experiences as well as what participants felt were weaknesses of the program.

A second possible issue with acting as a researcher among my peers was the possibility that participants might have had doubts about whether their responses would remain confidential. Although I believe senior staff, who have known me for many years, understood that I would not share responses with administration, younger nontenured staff who did not know me as well and were in a more vulnerable position might not have trusted that I would keep their responses confidential. Therefore, they might have guarded their answers. Although I do not have evidence as to the effectiveness of doing so, at the beginning of each session I reiterated that all responses
were confidential and would not be discussed with any administrators, in an effort to allay this possible concern.

Another limitation was that although the study included nine teachers, not all were present for every PD session. It should not be assumed, however, that some teachers did not attend because they were resistant or uninterested. Family issues, illness, or other demands on their time may have limited some teachers’ ability to participate in all sessions. Had they been present at every session, their perceptions of the program might have been different.

In addition, the in-depth data about perceptions were limited to the four Level 3 Participants who volunteered to be interviewed. The rich, detailed descriptions of the PD, therefore, were predominantly based on the responses from these individuals. However, I did provide opportunities for all to share perceptions on the end-of-program survey, which included open-ended responses. When analyzing data, I searched for and highlighted critical perceptions of the PD, which were provided by at least three of the four Level 3 Participants. The most critical feedback provided during the interviews came from three of the Level 3 Participants who had attended every session and had engaged in POT. It is interesting to note that two of them were not tenured, suggesting that they took me at my word when I welcomed constructive criticism and believed me when I promised not to share responses with the administration.

Lastly, when I designed the end-of-program survey, I failed to include a neutral option in the section with questions pertaining to presenter skills. The options were poor, fair, good, very good, and excellent. This creates misleading data that are skewed to the positive.
Conclusion

The goals of this chapter were to describe the research design used to investigate how an informal TL created and facilitated PD to help colleagues integrate LAL into the science curriculum. I also provided a rationale for the research approach and a detailed description of the PD provided. Data were collected methodically and systematically over an extended period, and Creswell’s (2007) general six-step model was the approach used for data analysis. To ensure trustworthiness, I triangulated data, sought feedback from participants about thematic accuracy, used rich description to capture experiences, addressed researcher bias, looked for contradictory data, and spent a prolonged period on site (Creswell, 2009).
CHAPTER 4: FINDINGS

This chapter presents the findings of my analysis of multiple datasets through the lens of andragogy to answer each of my three research questions and discusses the connections between the data and the literature on (a) Language Arts/Literacy (LAL) in the science curriculum, (b) characteristics of effective professional development (PD) and (c) teacher leadership. Following a narrative used to communicate findings for perceived challenges and supports for this PD, I provide a metaphor of structural and cultural obstacles that I encountered as an informal TL endeavoring to create and facilitate PD for and with my colleagues. Lastly, I discuss implications of my findings for practice.

My findings are that: (a) teachers faced significant barriers to implementing the CRI, including lack of foundational knowledge, lack of time to implement the CRI, and lack of supportive resources and materials; (b) teachers perceived that the PD they were offered for the CRI in this pilot program was different than normal PD by being more useful, engaging, and collaborative; and (c) I, serving as a TL, needed administrative and structural support to overcome cultural as well as structural barriers to be successful.

Research Question 1: Teachers’ Needs and Challenges

In this section, I explore findings that address my first research question: What are teachers’ perspectives about the needs and challenges regarding PD for implementing the CRI? I do this by describing teachers perceived needs regarding the CRI PD and the challenges they believed they would experience implementing the CRI. When teachers exited the initial CRI PD session, their comments, facial expressions, and body language suggested that they did not fully understand the components of CR lessons and had not had sufficient training in how to best teach
them. Teachers were expected to integrate LAL skills with the content area they teach in their CRI lessons with no background knowledge and scant training. In addition, they lacked support from those who then evaluated their skill sets in doing something they had not been taught to do.

Based on an analysis of the relevant data, I present three themes related to barriers the science teachers faced in implementing CR lessons. They (a) lacked foundational LAL knowledge; (b) lacked class time to implement CRs; and (c) had difficulty finding appropriate texts that could support CR lessons and meet the needs of their academically diverse students. Each barrier provided direction for the design of subsequent PD sessions. Discussion of the themes is followed by analysis based on the relevant literature.

**LAL Foundational Knowledge**

The CRI PD activity described below, in addition to interview data, revealed that the science teachers lacked LAL knowledge, particularly in craft and structure, a significant barrier to achieving the ambitious goal of integrating LAL in their classrooms. They expressed a need for specific LAL PD to help implement CRs. O’Shea remarked she would like to observe LAL teachers execute a CR lesson because “they are the experts.” Likewise, Peters expressed that if we had some training in writing [it would be beneficial]. I never took a language arts class in college so there are certain structures that I’m sure I should be looking for, but I haven’t really been made aware of. I know with Type 4 questioning we’ve always brought up that we were not trained in structure of text. . . . I usually stick to, “Why does the author…?” I’m sure there are lots of other ways. So I think just more training on the Type 4 [questions would be helpful]. Like sentence starters would be helpful.

Banks had similar concerns and wanted clarification on a few CR questions he had posed to his students. He wondered during our interview, “Is this [example from my practice] in fact a Type 4 Question? Is this an effective Type 3?” The lack of a foundation in LAL indicated by
these comments illustrated a significant need for the CRI PD program. This supports literature (Hurst & Pearman, 2013) which asserts that most teachers, particularly content-area teachers, receive little to no training in how to integrate LAL into their classroom practice.

In an attempt to address the lack of LAL knowledge described above, the objectives of Session 2 were for participants to learn about the LAL Standards for Science, to reflect on their own practice in reference to how often they implement these standards, and to extend their thinking about the standards by applying them to parts of a CR activity. During this session, all four Level 3 Participants reported they rarely implemented Standard 5 (see Figure 2) for which students analyze the structure an author uses to organize a text. The department rarely used this standard either. No one reported implementing the standard frequently. Interestingly, the standards teachers reported implementing least frequently were the ones that corresponded with the Type 3 and 4 CR questions that require students to view the science text from a craft and structure perspective.

Figure 2. Departmental response to implementation of Standard 5.
The data derived from PD Session 2 suggested to me that the lack of awareness and implementation of the LAL in Science Standards was an obstacle to implementing the CRI. This information guided me as I designed subsequent PD sessions to target the relationship between the Craft and Structure Standards, 5 and 6, and Type 3 and 4 Questions in a CR lesson. The Craft and Structure Standards require students to “analyze the structure an author uses to organize a text” and “analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text” (Council of Chief State School Officers & National Governors Association, 2018). Therefore, I decided to design activities that use the Craft and Structure Standards when analyzing articles that would serve to develop science teachers’ LAL foundational knowledge in this area.

Lack of Time

All nine participants reported that lack of time was a challenge. Each science teacher in the department expressed that there was not enough time to teach the required number of CR lessons per marking period and to create the necessary resources to do so with fidelity. Teachers who engaged in POT also expressed that lack of time was a limiting factor in determining the extent to which they could participate.

In addition to all the other material we were required to cover during the school year, incorporating a 4-day CR lesson proved incredibly difficult. All participants expressed concern about the amount of time needed to teach a CR lesson. This is in line with research by Baker et al. (2008), who found teachers perceived teaching reading as just one more thing they must do while maintaining the pace of instruction in their own subject matter. Although finding time to teach CR lessons was clearly expressed as a need, we were unable to address this during the CRI
PD. We did, however, try to work together to identify instructional resources and create example questions which did decrease our load somewhat. O’Shea stated that this was a helpful assist:

We got to sit down together and actually create a CR, which is something that we’ve needed to do but didn’t have the time [for previously]. You doing that PD forced us to sit down, and work through many different examples of Type 4 Questions.

She stated that doing this kind of activity frequently would have been helpful because the requirement of teaching eight CR lessons over the course of the year took a significant amount of (added) time to prepare for.

In reference to a challenge regarding engaging in POT offered during the PD, some participants only implemented it in an abbreviated way because they did not have time to do the suggested post-observation conference. This is a loss because debriefing sessions afford colleagues time to reflect on and discuss their practice in relation to the observation. For those willing to engage in POT, finding time to do so proved to be a challenge. This was illustrated when O’Shea described why it had been so difficult to schedule a day for me to observe her teaching a CR lesson:

I was going to invite you [to observe] another CR, but I couldn’t because I didn’t know exactly when I was going to start it. I knew it would take four days, but I didn’t know when I’d have four consecutive days. I ended up starting the CR on a Tuesday, working through it Wednesday. But I had to give a test and decided to finish the CR when we got back from break, which I knew was not ideal, but I had no choice because of time. I’ve only done one CR this marking period and not two because final exams take days away at the end of the year in addition to all these CRs, plus Achieve3000. It’s like two months have been taken away from us from teaching our content. So, time is a BIG concern.

When I asked Peters if she wanted me to schedule a substitute teacher to cover her class to provide time for her to develop CR materials, she responded:

I always wish there were more hours in a day to work, but I don’t like to leave my classes, so I prefer to work on it over the summer or on my weekends or on my time off. I
know we had a lot of professional days canceled this year [because of Superstorm Sandy]. I do wish we did have some time built in to work on it during the school year. That definitely would have been beneficial, to have more time.

**Lack of Appropriate Articles**

The science department had no repository of articles to use for this initiative; teachers had been left on their own to find appropriate texts around which to build CR lessons. Not surprisingly then, when asked to identify a challenge they faced when trying to implement the CRI, five of the eight teachers stated that finding articles at the appropriate reading levels for their students was difficult. Participants’ classes were composed of students with a range of reading abilities; using just one article, pitched toward the middle level of students, created issues for some children when they attempted to answer reading comprehension questions. In addition, half of the teachers expressed that finding texts related to the curriculum they were teaching was difficult.

It was also a challenge to find articles at the correct reading level for all students. Banks suggested a possible solution: “I think that we need a bank of available resources as far as readings that align with our curriculum because it’s a struggle to adapt text to fit the needs of the classroom if you’re going to stay within your curriculum in a continuum.” In response to his suggestion, I planned a PD session for colleagues to begin to create a science-article repository.

**Summary for Research Question 1**

The CRI was an ambitious program implemented to help students improve their LAL skills. Although the staff attended a workshop on it prior to the start of the CRI, science teachers faced significant barriers implementing the program. Lack of foundational knowledge in LAL left most participants unsure of their ability to adequately teach a CR lesson. In addition, lack of time compounded the problem of implementing the CRI. Teachers reported that covering the
required science curriculum while incorporating the mandated number of CR lessons was very difficult. Lastly, lack of supportive resources and materials further hindered their efforts.

Research Question 2: Teachers’ Perceptions of the Professional Development

In this section, I present findings related to my second research question: How do teachers perceive efforts to provide research-based PD to support the implementation of the CRI? Most teachers perceived that this PD differed from what they usually experience in three ways. It was more (a) useful; (b) engaging; and (c) collaborative. Discussion of each of these themes is followed by analysis in relationship to the literature.

Usefulness

All PD sessions were rated highly with regard to usefulness. Although the ones I focus on as not quite as successful as others, they were still successful in their own right. In the paragraphs that follow, I explore how, overall, the sessions were perceived as useful and use findings from the literature to help me speculate as to why that is.

All sessions were successful and were highly rated with regard to usefulness. Of the eight teachers present for the “LAL Standards for Science” and “Cheers and Fears” activities, six selected strongly agree or agree, and two selected neutral regarding usefulness of the material covered during the PD session. For the “Reading to Learn: Helping Students Comprehend Readings in Science Class” activity, of the seven teachers present, six selected strongly agree or agree, and one selected neutral in response to the same question about usefulness of the session. During the activity “Targeting Craft and Knowledge LAL Standard 5,” seven teachers were present; five selected strongly agree or agree, one was neutral, and one selected disagree. The activities with the fewest strongly agree responses focused on using the CCS Standards to create
Type 3 and 4 Questions. The two PD sessions that focused on how to use the LAL Standards, introduced in our first session, were rated least useful as these were the only sessions with three teachers selecting “strongly agree” in contrast to the other sessions that had either four or six teacher who selected “strongly agree.” In addition, Knowledge LAL Standard 5 was the only session with a “disagree” in reference to usefulness. (See Table 4).

Table 4

Perceptions of Each PD Activity’s Usefulness

<table>
<thead>
<tr>
<th>Activity</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Teachers present</th>
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<tr>
<td>Language Arts Literacy</td>
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<td></td>
<td></td>
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<tr>
<td>Standards for Science</td>
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<td>2</td>
<td>2</td>
<td>0</td>
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<tr>
<td>Cheers and Fears</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>0</td>
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<tr>
<td>Reading to Learn: Helping</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students Comprehend</td>
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<td></td>
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<tr>
<td>Readings in Science Class</td>
<td>3</td>
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<td>1</td>
<td>0</td>
<td>7</td>
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<td>Targeting Craft and</td>
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<tr>
<td>Knowledge LAL Standard 5</td>
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<td>1</td>
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<td>6</td>
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<td>0</td>
<td>0</td>
<td>9</td>
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</tbody>
</table>

When the CRI PD began, eight of the nine teachers who participated stated they were unaware that there were LAL Standards for Science and expressed interest in learning them. This
seemed like fertile ground for PD because of how the standards overlap with and inform CR questions. I saw this as an opportunity as PD developer to shape future sessions of the PD so that they would be coherent, a characteristic of effective PD (Bayar, 2014; Cohen & Hill, 2000; Desimone & Garet, 2015). By embedding the LAL Standards for Science as well as incorporating elements of the Next Generation Science Standards (NGSS), I hoped the CRI program would be viewed as a better fit with the science curriculum, thus more coherent than typical PD that ends to offer short, one-time workshops on topics that are often disconnected from each other and from the curriculum (Darling-Hammond et al., 2017; Desimone & Garet, 2015; Reed, 2009; Saderholm et al., 2017). Viewing LAL Standards through a science lens moved the CRI out of the realm of general literacy (Bean, Readence, & Baldwin, 1995) and into that of disciplinary literacy (Goldman et al., 2016; Shanahan & Shanahan, 2017). Unfortunately, however, this may have over complicated the CRI PD. By adding the LAL Standards for Science and the NGSS components to an already challenging PD program, participants may have perceived these additional components as excessive.

Although there was a need for LAL training, perceptions of the usefulness of the “Language Arts Literacy Standards for Science PD” session varied. Of the four Level 3 Participants, two recognized immediate value, one perceived value months later, and the fourth did not find it of great value. O’Shea, who strongly agreed that this session was useful, remarked that she had never seen the standards before and that being exposed to them was helpful when developing CR lessons. Smith, who also strongly agreed that this session was useful, was happy to discover that much of her teaching was aligned with most of the LAL Standards for Science. However, after listening to colleagues discuss how they execute Standard 1, which focuses on
finding key ideas and details, she decided she could do more by having students “cite specific textual evidence to support analysis of science and technical texts.” Banks, who agreed the session was useful, did not agree as strongly as O’Shea and Smith. He took longer to appreciate this session:

> I thought when we did it, I was honestly at that point, I didn’t have a complete understanding of LAL Standards for Science. I was unfamiliar with them. When we were doing that activity, I wasn’t extracting much out of it. I was not sure if I used them or not. I really hadn’t evaluated this. But as we went further into the PD, that LAL activity became more meaningful because I was getting exposure to those standards.

Peters thought it was beneficial to read the LAL Standards for Science because she did not know they existed. However, she did not think the half hour activity of sorting them and putting them on the poster changed what she did in the classroom. Even though it made clear which ones she implemented least, the activity did not prompt her “to make an effort to use them more.”

Since the majority of teachers in the department rarely implemented LAL Standard 5 which corresponded with the CR questions teachers reported to find challenging to create, I thought it would be useful to design a PD session that focused on this Standard and to practice viewing an article from a craft and structure perspective. We worked with two articles. The subject of the first posed strategies for developing students’ general LAL skills, and the subject of the second was developing students’ engineering and design skills. In reference to the “Reading to Learn: Helping Students Comprehend Readings in Science Class” session, Smith said it was “hard to look at it [the article] from a science point of view and a language arts point of view.” I understood this may have been a struggle for her because typically science teachers are not trained to view text through a LAL lens. Smith’s difficulty may explain why teachers rated this session less useful than the others.
I find it curious that teachers did not find the PD sessions during which we learned about the LAL Standards as useful as other sessions because their feedback indicated there was a need to develop LAL skills. I wonder if the engineering and design focus of the article we used contributed to this perception. My intent was to align the CRI PD materials with district and state initiatives related to the NGSS. However, these initiatives had yet to be institutionalized. Subsequently, teachers may not have perceived the content as grounded in their curriculum (Blank, 2013; Cohen & Hill, 2000; Desimone & Garet, 2015). If, however, I had provided articles related to each grade level’s curriculum or invited them to bring in articles they had used, the session would have been aligned with what teachers were doing in their classrooms, and thus may have been perceived as more useful (Darling-Hammond et al., 2017).

Unlike previous sessions, for the “Grade-Level Lesson Development” session, participants were invited to bring in articles related to where they and their grade-level colleagues were in the curriculum. The work that day was connected to classroom instruction and created instructional materials that could be used immediately (Darling-Hammond et al., 2017; Desimone & Garet, 2015; Reed, 2009; Saderholm et al., 2017) which created coherence. At the end of the previous session, participants indicated they wanted to continue working on developing Type 4 Questions. They also wanted to work together to identify texts they could use in CR lessons because finding relevant articles aligned with their curriculum and appropriate for all students was a time-consuming challenge.

To meet the needs of participants, the objectives of this session were to create a CR text repository by sharing and storing articles teachers brought to the session which they thought would be appropriate for CR lessons and to continue developing skill in creating CR questions.
Each teacher was asked to bring three copies of an article they had located, which could be used during the next unit of study and be placed in the repository, to discuss and share with grade-level colleagues. Tables were arranged to accommodate the entire group at the beginning and end of the session, and clusters of tables were set up around the perimeter to accommodate teachers when working in smaller grade-level teams. The session evaluations indicated it was a success (see Table 4). Peters, stated, “When we worked as a grade level, it was very practical, and it had a lot of direct application in the classroom.” Adult learning theory posits that when it comes to learning, adults are life centered (Knowles et al., 2015) and motivated to gain knowledge in an active manner that helps them solve immediate problems. Her comment indicates that the session was responsive to this assertion.

To be useful, the objective of POT was to continue to develop knowledge and skill related to designing and implementing CR lessons by observing and being observed by colleagues teaching CR lessons. To initiate and garner interest in POT, I first invited colleagues into my classroom to observe me teach a CR demonstration lesson. They were welcome to give me feedback if they wished. I volunteered to observe them as well, with feedback if they desired, to provide additional routes for learning. Moreover, the shared experience was further individualized by inviting participants to take the lead and observe each other instead of limiting visits to my classroom. Of the nine teachers who participated in the CRI PD, five engaged in POT in some way. All five observed at least one colleague teaching a CR lesson, and three agreed to be observed. Ten observations occurred during the CRI PD: Four teachers observed me model a CR lesson, I observed four colleagues teach a CR lesson, and two teachers observed each other.
Perceptions of usefulness of the POT experience varied. Banks and O’Shea both strongly agreed it was helpful. Smith and Park said it was helpful, while Peters rated it neutral. Differences in participants’ feelings of preparedness for implementing the CR may have impacted how much they chose to engage in the POT process and their perceptions of its value. Both O’Shea and Banks strongly agreed that their POT experiences were helpful. Both used the “Interesting Moments” protocol for structure when they observed me, and both engaged in a post-observation conference during which they shared reflections on the lesson. This was helpful for me because there are times during class when I get impatient and find myself inclined to call on the first students who raise their hands to respond. When my colleagues noted how much “think time” I give students, it was an affirmation of the practice. Discussion with participants followed that explored how lack of time impacts the pace of instruction. This motivated us to be mindful, slow down, and be patient so more children would have the opportunity to process questions and participate in the class discussion.

Banks, also highly engaged in the POT process, noted how much “wait time” I employed during my lesson and reflected that the strategy enabled most students to answer most questions. During the lesson I observed him teaching, Banks had asked me to focus on his questioning technique; we used the “Debriefing Focus Point” protocol for the post-observation conference. Although Banks agreed that observing other teachers is beneficial, he preferred being observed (rather than being the observer) with time for collegial feedback and discussion during a post-observation conference:

I think I benefit more when people observe me and we talk about it, because I’d rather hear what about what I’m doing, the parts that were effective or ineffective, so I can tweak my own style as opposed to looking at a completely different style and trying to pick pieces out of it.
These two teachers expressed a desire for more opportunities to engage in POT. Unfortunately, however, they discovered it was difficult to find teachers who were receptive to participating in peer observations. Beyond the Level 3 Participants, colleagues did not appear interested in POT. This may have been due to a lack of confidence in their own ability to teach a CR which may have made them feel vulnerable or worried about being judged by a peer. Other factors may have been lack of time to coordinate a visit or simply initiative overload. It was a challenging school year. When asked for recommendations to improve the POT portion of the CRI PD, participants suggested providing time for teachers to co-create a lesson prior to the observations and to offer science teachers the opportunity to observe LAL teachers. For example, O’Shea stated, “I think it would be beneficial seeing LAL teachers model a CR lesson because they are the experts.”

Smith observed two colleagues teach CR lessons and agreed her POT experience was helpful. A pre-observation and post-observation conference were conducted when she observed my classroom, the first teacher whom she observed. Smith chose to use the “Interesting Moments” protocol to guide her observations. She shared with me during the post-observation conference that she was struck with how much time I let elapse between asking a question and calling on a student to reply. This caused her to reflect on her own practice, and she decided she needed to “slow down” when she asked students questions. During her interview, Smith stated that O’Shea’s use of “communicators” (clear plastic folders that hold the CR articles and upon which students can use erasable markers to underline textual evidence) was something she decided she would like to use in her own classroom. Smith thought this was an effective way for students to communicate their choice of textual evidence to support their answers to CR
questions. Park, a Level 2 Participant, also observed me teach a CR lesson. We engaged in neither a pre-observation nor a post-observation conference due to lack of time. A teacher with many years of experience, Park was not overly concerned about implementing the CRI. As part of the seventh-grade team who frequently collaborated on lessons, she brought a copy of her own CR lesson and shared it with me prior to leaving my class after the observation.

In my almost 20 years of teaching, except for watching a mentor at the beginning of my career, I had never observed a colleague teach. With the CRI PD, that changed. Rather than pose as the passive recipients of preexisting knowledge, participants in this PD experience engaged in praxis and shared responsibility for learning. These qualities are in line with andragogy (Nottingham Andragogy Group, 1983).

The feedback from participants in reference to their perceptions of the usefulness of the PD reveals that certain qualities of the PD helped them learn about and implement the CRI. When asked how her experience in this PD program, in terms of usefulness, differed prior PD, O’Shea laughed and replied, “In most of our PD, we are lectured to, but in this PD, we were able to work with the information and create usable documents together.” O’Shea thought the CRI PD was very beneficial because “we were lacking as a department as a whole and it gave us ways to try and apply the standards and learn how to create CR questions.” Together, they created materials that could be used in their daily practice which saved time and energy. These qualities are in line with andragogy. According to Knowles (as cited in Henscke) adults’ time perspective is one of immediate application (2015). The perception that the CRI PD was so useful may be due to the fact that the materials teachers created could be immediately applied to their practice.

Engaging
Overall, participants found the sessions to be engaging, even though there was some slight variation in responses. Interestingly, the responses related to the perception of how engaging a participant found a session followed the same pattern of responses as usefulness. For example, 6 participants either strongly agreed or agreed that the Cheers and Fears activity was useful. The same 6 participants either strongly agreed or agreed that the activity was engaging. Similarly, the 2 participants, Banks and Peters, who rated it as “neutral” in reference to perceived usefulness, were also neutral in reference to engagement. In the paragraphs that follow, I elaborate on which activities were perceived differently from the others in the CRI PD program and speculate why.

The format of Session 3 was quite different from the previous two sessions of the CRI PD. We used two protocols. The first was to establish group norms, and the second was to guide us in communicating our successes and challenges with implementing the CRI. Because each person was expected to make a contribution to the discussion, I thought it important we set group norms. Although most teachers in the group had worked with grade-level colleagues for years, we rarely interacted as an entire department. When we did, some individuals tended to dominate conversations; forming ground rules would clarify group expectation and establish points of reflection regarding process (Wentworth, n.d.). In other words, it didn’t seem like it was too late to set expectations for effectively working together on improving our practice. Due to lack of time during Sessions 1 and 2, we had not had an opportunity to establish group norms. At the beginning of Session 3, I decided to use the protocol to assist us in doing Agreeing upon the norms was neither difficult nor time consuming, as we finished within 10 minutes rather than the 30 minutes indicated on the protocol.
Next, we did the “Cheers and Fears” protocol; participants wrote one success and one challenge encountered while implementing CR lessons. As we went around the circle, each participant had an opportunity to share a range of experiences; then we discussed ideas about how to overcome difficulties. During this process, everyone abided by the group norms we established. Half of the eight participants strongly agreed that doing the “Cheers and Fears” protocol was engaging, two agreed, and two were neutral. When asked if the activity should be left out in future PD during the implementation of new initiatives, O’Shea remarked that the activity should not be dropped; it kept the conversation objective. This was a contrast to her prior experiences. She explained that sometimes “people focus on their fears and just start [griping] and complaining about this and that.” She shared that it was nice to be able to discuss the initiative without it getting negative by including the “cheers.”

One definition of engagement is to attract and keep someone’s attention (Oxford Learner’s Dictionary, 2020). By using the protocol to balance the challenges with successes and to ensure everyone had a voice, it may have been easier for participants to remain attentive during the activity. Banks remarked, “It eased a lot of people’s minds because [we realized] we were all having trouble in the same spot. Everybody was having the same issues. It was a reinforcement type thing, and it was kind of like a ‘You’re-not-alone’ process.” Similarly, Smith reported, “I realized that all the other teachers were having the same challenges and successes with CRI. It assured me that I wasn’t the only one.” O’Shea stated, “Cheers and Fears” made me feel confident that I’m not the only one who had fears about it.” These statements show that participants appeared to feel a connection with their colleagues and were engaged in the activity.
A lack of connection with one’s colleagues, however, may have the opposite effect on a participant’s perception of how engaging an activity is. There was 100% attendance during the last session, “Grade-Level Lesson Development;” five participants selected strongly agree, three selected agree, while Banks selected neutral in response to a question about engagement in the activities during this session (see Table 5). Curious why Banks perceived the level of engagement of this activity as “neutral,” I asked him to elaborate. An incident had occurred in the past involving Banks and the other two teachers on his grade level, Salwi and Peters. Since then, they appeared to distrust him. Apparently, as a result, they worked closely with each other, but Banks was not included. Thus, the dynamic outside of the PD experience apparently had an impact on his level of engagement during the session. Although Banks was not a part of the grade-level sharing, Peters stated during the end-of-PD interview that she collaborated on developing all CR lessons with Salwi. They created them together, taught them, and then discussed effectiveness of the lessons afterwards. Peters reflected during our interview that Salwi contributed to her PD. Both She and Salwi perceived the Grade-Level Lesson Development session as engaging. For Banks, however, being excluded from their interactions may have impacted his ability to create shared meaning with his grade-level colleagues (Fullan, 2007; George, Hall, & Stiegelbauer, 2006; Spiro, 2011) and may have affected his level of engagement (Storey & Wang, 2017) in sessions that required him to work with them.

Another possible explanation for the neutral and disagree responses may have been how I facilitated some of the sessions. Although we met the objectives of the session, Banks shared that since all the teachers in the group had already taught a few CR lessons, the time could have been better spent analyzing Type 4 Questions teachers had already used in class and have the
group evaluate and provide feedback on them. He felt it would have been helpful “just to see whether I was accomplishing what I thought I was accomplishing” by getting input from colleagues. In reference to benefit, Smith’s perception of this activity was neutral. During Session 4, we were surrounded by experienced teachers who could have collaboratively evaluated CR Type 4 questions already in use. Instead, I had them individually write questions about a new article and quickly share them at the end of the session.

When I reflected on Banks’ and Smith’s perceptions of the session, I felt I had failed to effectively execute what I had read in the literature about adult learning theory and PD best practices. At times when stressed or pressed for time, I defaulted to a more pedagogical approach. This was not in line with adult learning theory which asserts “the andragogue, perceiving that the movement toward the andragogical assumptions is a desirable goal, will do everything possible to help learners take increasing responsibility for their own learning” (Knowles, 1980, p. 49). I failed to share enough responsibility for teacher learning by running some of the sessions as I would a middle school classroom. As teachers gained experience in implementing CR lessons and discovered specific needs to address to improve their practice, a shift to a more learner-centered approach would have been more appropriate (Pew, 2007). Because of this, teachers were offered limited opportunities to provide different viewpoints and facilitate reappraisal (Storey & Wang, 2017). This was a missed opportunity to enhance teacher professionalism (Storey & Wang, 2017), meeting specific needs, and engagement.
Table 5

*Perception of the Activity’s Level of Engagement*

<table>
<thead>
<tr>
<th>Activity</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Teachers present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Arts Literacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standards for Science</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Cheers and Fears</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Reading to Learn: Helping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students Comprehend</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Readings in Science Class</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Targeting Craft and Knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge LAL Standard 5</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Grade-Level Lesson</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>9</td>
</tr>
</tbody>
</table>

The two sessions ranked least engaging were specifically targeted at LAL Standards for Science. When viewed through an adult learning theory lens, these observations suggest that perhaps teachers, whose learning is “life centered”, may not have been engaged because LAL Standards were not perceived as relevant to their job of teaching science (Knowles et al., 2015). Knowles, et al., explained that “life centered” refers to the idea that adults’ learning needs are focused on their social roles, and their time perspective is one of immediate application (as cited in Henscke, 2015).
Learning how to implement LAL Standards, therefore, may not have been perceived as aligned with the needs associated with their role of science teacher and, may have felt the LAL Standards had little relevance to their professional life and were not applicable to their practice. This may be due to the perception that teaching LAL skills really is not part of a science teacher’s job. It is commonly believed that such skills are to be mastered in elementary school and/or with LAL teachers (Fleming et al., 2007).

Another factor that may have led to feeling less engaged is the format of the CR lesson. It did not match the flow of science lessons. During Session 4, “Targeting Craft and Knowledge LAL Standard”, in order to help teachers experientially learn about implementing CR, we briefly discussed the introduction to the article which addresses the NGSS. Then to model what we might do with students, the group perused and discussed the charts, tables, worksheets, and assessments included in the article and analyzed and discussed the structure from a craft and structure perspective. Teachers determined the author’s purpose in providing an explanation, describing procedures, and discussing the solar cell experiments in the text. Next, teachers referred to the CR lesson template and individually wrote Type 3 and 4 Questions based on the article to share with the group. Teachers may not have found this activity interesting due to the content, and they may not have perceived it as being aligned with practice, which is a criterion for effective PD (Darling-Hammond et al., 2017; Desimone & Garet, 2015; Reed, 2009; Saderholm et al., 2017). In general, though, activities were rated more useful than engaging. Therefore, I conclude that it may have been the format of the activities and my facilitation of the content that contributed to some participants perceiving some sessions as less engaging than
others. This helps inform my work as a PD TL. Moving forward, I will elicit from colleagues the kinds of activities they would wish to engage in to develop the PD program.

Collaborative

Because of the PD I facilitated for CRI, participants from the science department were not sent off on their own to figure out what to do, unaided. Banks described it as using a more collaborative process. He said, “This PD was different because it was more interactive and assessed the needs of the staff as part of the process and provided time for practice and sharing of ideas between coworkers.” Collaboration is defined as the action of working with someone to produce or create something (Lexico, 2020). In this case, the product is PD. Collaboration occurred between participants and me as well as among most teachers.

For the grade-level lesson development session, all nine teachers sat around the large conference table, and we recapped what was covered during Session 4. We began with one teacher summarizing what we did last time, and then I shared the participant feedback from that session. Then I stated the Session 5 objectives, which were based on teacher feedback, for this last CRI PD meeting. Next, we divided into grade-level groups with three teachers each, and colleagues shared the articles they brought to their group. A few teachers brought articles they had used with their classes already and shared how the lessons went. Most brought articles that they had not taught with yet. Each of the three groups selected the one article of the three that they felt was most closely related to the upcoming unit of study.

After one article was selected by the group, each team used it to go through the planning steps of a CR lesson. First, they brainstormed ways students could analyze structure based on our last CRI PD session, focusing on section titles, bolded or italicized sentences, text boxes, and so
on. As they did so, each grade level group wrote Type 4 Questions that they could share. As a
closing activity, participants reconvened as a large group and shared the strategies they employed
to create the Type 4 CR questions aligned with the LAL Standards for Science.

The Grade-Level Lesson Development session, during which teachers worked together to
create CR lessons, was perceived positively by eight out of nine participants. Smith explained
why she felt that way by emphatically stating, “It is really important that the grade-level teachers
get together and bounce ideas off of each other because as a group we’ll come up with better
questions [than if we worked alone]. I think Session 5 was very, very beneficial. During this
session, participants shared responsibility for learning by bringing articles relevant to their
curriculum, engaged in dialog to share points of view, and created products they could take back
to their classrooms to address a pressing need (Knowles et al., 2015). Her words reflect that se
experienced the session as highly collaborative. This is consistent with research that shows high-
quality PD is collaborative and focused (Darling-Hammond et al., 2017). As teachers worked
together in grade-level groups, they focused on creating CR lessons to use in upcoming units of
study. This was a hands-on activity that created a product that could be used directly in the
classroom.

Some participants wished for more collaboration with their colleagues than they got. This
may have contributed to a perceived lack of collegiality. Collegiality is defined as “the
cooperative relationship of colleagues” (Lexico, 2020). Two participants shared that reluctance
of their colleagues to collaborate had a negative impact on their learning. For example, Banks
and O’Shea expressed a desire for more POT and recommended additional opportunities for it to
be incorporated into the program. They both shared, however, that it was difficult to find
colleagues willing to open their doors because as O’Shea said, “some people are real standoffish about that and are competitive.” This may have been due to a cultural obstacle based on a long tradition of teachers closing their doors and doing their own thing driven by a “strongly individualistic ethos” (Wei et al., 2009, p. 11).

Levels of collaboration appear to have had an impact on participants’ perception of their POT experience. Four Level-3 participants engaged in POT, to varying degrees, and made contributions on their own terms but perceived the PD program in general, and POT in particular, quite differently. For example, O’Shea, who was absent during the June training, arrived in September not knowing what a CR lesson is, participated in the CRI PD for a total of 8 hours. She asked to observe two teachers and agreed to be observed by two colleagues as well. O’Shea engaged in pre- and post-observation conferences and collaborated with all teachers on her grade level. Smith, a first-year teacher who worked on grade level with O’Shea. She and O’Shea started to coordinate their CR lessons and share resources. Banks, who was not on good terms with the other teachers on his grade level, was less enthusiastic about POT than O’Shea and Smith. He engaged in POT only with me; we conducted pre- and post-observation conferences. Peters, on the other hand, allowed me to observe her but did not engage in a pre- or post-observation conference due to time constraints. She had worked over the summer on her own to get ready for the CRI and felt prepared. Variation in participants’ needs, in part, appears to affect willingness to collaborate. This willingness, or lack thereof, may have impacted the learning of others in the PD program.

**Summary for Research Question 2**
Compared to previous PD experiences, the CRI PD was perceived by most participants as more (a) useful; (b) engaging; and (c) collaborative. It was useful because teachers were given a place and time to learn how to write CR questions and create required CR lessons. It was engaging because teachers were active learners who had opportunities to reflect on their practice, to share triumphs as well as concerns, and to brainstorm solutions to problems. It was collaborative because during this PD, colleagues worked together to build their capacity to create and deliver CR lessons.

Research Question 3: Teacher Leader Experience

To answer my last research question, which focused on the challenges and supports that I experienced as an emergent and informal TL, I embraced “inquiry as stance” (Cochran-Smith & Lytle, 1999, p. 289). Lieberman and Friedrich (2010) asserted that this stance “emphasizes that educators not only learn from and critique their own practice as they engage in ongoing data collection, analysis, and reading of others’ research and theory, but also create[s] knowledge that is potentially useful beyond [their] local settings” (p. 77). To that end, in the next sections I share my experience in the hope that it will be useful to other TLs and those formal leaders interested in supporting them.

Findings from the CRI PD show that a TL needs support to overcome cultural as well as structural barriers to be successful. The following narrative describes the barriers and obstacles I experienced due to lack of support at the administrative level, which led to scheduling constraints. In contrast, I also describe administrative supports that kept the CRI PD and me going. My narrative, presented below, is organized around two types of administrators, one who
did not support teacher leadership and those who did. These administrators played a central role in my experience of and my capacity to function effectively as a TL.

**The Unsupportive Administrator**

Taking on the role of TL to design and facilitate the CRI PD was an ambitious undertaking. I knew it would be a challenge. However, I was not prepared for the stress I endured working with an unsupportive administrator. In the paragraphs that follow, I share the obstacles created by a supervisor’s seeming lack of respect for my efforts to function as a PD designer and facilitator as well as for the other participants.

Lack of respect for my efforts to function as a PD developer and facilitator posed a significant challenge to my ability to function as a TL. Although the CRI PD study had been approved by the Superintendent the previous school year and I was told by the Director of Curriculum and the previous Science Supervisor that I could use district PD days to work with science teachers on this PD program, a few weeks before the CRI PD was to begin, I received an e-mail from the new supervisor stating that before I met with my colleagues for the first session of the PD program I had designed, she and the director of curriculum wanted me to stop by the board office and share my plans.

Unfortunately, the chief supporter of this project—my principal—was not with me when I went. Although the PD was for her teachers, my principal had not been invited to attend this meeting. At first, only the supervisor was present. After I explained to her what the CRI PD was about, she got up, walked over to her computer, and said, “No, this is what you’re going to do.” I do not know what she typed, and she did not offer to explain. Fearful she would make up a new PD program on the spot and force me to implement it, I stated that the study had been approved
last spring by my dissertation committee (which included my principal), the superintendent of Chesterfield School District, and the Internal Review Board at Rutgers University. Therefore, I was not at liberty to change the content of the PD. I then asked if the Director of Curriculum could join us. By making this request, I hoped to clarify that this was a research-based, district-approved project. Since she and the Superintendent had already approved the project, I thought her presence would affirm my legitimacy and the supervisor would my plans.

Once the Director of Curriculum joined us, I communicated the plan. The first session was designed to take approximately 2.5 hours. I had planned 10 minutes to provide an overview of my dissertation study; 20 minutes to introduce and administer the Stages of Concern Questionnaire (SoCQ); 20 minutes to lead a discussion on relevant literature; 20 minutes to introduce the LAL Standards for Science; 45 minutes to collectively brainstorm how we could add resources targeted at the CRI on our pacing guide; 10 minutes to complete a survey to provide feedback on Session 1; and 25 minutes to go over the informed consent for the study as well as have time for a general question-and-answer session. Using 2.5 hours was vetoed; they did not think that amount of time was necessary. Sadly, I was granted 1 hour for the first PD session.

Lack of consideration from the Science Supervisor continued. As described and approved in my dissertation proposal, colleagues and I were to meet during district PD days. Two weeks before the first fall PD day, I sent Stanton administrators a request for a room where the other science teachers and I would have access to computers during Session 1. I indicated that my first choice was the school library and the second was my science classroom, which is significantly larger than regular classrooms. Both have access to desktop computers. I learned that neither of
my requests had been considered because the supervisor, who also supervised math, communicated to building administrators that she wanted math and science teachers in rooms next to each other, so she could quickly move between the two. This is how we were placed. If we were to be in rooms next to each other, we could not be in either room I had requested.

PD for the CRI and my needs as facilitator were of little concern to the supervisor as evidenced by her refusal to be flexible about room location. The assigned room was not conducive to the PD activities I had planned. For example, I wanted participants to be able to sit in a circle to communicate expectations about mutual engagement and support as well as to equally distribute participation in our discussion. The classroom we were scheduled to use was too small to accommodate this planned configuration. In addition, I had planned to post “graffiti sheets” for an activity related to the Standards. Having the PD in the room the supervisor chose would make this difficult, because we were going to be in another teacher’s room that was in use up until the start of the professional development day. In addition, it was located on the other side of the building from my classroom. Moving materials from one side of the building to the other would require even more time. Lastly, we would not have access to computers, which were needed for another one of the PD activities. I sent the supervisor two separate e-mails requesting that the meeting be moved to my classroom. There was no response to either.

In the end, however, it did not matter. Superstorm Sandy hit New Jersey just before the planned PD day. As a result of the devastation created by this storm, a state of emergency was declared, and schools were closed. Ten days later, just as the community was getting back on its feet and schools were trying to reopen, New Jersey was struck by a strong “nor’easter” storm. More power lines went down, and schools remained closed for approximately two weeks. As a
result, the two full days of PD scheduled during that time did not occur. When schools reopened, PD was not a priority, and the scheduled PD days were not rescheduled.

Lack of support continued when we finally did get to meet for our first. I was granted less than half an hour during a science departmental meeting. One of the goals of the session was to ascertain participants’ concerns related to the implementation of the CRI. While participants answered questions about this on the Stages of Concern Questionnaire (SoCQ), the supervisor walked around the room and periodically read over teachers’ shoulders. One participant said she could, “not answer honestly here” and looked over at our supervisor. Another colleague asked if she could finish it in her classroom. Because of this, I realized the questionnaire data might not be reliable.

The supervisor’s lack of respect for teachers, my efforts, and for the concept of teacher leadership was palpable. As a veteran teacher eager to help my colleagues implement an ambitious literacy program, I was dumbfounded by her lack of support. As a full-time teacher with my own classes to plan for and teach, I found this unsupportive administrator to be the major obstacle in implementing the CRI PD program.

**Supportive Administrators**

Although I felt unsupported and even undermined by the science supervisor, the experience was quite different with two other administrators. The LAL supervisor for the district and the school principal of Stanton were respectful and willing to help my colleagues and me be successful. They were swift in responding to my requests for help and creative in finding solutions to challenges I encountered while implementing the PD.
Unlike the Science Supervisor, the LAL Supervisor was an example of supportiveness because he was highly responsive to my request for help. My science colleagues and I encountered a question that we could not address about paraphrasing, a CR activity. Seeking guidance, a few science teachers had asked more than one LAL teacher how they taught paraphrasing to their students. We got multiple answers and realized we were teaching students how to paraphrase differently from some teachers in the LAL department. Smith expressed confusion and asked, “How are students supposed to paraphrase? There’s disagreement between teachers.” In response, I reached across institutional channels and contacted the LAL department supervisor for guidance. He swiftly replied that the interpretation of paraphrasing that we were using was correct. This confirmation decreased my colleagues’ stress levels, as well as my own, in reference to correctly executing a CR lesson. Moreover, it gave me credibility as a professional developer. I had presented the CR protocol correctly. As the TL implementing the CRI PD, this also gave me more confidence in my ability to guide my fellow teachers through the learning process as we integrated LAL into our curriculum.

Shortly after responding to my email, this supportive administrator visited our school during a staff meeting, reviewed paraphrasing with the entire school, and answered questions about paraphrasing as well as any other CR questions. This timely visit was greatly appreciated by the CRI PD participants. During the interviews at the end of the PD program, when asked what supports helped teachers implement the CRI, three out of four Level 3 Participants shared that the LAL Supervisor was a valuable resource who contributed to their understanding of CR. From my perspective, this supervisor’s immediate and respectful support also contributed to my understanding of the importance of the role of the TL as one who connects teachers and
administrators to help implement and initiative.

Another valuable leader who continually offered support to me was the principal of Stanton. At one point, delivering research-based PD felt hopeless due to the following factors: (a) Many PD hours had been lost due to Superstorm Sandy; (b) I was distraught over the loss of the SoCQ data that were compromised; and (c) I felt uncomfortable requesting time for PD during science department meetings run by my supervisor. When I expressed my frustration to my principal, a champion of teacher efficacy, she responded with two questions: “How can I help? And what do you need?” I responded, “We need time.” She immediately went into action, brainstorming where we could find time during staff meetings, how to arrange for substitute teachers to cover classes for teachers to meet, and more. All I had to do was tell her who needed coverage on which date, and she made sure we had it. Her creative problem solving and steadfast support made me hopeful and made it possible for me to function more effectively as an informal TL. Without her efforts, the results of the CRI PD would have been very different indeed; there would not have been an opportunity for colleagues to collaborate or for me to be actively involved with the design or implementation of our own PD. Ineffective PD often lacks these elements (Glickman et al., 2009; Wei et al., 2009).

**Summary for Research Question 3**

Administrators play a pivotal role in the success of TLs. An unsupportive administrator who marginalizes those lower in the school hierarchy, undermines TL efforts and may leave the TL feeling exhausted and defeated. As a result, the ability to successfully implement an initiative is questionable. Teachers who are learning how to change their practice to enhance student achievement need a safe environment where they feel free to take risks. Placing additional
obstacles that hinder TLs who attempt to cultivate such an environment, decreases the likelihood an initiative will succeed. On the other hand, supportive administrators are valuable resources who enhance TL efforts. They convey respect for teachers with whom they work and are attentive, flexible, and positive. Supportive administrators remove obstacles, empower TLs, and make it more likely an initiative to increase student achievement will succeed.

**Discussion and Implications for Practice**

As the demand for more complex student learning increases, there will be greater need for quality PD (Darling-Hammond et al., 2017). By empowering and supporting TLs, formal school and district leaders can leverage effective and efficient human resources within school buildings to help address this need. Although facilitating the CRI PD was rife with challenges, it did provide meaningful opportunities for participants to learn and adjust their practices in response to the CR mandate. After reflecting on my own practice and looking across the findings, I now offer a new vision of a CRI PD and ideas on how administrators can support TLs as they and their colleagues experiment with their expanding roles to help close the PD gap.

Numerous changes have occurred throughout the Chesterfield District and at Stanton Middle School since the CRI was launched during the 2012–2013 school year. These changes span leadership, curriculum, and structure of PD. There has been a change in administrative leadership at both the district and school levels. Initiatives in technology have been at the forefront; every teacher and student in Chesterfield has been issued a Chromebook with which students log on to their teachers’ Google Classrooms. Teachers may invite guidance counselors, tutors, and others to join as well. It is a virtual window into classroom practice. Google Drive is now available and is used throughout the district for multiple purposes, including the support of
PD. Had the environment described above existed during the CRI PD, the experiences of those who participated, as well as my own, would have been different.

If I could go back in time to September 2012 with the experience, knowledge, and resources I have now, I would design and facilitate the CRI PD differently. I would leverage the professional learning communities (PLC) structure put in place at Stanton three years ago, new technology implemented in the district, my own position as an informal TL, LAL teachers’ expertise, and participants’ experiences of implementing the CRI. In addition, I would change the order of the activities and the number of times teachers gathered for PD. To address scheduling constraints and meet individual needs, I would develop new opportunities to create a more inclusive, flexible PD experience. Possibilities to integrate LAL skills across content areas, provide time and resources for implementing a PD program, individualize the learning experience for participants, as well as lessons experienced while learning to become a TL are explored below.

**Integrating LAL Skills Across Content Areas**

Beyond the implications for PD design and teacher leadership support, this study offers implications for two specific audiences. The first is other TLs trying to help teachers integrate LAL skills into their content areas, and the second is faculty who work in teacher preparation programs. Administrators trying to get teachers to integrate LAL skills into their content areas need to acknowledge the PD gap and take PD quality and coherence into consideration. For example, the literature indicates that many science teachers who have had no formal training in LAL often lack the necessary know-how to support their students’ domain-specific reading and writing skill development (Baker et al., 2008; Bintz, 1997; Greenleaf et al., 2011; Hanrahan,
2009). As a case in point, not one participant in the CRI PD, from senior to first-year teacher, had completed course work pertaining to reading and writing for science. It appears that the belief that elementary and LAL teachers are responsible for teaching reading and science teachers are responsible for teaching science was shared by those who created the teacher preparation programs my colleagues and I completed which provided no coursework that helped us learn how to teach reading and writing in ways specific to our content area (Bintz, 1997; Fang & Coatoam, 2013; Greenleaf et al., 2011; Hanrahan, 2009; Shanahan & Shanahan, 2017).

For integration of content and literacy skill learning, the LAL Standards for Science must be addressed in teacher preparation programs. Unfortunately, only one person involved with the CRI was even aware that the standards existed. Lack of awareness of the standards shows a significant gap between the knowledge that exists about integrating LAL skills and who knows of it. Preservice teachers in most content area reading courses are expected to integrate generic reading strategies into their content areas without a full understanding of the fundamental reading processes needed to comprehend the material (Dillon, O’Brien, Sato & Kelly, 2011). Teacher preparation programs could do more to teach teacher candidates how to teach literacy in their respective disciplines. Because teacher preparation programs must align their curricula with state education agency (SEA) licensing requirements, however, this is unlikely to happen unless they revise teacher licensing requirements (Lovette, 2013).

Since science teachers are presently not required to complete coursework in teaching LAL, we must find ways to connect content-area teachers with those with the most experience developing students’ LAL skills. If I were to coordinate a CRI PD program again, I would recruit as many LAL teachers as I could to participate in a number of ways. I would create a Google
Classroom for the PD with a section called “Ask the LAL Teacher” where content-area teachers could post their questions and have them answered by colleagues who were formally trained to develop students’ LAL skills. I would also create other options such as lesson modeling, sharing resources and having guest LAL teachers participate in PD activities for a more interactive PD experience.

**Providing Time and Resources**

Findings from this study highlight the struggle to provide adequate time for teachers to engage in PD. This points to the importance of putting structures in place to ensure that teachers have regularly scheduled opportunities to meet for their learning and development. Because administrators can use e-mail and online resources to communicate with the entire school staff simultaneously, using meeting time to gather everyone to sit passively and listen to announcements during monthly faculty meetings is questionable. Rather than traditional staff meetings, formal leaders could instead use that time to provide teachers with opportunities to explore how best to learn the new skills required to implement improved practices and increase student achievement.

Providing regularly scheduled monthly PD time would eradicate many of the structural obstacles encountered during the CRI PD. A benefit of such scheduling would be the potential to develop a culture of professional learning which could be enacted in professional learning communities (PLCs), groups of educators and/or teachers who seek and share learning on a continuous basis to improve quality of instruction (Leo & Cowan, 2000). Three years ago, at Stanton, monthly staff meetings were replaced with PLC meetings. This addresses one of the greatest obstacles encountered during the CRI PD—lack of time. Teachers now have a regular
meeting time to discuss problems of practice and can engage in meaningful discourse related to student achievement. Leveraging the technology now available in the district, Stanton PLC groups have team storage drives where resources can be collected and organized. PD, in general, has become more flexible and offers teachers more of a voice in how they wish to shape their own learning and PD. A CRI PD program implemented now during PLC time would enable teachers to meet monthly for a total of ten sessions rather than the haphazardly scheduled five that I was able to offer during this study.

Because some teachers may miss PLC time due to illness or other school responsibilities, such as supervising clubs or sports teams, it is essential to explore how technology can be used to support collaboration among colleagues and store their work in a way that is accessible to all. Before beginning a new PD program, I would create two online spaces specifically designed for the CRI PD: the first on Google Classroom and the second on Google Drive. On Google Classroom, I would create topics to speed access to specific resources. For example, topics could include but not be limited to LAL Standards in Science, Ask a LAL teacher, and CR Lesson Forum. In the Forum, teachers would be invited to record and view CR demonstration lessons and post them for all teachers to view at their convenience. On Google Drive, I would invite colleagues to join the CRI PD Team Drive. In the drive, there would be four folders, one for each grade level and one for CRI PD sessions. For example, sixth grade would have folders for geology, history of Earth, astronomy, and meteorology, as well one for NGSS cross-cutting concepts. As we progressed through the PD program, these folders would become the CR lesson repository populated with articles and lesson plans. Utilizing these technologies would provide access to resources in a flexible manner to accommodate teachers who are unable to attend PLC
Individualizing the Learning Experience

Using technology can help provide flexibility and creativity to individualize the learning experience for each teacher. A CRI PD Google Classroom would provide a forum where teachers could post comments and questions for each session or in a general Q&A section. I would check the CRI PD Google Classroom stream daily for participant comments. This would enable me to be much more responsive to participants’ needs and enable them to help each other as well.

Although all participants agreed the CRI PD was useful, engaging, and different from previous ineffective PD experiences, the session unanimously rated the highest was the “Grade Level Lesson Development.” Unfortunately, this only occurred once and not until our last session. If I were to redesign the PD, I would move that activity as close to the beginning as possible and provide multiple opportunities for such collaboration throughout the entire PD program in persona and online. Although teachers expressed a desire to learn about LAL in science during the “Cheers and Fears” protocol, they did not find the LAL activities as useful as the lesson development activity. Therefore, I would embed the LAL components throughout lesson development activities. In this way, teachers could get the skills they needed to write CR lessons while actively creating them.

I would also incorporate opportunities for participants to give and receive feedback about CR lessons that they taught. This could be done by watching a video recording of a lesson, reading a lesson plan, talking about a CR lesson, or a combination thereof, depending on what participants preferred and in what they were willing to engage. During the CRI PD, I failed to
use the experience of my colleagues as we progressed through the sessions. As Banks noted during Session 3, teachers could have analyzed and evaluated CR materials they had already used in class. They missed that opportunity because, as facilitator, I did not treat their experiences as a rich resource for learning (Knowles et al., 2015). Next time, I shall follow Banks’s lead and focus more on what participants can offer to enrich the PD experience for the entire group.

Because of new technology, there are now more options for designing PD than I had when I led the CRI learning activities. Groups do not have to be limited to face-to-face encounters. A blended style that includes online interaction (Trust & Horrocks, 2017) can be included either synchronously or asynchronously. Moving part of the PD experience online would offer additional scheduling flexibility. Teachers who meet in face-to-face communities can continue their conversations and collaborative projects anywhere at any time online by using technology in innovative ways (Trust & Horrocks, 2017). Another benefit of creating blended learning environments (a blend of face-to-face and online) is that they allow teachers to step into teacher leadership roles without having to worry about the demands of carving out time in a hectic school schedule to meet. Given that TLs have little to no power regarding the school day schedule, using technology to remove this structural obstacle can be especially helpful. Research has shown that PD that includes online communities of practice not only improves instructional practices but also cultivates teacher leadership (U.S. Department of Education, 2014).

Individualizing learning experiences requires a willingness on the part of administrators to allow teachers to choose how they want to engage in PD. An exciting example of this, and an outcome of the CRI PD, is opening classroom doors and giving teachers the opportunity to see
each other in action by participating in POT. One colleague wanted to explore the possibilities further and chose to make POT her PD plan the following year. She and I engaged in POT during the 2013–2014 school year as part of our yearly PD plan. During the 2014–2015 school year, two more colleagues and I engaged in POT across grade levels. In 2016, I helped coordinate POT across grade levels as well as content areas. Although the use of POT at Stanton as a means of PD is still limited after several years, with patience and administrative support, I believe it will grow. It is important that numerous PD activities be available from which teachers may chose, including the option for them to create a PLC to explore what they need if it is not currently offered. To facilitate the creation of individualized learning programs, school administrators must create an environment that empowers teachers to choose what to learn and how to engage in their own PD.

**Learning to Become a Teacher Leader**

Although I was acquainted with teacher leadership literature that highlights cultural obstacles of organizational hierarchies, I was completely unprepared for the complex socioemotional dynamics of functioning as an informal TL. During the CRI PD, I questioned whether serving as a TL was worth the personal cost. It would have been beneficial to have coursework at the university specifically designed to prepare potential TLs for the resistance they may encounter. One such approach includes dramatization of real-life teacher leadership cases. Cranston & Kusanovich (2015) created a workshop whose goal was “to provide glimpses for those interested in initial teacher preparation into the emotionally draining circumstances of teacher leaders” (p. 71).

Had I been alerted to the likelihood that I would meet with resistance, I would have
approached the interaction with district administrators as an opportunity to share with them what I have learned about PD. I would calmly advocate for a research-based PD program of considerable duration that gives teachers time to collaborate in an active setting that enables them to create products for use in their classrooms and helps them solve the problems of practice they experience. Being prepared, may have made the TL experience less stressful than it had been. Had I seen dramatizations and been prepared for emotional ups and downs, I might have fared much better.

Not only was I ill prepared for the emotional turmoil of assuming a teacher leadership role, I also would have benefited from skill development in a number of areas, some of which I can now draw on as a result of this first effort. For example, learning better organizational skills and how to deal with dysfunctional team members would have been helpful because I struggled to carry out the responsibilities of designing and facilitating PD while teaching five classes a day. I also struggled to figure out how to engage members of one grade level group who were experiencing conflict (Gordon, Jacobs, & Solis, 2014), as one teacher described with regard to Session 5. Training on how to use technology to provide instructional assistance would have been beneficial as well (Gordon et al., 2014). As an informal TL, I have experienced the importance of the TL role because it can provide significant support for school and district initiatives (Katzenmeyer & Moller, 2009; Murphy, 2005; Reeves, 2008). To do so more effectively, however, requires specific skills to be developed.

**A Metaphor for My Journey as a Teacher Leader**

Throughout this study, in addition to my research journal, I maintained a reflective journal (Osterman & Kottkamp, 1993) to help me make sense of my experience and bring to
light my professional beliefs and values. This provided necessary data to analyze in the ongoing pursuit of becoming a better educator and leader. While writing this chapter, I found myself feeling distressed when I reviewed notes recorded at particularly difficult times during the CRI PD. To illustrate the difficulties, I will describe a metaphor that I identified in my journal that helps illuminate the overarching cultural and structural obstacles encountered during this study. On October 29, 2012, forces converged at just the right time and in just the right way to turn a hurricane into the storm of the century. Superstorm Sandy is a metaphor for my journey.

The storm surge. On October 29, 2012, Sandy’s 9-ft storm surge coincided with high tide. These two factors combined to create a record-breaking tidal maximum of 13 ft in New York City, 2 ft higher than the record set during the great hurricane of 1821. A high tide in Atlantic City, New Jersey destroyed piers on the shore and caused extensive flooding downtown as maximum sustained winds of 80 mph battered the shore (National Centers for Environmental Information, 2018). As an informal TL, the combination of structural and cultural obstacles similarly converged, and I felt as though I were swept up, overwhelmed, in a storm surge. Some of these obstacles were “built in” and some happened only by chance.

A significant structural obstacle was the lack of time available during the school day to engage in meaningful PD experiences. Mandatory emergency drills, time for departments to meet and work on the school budget, and required assemblies destroyed my original PD plans, encroached on teacher learning time, and had a significant impact on teachers’ ability to engage in the CRI PD. For example, after a two-week struggle to coordinate an observation with O’Shea, an unexpected bomb evacuation drill occurred just as she began to teach the lesson I had come to see. As we swiftly exited the building during the drill, I remember thinking, “Delivering
research-based PD is impossible!” In addition to the daily structural forces that blew me off course, multiple PD days were canceled due to devastating weather conditions and a prolonged power outage. This required me to deploy creativity and flexibility to redesign PD activities that could fit within the constantly decreasing time slots that had been allotted. Instead, thanks to the principal’s support, we were allowed to use time during staff meetings and could arrange for substitute teachers to cover classes so that teachers could meet. She created something of a safe harbor, something the victims of Sandy unfortunately lacked.

The damaging winds and torrential downpours of Superstorm Sandy wreaked havoc along the eastern seaboard and made for an experience that no one who lived through it will soon forget. I equate that havoc with the cultural obstacle posed by the difficult power dynamic between me serving as an informal TL and my supervisor serving as the formal leader who had little interest in what I was trying to accomplish. I perceived her actions as uncooperative and unsupportive. I felt she sought to make me feel distinctly subordinate during our interactions. At the conclusion of the CRI PD program, I was battered and tossed by the storm, and my mind was in turmoil.

After the storm. Another parallel with Superstorm Sandy was what happened when the sun finally came out. I made it through, but did I want to continue? It was time to determine if I would quit, move on, or rebuild with regard to my role as TL. I chose to rebuild. I implemented reflective practices to figure out why my experience was so difficult, from the initial meeting with my supervisor all the way to the conclusion of the CRI PD program, punctuated by last-minute changes to the schedule. After going back to the literature, digging deep, and ruminating
on the journey, I found myself understanding more (discussed below) and feeling “Jersey Strong.”

**Call for Future Research**

This study focused on PD and my role in designing and facilitating it. However, it is also important to track how teachers continue to use what they learned in the PD. If I were to pursue such an inquiry, it could help me grow and develop skills as a TL as I identify what new practices are sustained and how better to support those that are not. Moreover, the scheduling difficulties I experienced left me wanting to explore how to leverage technology to meet PD needs that are difficult to address due to scheduling limitations in schools, as well as how online communities of practice can be used for PD and the cultivation of teacher leadership. It is also important to understand more about how PD influences learning outcomes for students. This was not a study about the implementation of the CRI. Although students’ reading scores did improve during the school year, as evidenced by an increase in Lexile level, the increase cannot be assumed to be causally related to the CRI, as there were other factors that could have influenced these results. Further research is necessary to understand the impact of PD on student learning.

**Summary of Chapter**

Although this was a qualitative case study and is not generalizable, the approach to PD that was used is transferable. This design helped participants meet learning objectives, thereby increasing the likelihood that teachers would effectively implement the CRI. Findings from this study may be helpful for TLs, supervisors, and district administrators who wish to design effective PD experiences that are teacher-led and more teacher-centered and research-based.

If teaching LAL across content areas is expected to increase student achievement, then
state education agencies need to change current licensing requirements to require content-area teachers to be trained to teach LAL skills. This will, in turn, encourage colleges and universities to include coursework to better prepare content-area teachers to support students as they develop their LAL skills. In addition, higher education institutions who wish to promote TL may do well to include specific training on the challenges and obstacles TLs may encounter out in the field.

The CRI PD was a time-consuming, research-based program. It focused on one instructional strategy and was structured for collective participation using protocols. Sessions were coherent because they grew out of needs identified in previous meetings and were aligned with a district goal. We created usable resources together, and every session included activities that fostered engagement. Structuring collaborative learning experiences for teachers with a variety of activities and optional components provided differentiation that could meet a range of participant needs. This increased the potential to successfully meet learning objectives, thereby making the PD more meaningful for participants. If school administrators want new programs to be implemented effectively, attention to the elements of effective PD is warranted, particularly in reference to duration. Educational leaders must create dedicated time for PD and then commit to protecting it.

Administrators must also give teachers the freedom to choose from a range of options of how to engage in PD to help individualize and enhance the learning experience. This may be accomplished face-to-face online among staff members in real time or online asynchronously. The use of technology can help teachers address varying needs and meet a range of goals throughout a PD program above and beyond the affordances of an exclusively face-to-face learning opportunity. Learning is not a one-size-fits-all process, and administrators must create
an environment in which teachers are free to choose among options which best suit their learning needs.

Teacher leaders who lead PD need to be prepared and supported by both teacher preparation programs and the administrators with whom they work. College and university programs might provide coursework that includes role play or analysis of case studies of TLs who encounter obstacles to better prepare them for the challenges they will encounter in the field. District and building-level leadership can help in numerous ways. These may range from the simple logistics of where to meet to a more complex issue of dealing with power dynamics between participants. With the proper preparation and support, TLs will be more likely to be able to support their colleagues in the endeavor of increasing student achievement.

When I finished facilitating the CRI PD, I was stressed, frustrated, and pessimistic about the possibility of implementing teacher-led, research-based PD. Because of a change in administrative leadership at both the district and school level, new structures are in place now that ensure teachers have time to meet face to face as well as in blended or online communities of practice. Having more flexible administrators who are receptive to teachers collaboratively exploring new ways of learning has significantly decreased levels of stress when functioning as a TL. Both administrators and TLs can make a positive contribution to increase student achievement on their own, but both kinds of leadership deployed together, and in mutual support of each other, may yield even greater gains in achievement. Looking ahead to next year, I am eager, excited, and optimistic about my role as a seasoned and informed teacher leader.
CHAPTER 5: PRACTITIONER JOURNAL ARTICLE

The goals of the Rutgers Graduate School of Education Education Doctorate’s Concentration in Teacher Leadership are for graduates to (a) utilize research on teaching, learning, and leadership to support effective instructional practices; (b) identify problems of practice to facilitate instructional change efforts guided by appropriate theoretical lenses; (c) know how to advocate for, design, implement, and evaluate sustainable learning environments for pre- and in-service teachers; and (d) understand and be able to navigate the complexity of acting as a TL, in order to effectively fulfill roles such as mentor, co-teacher, coach, team leader, committee chair, or PLC facilitator (Rutgers, The State University of New Jersey, 2018). I believe that the dissertation study upon which this paper is based demonstrates that I accomplished each of these goals. My objective for writing this article for publication in a practitioner-oriented journal is to communicate findings that can promote professional growth in the field of education in language that is accessible and practical for a teacher and administrator audience.

To that end, I have written this article to submit to the journal published by Kappa Delta Pi, an international honor society in education founded in 1911 to foster excellence in education and (Kappa Delta Pi, 2018a). The peer-reviewed journal, Kappa Delta Pi Record, is published quarterly in partnership with Taylor & Francis and publishes research-based articles on issues “relevant to national and international education professionals who work and teach at all levels and in a wide range of disciplines and settings” (Kappa Delta Pi, 2018b, para. 1). The editors seek submissions related to teacher leadership.
When the CRI was introduced in Chesterfield District, it was apparent that my colleagues and I in the science department needed additional PD to integrate this new requirement into our practice. I advocated for research-based PD and designed, implemented, and evaluated the CRI PD program for science teachers. I learned to navigate the complexity of acting as a TL in order to serve as a PD facilitator. Since Kappa Delta Pi Record seeks research-based articles about teacher leadership, I decided to focus this article on my experience as a teacher who, when given the opportunity to lead, helped support the changes in practice necessary to implement the CRI effectively. I seek to communicate the CRI PD study findings to educators who wish to collaborate to close the gap between knowing what needs to be done, knowing how to act effectively, and actually accomplishing initiative objectives.
When Teacher Leadership Meets the Professional Development Gap

ABSTRACT

Teachers, when given the opportunity to lead, can help support the changes in practice needed to enact school reform if they can navigate structural barriers to teacher-led, collaborative, ongoing PD. A qualitative research approach was used for this case study that explored the experiences of an informal teacher leader who designed and implemented a professional development (PD) program for middle school science teachers as part of one K-8 school district’s initiative to integrate Language Arts Literacy (LAL) across the curriculum. My findings suggest that because teachers’ needs vary greatly, teacher leaders who facilitate PD must be flexible and creative to differentiate learning experiences. The study also revealed structural challenges encountered by an informal teacher leader.

Keywords: Teacher Leadership, Professional Development, Language Arts Literacy in Science

Introduction

In 2012, a suburban school district in the Northeast launched the Close Read Initiative (CRI) to integrate language arts literacy (LAL) across the content areas. This meant that teachers in all disciplines were required to help students develop LAL skills using CRI lessons. However, the school district leaders did not provide adequate professional development (PD) to enable teachers to effectively implement them. In response, I decided to expand my role from middle school science teacher to science teacher leader (TL) by assuming responsibility for designing and facilitating PD for my nine colleagues as they worked to develop their skills implementing LAL instruction through the CRI in their science classes. TLs are defined as those who assume a
leadership role by drawing from their experience and love of teaching to engage colleagues through conversations, to facilitate PD, or to engage in peer observations (Katzenmeyer & Moller, 2009). At the same time that I took up this role, I also conducted practitioner research about the process by posing the following research questions: (a) How do teachers perceive efforts to provide research-based PD to support the implementation of the CRI?; and (b) what are the challenges and supports experienced by an emerging TL when attempting to provide research-based PD to support the implementation of the CRI? The purpose of this paper is to communicate what was learned from this inquiry.

**Implementing the Close Read Lesson**

Program designers expected CR (Fang, 2016) lessons to include the following LAL components: paraphrasing, summarizing, answering four types of text-dependent questions varying in difficulty from literal to inferential (Liben & Liben, 2013), completing a vocabulary study, and responding to a writing prompt. In science class, these inferential questions align with Common Core Curriculum Standards for LAL in science and ask students to analyze the text in terms of writing craft.

In order to prepare teachers to be able to make this significant addition to our practice, in June 2012 the entire staff was introduced to CR at a 1-hour PD workshop that consisted of a lecture supported by a PowerPoint presentation and an interactive activity using a sample article accompanied by a worksheet with CR questions and a writing prompt. Participants worked together to complete the worksheet. Although district leaders may have had good intentions when they planned this workshop, many of us left the room concerned about our ability to implement this initiative and asking each other how we were going to handle this new
requirement the following September. Questions I heard among staff such as “Where will we get the PD we need?” and “Who will provide it?” signaled a desire for more PD in general. There was a clear gap between the PD we got and the PD we needed to effectively implement the CRI. To address this PD gap and learn about teacher leadership in the process, I drew on best practices research to design and implement a PD program to help science teachers integrate LAL into the curriculum. There was no precedent for informal teacher leadership in my school, and this was a completely new role for me. Therefore, I was breaking ground both in trying to provide research-based PD and doing it from the position of an informal, self-appointed TL. This made it especially important to document my efforts and reflect on lessons learned that I could use in future teacher leadership efforts and that could inform district leaders in supporting instructional initiatives in the future.

**Literature Review**

Three bodies of research informed my work as a TL taking up the role of professional developer to forward the aims of the CRI with my science colleagues: (a) effective PD, (b) LAL in science, and (c) teacher leadership. Research indicates that there are five common characteristics of effective PD. It (a) is focused on specific content and/or instructional strategies, (b) is collaborative, (c) is coherent, (d) follows an active rather than a stand-and-deliver learning approach, and (e) is of considerable duration (Blank, 2013; Desimone & Garet, 2015; Reed, 2009; Saderholm et al., 2017). A prevalent theme in the literature on integrating LAL into science instruction is that reading is often perceived by teachers as an isolated skill that is (or should have been) mastered in elementary school; they often feel they are too busy teaching science to actively help students increase their reading comprehension (Fleming et al., 2007) and,
by extension, their literacy skills. To further complicate matters, many science teachers have had no formal training in teaching LAL in their content area and often lack the knowledge needed to develop their students’ reading skills (Herman & Wardrip, 2012). Requiring science teachers to teach reading is a big change; however, researchers assert that although particular functions need to be accomplished during a change effort, it does not necessarily matter who executes those functions (Heller & Firestone, 2011). TLs, therefore, can be a fundamental part of the team it takes to bring about positive change. They can mobilize and energize others with their expertise and passion for teaching (Danielson, 2006; Harrison & Killion, 2007; Lai & Cheung, 2015; Katzenmeyer & Moller, 2009; Nolan & Palazzolo, 2011) by leading a broad range of PD activities. The literature informed me of characteristics of effective PD, of the need to develop LAL skills specifically targeted for science classes, and of the potential importance of teacher leadership in the successful implementation of instructional change efforts.

**Research Approach**

A qualitative research approach was used for this study, which describes teachers’ perceptions of efforts to provide research-based PD as well as the challenges and supports experienced by an emerging TL attempting to provide research-based PD to support the implementation of the CRI. Data collection, which occurred over an extended period of time, included observations of participants during the PD sessions, focus group and individual interviews, and PD artifacts. Creswell’s (2007) general six-step model informed analysis. Data were coded and then sorted using NVivo 9.0. To ensure trustworthiness, I triangulated data, sought feedback from participants about the accuracy of identified themes, used rich description
to document our experiences, addressed researcher bias, looked for contradictory data, and spent a prolonged period on site (Creswell, 2009).

**Professional Development Design**

The goal of the PD was to help teachers develop the knowledge and skills they needed to implement the CRI to integrate science and LAL effectively. The PD design and my role in it was an enactment of research discussed in the literature review regarding PD, teacher leadership, and teaching reading in the content area. The program consisted of five sessions of collaborative, teacher-led, school-based department meetings and peer observations of teaching (POT). The objective of Session 1 was to familiarize participants with the CRI PD for science teachers and conduct a needs assessment. The objectives of Session 2 were for participants to learn about the LAL Standards for Science, to reflect on their own practice in reference to how often they implement these standards, and to extend their thinking about the standards by applying them to parts of a CR activity. The objectives of Session 3 were to reflect on one’s teaching practice with regard to CR lessons, strengthen our teacher community by sharing successes and challenges associated with the CRI, brainstorm possible solutions to these challenges, and focus on skill development around implementing specific CR lesson activities related to text structure. The objective of Session 4 was to develop participants’ understanding of how to write CR questions. The objectives of Session 5 were to develop a resource repository of texts that could be used for CR lessons and to continue to develop skill in creating CR questions. POTs were conducted during the same period of the school year as the meetings. The objective of POT was to continue to help participants to continue to develop knowledge and skill related to designing and implementing CR lessons by observing and by being observed by colleagues actually teaching
CR lessons. For the POT, participants were encouraged to conduct a pre-observation conference, observe a CR lesson, and follow up with a post-observation conference for sharing feedback and reflections. Teachers were free to use one or more protocols designed to provide a structure for observing and debriefing with their partners.

**Findings**

Data analysis indicates that participants perceived this program as a departure from traditional PD, as they acquired new skills related to teaching LAL through an ongoing, highly collaborative, active, and generative approach. To accomplish this, the design of the program required flexibility and creativity to create differentiated experiences. While structural obstacles made facilitating the PD very difficult, support provided by the building principal and the LAL supervisor was critically important to making facilitation of the CRI PD possible.

Unlike PD that participants had experienced in the past, this program was highly collaborative and valued each participant as an adult with valuable prior experiences (Knowles et al., 2015) that benefited the group and enhanced their learning. For example, when discussing specific strategies that expert readers use, one colleague shared how he used annotations during college; another shared how she used T-charts and sketches. Another participant noted the value of a collaborative learning environment by saying, “It also provided time for practice and sharing of ideas between coworkers.” Participants observed that the processes I facilitated reduced isolation and promoted interaction among colleagues. An activity that seemed to contribute to this outcome was using the “Cheers and Fears” protocol during the third PD session to structure our talk about implementing a CR lesson. In the first round, participants shared what was working well (cheers) during the CRI; in the second round, participants shared what was difficult
for them about implementing it (fears). Three out of four participants reported this activity was beneficial because it created a feeling of shared endeavor. An eighth-grade teacher explained, “It eased a lot of people’s minds because we were all having trouble in the same spot. Everybody was having the same issues. It was a reinforcement type thing, and it was kind of like a ‘You’re-not-alone’ process.” Similarly, two sixth grade teachers realized that all the other teachers were having the same challenges and successes with CRI. One stated, “Cheers and Fears made me feel confident that I’m not the only one who had fears about [implementing a CR lesson].”

Participants also responded positively to the active learning opportunities the PD provided. For example, a sixth-grade teacher explained, “In most of our professional development, we are lectured to, but in this PD, we were able to work with the information and create usable documents together. It was very hands-on and student based.”

Teachers were very receptive to the research-based PD that I offered them, but their needs varied greatly. This required me to be responsively flexible and creative in an effort to meet everyone’s needs in the learning experience. One way this was enacted was through POTs. For example, teachers were given choices about what, with whom, and how to engage in peer observations. Subsequently, the level of engagement in the POT experience was tailored to each teacher who chose to participate in this component of the PD. Of the nine teachers who participated in the CRI PD, five engaged in POT in at least one way. All five observed one or more CR lesson being taught, and three agreed to be observed by others. Ten observations occurred during the CRI PD. While some reported that they observed their colleagues to gain a sense of how others were tackling the CRI lesson, others welcomed being observed but did not choose to observe others. One participant preferred to be observed and receive constructive
feedback based on a specific focus of the lesson which she had chosen. In other words, this was not a one-size-fits all activity.

Throughout my experience as a TL in this process, I encountered challenges as well as supports. In particular, I encountered structural obstacles that impeded facilitation of the program. This especially impeded the amount of time we had to do our work together. For instance, mandatory emergency drills and required assemblies impacted teachers’ ability to engage in POT. In addition, multiple PD days were canceled due to inclement weather. This too required creativity and flexibility to redesign PD activities that could fit within the scheduling constraints that resulted. In support of my role as PD facilitator, however, critically important assistance came from the building principal as well as the LAL supervisor, which they gave with patience and respect. For example, the principal stepped in to find time in the school schedule for us to meet. This assistance was necessary because, as a TL, I could not overcome scheduling challenges on my own. I needed administrative intervention, which included finding time during staff meetings and arranging for substitute teachers to cover classes so that teachers could meet. Additional support came from the LAL supervisor who offered clarification about a component of the CRI after I reached out across institutional channels and contacted him for guidance. He swiftly responded with clarification and shortly thereafter visited our school during a staff meeting to answer questions. As a science TL, I am not the holder of all expertise, particularly in LAL. However, in my role as TL, I felt empowered to successfully leverage available resources within the district. The LAL supervisor’s timely visit was completely helpful and greatly appreciated; during the interviews conducted after the PD program was complete, three out of
four study participants who were interviewed stated the LAL supervisor had been a valuable resource who contributed to their professional development.

In terms of my own professional development, from an informal TL perspective, designing and facilitating the CRI PD program was significantly different from my previous PD experiences. Just as teachers expressed that the processes used during the program reduced isolation by bringing us together to solve problems, I felt that inclusivity extended to the principal and LAL supervisor. I learned that a TL does not have to have all the answers and does not have to be afraid to ask for help. Indeed, reaching out to those who had the resources or knew how to solve problems associated with the CRI PD helped forge relationships characterized by respect and trust that thrive to this day and made it possible for me to function effectively. I have a greater appreciation for the complexity of the school, the district, and the school system. Although the experience was overwhelming at times and required patience and fortitude, the investment of my time and effort was worthwhile, because I am now an empowered member of a learning community with potential to make significant contributions.

**Conclusion**

This study did not address the effectiveness of the PD in terms of the CRI implementation or student learning. Although students’ reading scores did improve during the school year, as evidenced by an increase in Lexile level, the increase cannot be understood as causally related to the CRI, as there was another literacy intervention launched that same year. However, the study findings do illustrate how a TL can help close the PD gap by providing research-based PD that teachers perceived as helpful as they sought to implement an initiative that was challenging and completely new for them. It must be noted that success depends on
formal education leaders providing critical support to TLs as they explore how to create and facilitate meaningful PD.

The support of the principal and LAL supervisor were critical to my own development. Without it, it is highly unlikely that I would have been able to implement the CRI PD in a research-based way. Doing something less than this might not have had the positive impacts it did in terms of collaboration, breaking down isolation, and teachers appreciating the learning opportunity they had. Structural obstacles needed to be addressed by others, given that TLs rarely have the leverage to address them alone. For instance, mandatory emergency drills and required assemblies impacted teachers’ ability to engage in POT. In addition, multiple PD days were canceled due to unforeseen circumstances. This curtailed my ability to lead effective PD and points to the importance of leaders being creative and flexible in designing (and redesigning when necessary) PD activities that can fit within scheduling constraints and offer quality teacher learning experiences.

Teachers found the CRI PD to actually be helpful as they sought to implement something completely new for them. It was focused solely on the Close Read instructional strategy, it was characterized by collaboration, it was coherent because we used the LAL Standards for Science to frame how we wrote CR questions, it followed an active rather than a stand-and-deliver learning approach, and it was of substantial duration (4 months, five sessions). For districts that do not have the resources necessary to help teachers enact and change practice using expensive outside consultants, TLs can play a significant role in closing the PD gap because they are in a position to sustain professional learning activities over time, but only if they have the support of formal leadership who have expertise in areas that TLs do not. Educational leaders can support
TLs by (a) dedicating regularly scheduled time for PD and (b) investing in technology that would enable teachers to participate in online teacher communities and upload resources into shared team drives that would make asynchronous collaboration possible.

The study of the CRI PD has limitations as well as strengths. One possible limitation of this study was the impact of my position as peer among participants on the quality of data I could collect. Colleagues may have been reluctant to criticize the PD program because they did not want to hurt my feelings. A second potential issue with me acting as a researcher among my peers was the possibility that participants may have had doubts about their responses remaining confidential. Although I believe senior colleagues, who have known me for many years, understood that I would not share responses with administration, younger nontenured staff who did not know me as well and were in a more vulnerable position may not have trusted that I would keep their responses confidential. Therefore, they may have guarded their answers. On the other hand, one of the study’s strengths is that it chronicles an informal TL’s attempt to implement research-based PD in a real-life, complex situation in which the PD in practice looked quite different from the PD that was originally planned. The study offers insights that could inform future research.

Further research might focus on how teachers continue to use what they learned in the PD and how I grow and develop skills as a TL as I support teacher learning for future change efforts. Although the CRI PD study was a qualitative case study and is not generalizable, its approach to PD is transferable to similar settings. Structuring collaborative learning experiences for teachers with a variety of activities and optional components can meet a range of participant needs. This increased the potential to successfully meet learning objectives and thereby make the PD more
meaningful and useful for participants. To support initiatives or to provide new opportunities in teacher leadership, findings from this study may be helpful for TLs, supervisors, and district administrators who wish to design effective PD experiences that are more teacher centered and more research based than traditional models tend to be.
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A Guide to Preparing a CLOSE READ using Text Dependent Questioning

WHAT DOES CLOSE READING LOOK LIKE?

While there are many different ways to prepare a lesson for close reading, the following practices are required:
- Use short passages
- Encounter text without pre-teaching
- Read text multiple times
- Ask text dependent questions
- Share evidence with peers

Step One: Identify appropriate text that will challenge your students.

This is a lesson where you “Teach Up”!

Step Three: Identify the Core Understandings

Read the passage enough times so that you can identify the key insights that you want students to understand.

A DEFINITION

For our purposes, a CLOSE READ is a careful and purposeful re-reading of a passage using text dependent questions. Close reading requires the reader to:
- Read the passage multiple times
- Focus on what the author says
- Search for answers in the text
- Provide evidence-based answers

Constructing a CLOSE READ lesson

The following steps will guide your preparation of a Close Read lesson.

Step Two: Identify a short section of the text.

Find the section/s of the text that will present the greatest difficulty so that you can craft questions that support students in mastering close reading skills.


Step Four: Create Text Dependent Questions.

4. Develop text dependent questions:
- (Type 1) One/two literal questions related to the main idea.
- (Type 2) One/two literal questions connecting two or more pieces of information.
- (Type 3) One inferential question.
- (Type 4) One question analyzing text structure or author's craft.
**Step Five: Prepare a vocabulary study.**

5. Craft two or three questions to highlight powerful vocabulary words.

**Step Seven: Create a writing prompt.**

7. Writing Prompt
   Develop a culminating writing prompt that reflects the key ideas or understandings identified in the text and is structured to be completed by students independently.

**Step Six: Create word problems for mathematics integration.**

6. Create a mathematical word problem using the content or context of the passage.

**Step Eight: Prepare the template for your lesson.**

- Copy and paste the text on the template.
- Insert the text dependent questions.
- Insert the vocabulary study.
- Insert the mathematics word problem.
- Insert the writing prompt.

**CLOSE READING LESSON**

1. Read the text silently as a first read.

**CLOSE READING LESSON**

2. Silently reread the text paragraph by paragraph, then paraphrase each paragraph.

Paraphrase of first sentence:

*The author says that parents make huge mistakes when raising their children because they don’t train their children at an early age to be self-controlled.*

Now working with a partner, paraphrase the next two sentences in the first paragraph.
CLOSE READING

3. Read the text aloud.

CLOSE READING

5. Complete the vocabulary study.

CLOSE READING

7. Complete the writing prompt and discuss with a partner.

CLOSE READING

LET'S TALK SPECIFICS:

How often?
Two times a marking period per subject
Once a marking period in related arts

CLOSE READING

4. Answer and discuss the text dependent questions.

CLOSE READING

6. Solve the mathematics problem. Discuss and validate your answers.

CLOSE READING

LET'S TALK SPECIFICS:

How long does it take? SLOW DOWN!
Close reading should take 2-3 days, depending on the length of the passage and the subject.

CLOSE READING

LET'S TALK SPECIFICS:

When should close reading happen?
When introducing a new concept, reading a new text, integrating primary sources. START NOW!
APPENDIX B

June 2012 Professional Development Worksheet

Step 1. Read Some Thoughts Concerning Education silently.

_Some Thoughts Concerning Education_

By John Locke (1632–1704)

The great mistake I have observ’d in people’s breeding their children, has been, that this has not been taken care enough of in its _due season_: that the mind has not been made obedient to discipline, and pliant to reason, when at first it was most tender, most easy to be bow’d. Parents being wisely ordain’d by nature to love their children, are very apt, if reason watch not that natural affection very warily, are apt, I say, to let it run into _fondness_. They love their little ones and it is their duty; but they often, with them, cherish their faults too.

The _fondling_ must be taught to strike and call names, must have what he cries for, and do what he pleases. Thus parents, by humouring and cockering them when _little_, corrupt the principles of nature in their children, and wonder afterwards to taste the bitter waters, when they themselves have poison’d the fountain. For when their children are grown up, and these ill habits with them; when they are now too big to be dandled, and their parents can no longer make use of them as play-things, then they complain that the brats are untoward and perverse; then they are offended to see them wilful, and are troubled with those ill humours which they themselves infus’d and fomented in them; and then, perhaps too late, would be glad to get out those weeds which their own hands have planted, and which now have taken too deep root to be easily extirpated. For he that hath been us’d to have his will in everything, as long as he was in coats,
why should we think it strange, that he should desire it, and contend for it still, when he is in breeches? Indeed, as he grows more towards a man, age shews his faults the more; so that there be few parents then so blind as not to see them, few so insensible as not to feel the ill effects of their own indulgence. Why must he at seven, fourteen, or twenty years old, lose the privilege, which the parents’ indulgence ’till then so largely allow’d him? Try it in a dog or an horse or any other creature, and see whether the ill and resty tricks they have learn’d when young, are easily to be mended when they are knit; and yet none of those creatures are half so wilful and proud, or half so desirous to be masters of themselves and others, as man.

Step 2. Reread and Paraphrase. Share your paraphrase with a partner. (Paraphrasing is rewording a statement or paragraph in your own words.)

Step 3. Read *Some Thoughts Concerning Education* aloud.

Step 4. Text-Dependent Questions

a) (Type 1) According to the author, when should parents train their children?

b) (Type 2) According to the author, what are the consequences of not training children correctly?

c) (Type 3) What does the author mean when he says “they have poisoned the fountain”?

d) (Type 4) Locke makes many comparisons between childhood and adulthood. List some sample word choices from the text that compare these two ages.

Step 5. Vocabulary Study

a) In the context of this passage, define *fondness* and *fondling*.
b) Why would Locke choose to use the word *extirpated*? 

Step 6. Mathematics Integration

Mr. and Mrs. Locke bear six children in eight years with no multiple births. Only the two oldest children, James, age of 20, and John, Jr., 21, are “bad seeds.” What percentage of the Locke siblings are disciplined and well-behaved?

Bonus: What are the possible ages of the well-behaved siblings? Write a math sentence proving your answer.

Step 7. Writing Prompt

Would John Locke agree with the adage, “Spare the rod and spoil the child?” Use evidence from the text to support your answer.
APPENDIX C

Template for CR Lesson

Step 1. Read the passage silently.

Step 2. Reread and Paraphrase. Share your paraphrase with a partner. *(Paraphrasing is rewording a statement or paragraph in your own words.)*

Step 3. Read the passage aloud.

Step 4. Text-dependent questions.

   a) (Type 1)

   b) (Type 2)

   c) (Type 3)

   d) (Type 4)

Step 5. Vocabulary study

Step 6. Mathematics Integration

Step 7. Writing prompt
Name (optional): ______________________________________________________________

The purpose of this questionnaire is to determine what people who are using or thinking about using various programs are concerned about at various times during the adoption process.

The items were developed from typical responses of school and college teachers who ranged from no knowledge at all about various programs to many years’ experience using them. Therefore, many of the items on this questionnaire may appear to be of little relevance or irrelevant to you at this time. For the completely irrelevant items, please circle “0” on the scale. Other items will represent those concerns you do have, in varying degrees of intensity, and should be marked higher on the scale.

For example:

This statement is very true of me at this time. 0 1 2 3 4 5 6 7
This statement is somewhat true of me now. 0 1 2 3 4 5 6 7
This statement is not at all true of me at this time. 0 1 2 3 4 5 6 7
This statement seems irrelevant to me. 0 1 2 3 4 5 6 7

Please respond to the items in terms of your present concerns, or how you feel about your involvement with this innovation. We do not hold to any one definition of the innovation so please think of it in terms of your own perception of what it involves. Phrases such as “this approach” and “the new system” all refer to the same innovation. Remember to respond to each item in terms of your present concerns about your involvement or potential involvement with the innovation.

Thank you for taking time to complete this task.

version was uploaded in 2014 and is accessible at http://www.sedl.org/cbam/socq_manual_201410.pdf.

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Valid Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am concerned about students’ attitudes toward the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. I now know of some other approaches that might work better.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. I am more concerned about another innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. I am concerned about not having enough time to organize myself each day.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. I would like to help other faculty in their use of the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>6. I have a very limited knowledge of the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>7. I would like to know the effect of the innovation on my professional status.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>8. I am concerned about conflict between my interests and my responsibilities.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>9. I am concerned about revising my use of the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>10. I would like to develop working relationships with both our faculty and outside faculty using this innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>11. I am concerned about how the innovation affects students.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>12. I am not concerned about the innovation at this time.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>13. I would like to know who will make the decisions in the new system.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>14. I would like to discuss the possibility of using the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>15. I would like to know what resources are available if we decide to adopt the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>16. I am concerned about my inability to manage all that the innovation requires.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>17. I would like to know how my teaching or administration is supposed to change.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>18. I would like to familiarize other departments or persons with the progress of this new approach.</td>
<td>0 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 1 2 3 4 5 6 7</td>
<td>Irrelevant Not true of me now Somewhat true of me now Very true of me now</td>
</tr>
<tr>
<td>---</td>
<td>----------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>19</td>
<td>I am concerned about evaluating my impact on students.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>20</td>
<td>I would like to revise the innovation’s approach.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>21</td>
<td>I am preoccupied with things other than the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>22</td>
<td>I would like to modify our use of the innovation based on the experiences of our students.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>23</td>
<td>I spend little time thinking about the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>24</td>
<td>I would like to excite my students about their part in this approach.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>25</td>
<td>I am concerned about time spent working with nonacademic problems related to the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>26</td>
<td>I would like to know what the use of the innovation will require in the immediate future.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>27</td>
<td>I would like to coordinate my efforts with others to maximize the innovation’s effects.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>28</td>
<td>I would like to have more information on time and energy commitments required by the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>29</td>
<td>I would like to know what other faculty are doing in this area.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>30</td>
<td>Currently, other priorities prevent me from focusing my attention on the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>31</td>
<td>I would like to determine how to supplement, enhance, or replace the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>32</td>
<td>I would like to use feedback from students to change the program.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>33</td>
<td>I would like to know how my role will change when I am using the innovation.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>34</td>
<td>Coordination of tasks and people is taking too much of my time.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>35</td>
<td>I would like to know how the innovation is better than what we have now.</td>
<td>0 1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>
Please complete the following:

1. How long have you been involved with the innovation, not counting this year?
   - Never  ___   1 year ___   2 years ___   3 years ___   4 years ___   5 years or more ___

2. In your use of the innovation, do you consider yourself to be a:
   - non-user ___   novice ___   intermediate ___   old hand ___   past user ___

3. Have you received formal training regarding the innovation (workshops, courses)?
   - Yes ___   No ___

4. Are you currently in the first or second year of use of some major innovation or program other than this one?
   - Yes ___   No ___

   If yes, please describe briefly:
   ___________________________________________________________________
   ___________________________________________________________________
   ___________________________________________________________________

Thank you for your help!

**Stages of Concern Questionnaire** (SoCQ 075) is available in the following SEDL publications:


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Austin, TX 78723
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Key Ideas and Details

CCSS.ELA-LITERACY.RST.6-8.1
Cite specific textual evidence to support analysis of science and technical texts.

CCSS.ELA-LITERACY.RST.6-8.2
Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

CCSS.ELA-LITERACY.RST.6-8.3
Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

Craft and Structure

CCSS.ELA-LITERACY.RST.6-8.4
Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to Grade 6–8 texts and topics.

CCSS.ELA-LITERACY.RST.6-8.5
Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.

**Integration of Knowledge and Ideas**

**CCSS.ELA-LITERACY.RST.6-8.7**
Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

**CCSS.ELA-LITERACY.RST.6-8.8**
Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

**CCSS.ELA-LITERACY.RST.6-8.9**
Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
Ground rules, or norms, are important for a group that intends to work together on difficult issues, or who will be working together over time. They may be added to, or condensed, as the group progresses. Starting with basic Ground Rules builds trust, clarifies group expectation of one another, and establishes points of “reflection” to see how the group is doing regarding process.

**Time**

Approximately 30 minutes

1. Ask everyone **to write down what each person needs in order to work productively in a group**, giving an example of one thing the facilitator needs, i.e. “to have all voices heard,” or “to start and end our meetings when we say we will” (This is to help people focus on process rather than product).

2. **Each participant names one thing from his/her written list**, going around in a circle, with no repeats, and as many circuits as necessary to have all the ground rules listed.

3. **Ask for any clarifications** needed. One person may not understand what another person has listed or may interpret the language differently.
4. **If the list is VERY long—more than 10 Ground Rules—ask the group if some of them can be combined to make the list more manageable.** Sometimes the subtle differences are important to people, so it is more important that everyone feel their needs have been honored than it is to have a short list.

5. **Ask if everyone can abide by the listed Ground Rules.** If anyone dislikes or doesn’t want to comply with one of them, that Ground Rule should be discussed and a decision should be made to keep it on the list with a notation of objection, to remove it, or to try for a specified amount of time and check it again.

6. **Ask if any one of the Ground Rules might be hard for the group to follow.** If there is one or more, those Ground Rules should be highlighted and given attention. With time it will become clear it should be dropped or needs significant work. Sometimes what might appear to be a difficult rule turns out not to be hard at all. “Everyone has a turn to speak,” is sometimes debated for example, with the argument that not everyone likes to talk every time an issue is raised, and others think aloud and only process well if they have the space to do that. Frequently, a system of checking in with everyone, without requiring everyone to speak, becomes a more effective ground rule.

7. **While work is in progress, refer to the Ground Rules whenever they would help group process.** If one person is dominating, for example, it is easier to refer to a Ground Rule that says,
“take care with how often and how long you speak,” than to ask someone directly to stop dominating the group.

8. Check in one the Ground Rules when reflection is done on the group work. Note any that were not followed particularly well for attention in the next work session. Being sure they are followed, refining them, and adding or subtracting Ground Rules is important, as it makes for smoother work and more trust within the group.
APPENDIX G

Cheers and Fears Protocol

(Based on Hopes and Fears Protocol by SRI)

Purpose

One purpose is simply to help people learn some things about each other. The deeper purpose, however, is to establish a norm of ownership by the group of every individual’s expectations and concerns: to get these into the open, and to begin addressing them together.

Details

Time for this protocol can vary from 5 to 25 minutes, depending on the size of the group and the range of their concerns. If the group is particularly large, the facilitator asks tables groups to work together and then report out. The only supplies needed are individual writing materials, newsprint and markers.

Steps

1. Introduction: The facilitator asks participants to write down briefly for themselves their greatest fear for this meeting/workshop/retreat/class: “If this were the worst meeting (class) you have ever attended, what will happen or not happen? (Adapt it to make it age appropriate)” Then they write their greatest hope: “If this is the best meeting (class) you have ever attended, what will be its outcomes (what would I learn)?”

2. Pair-Share: If time permits, the facilitator asks participants to share their hopes and fears with
a partner.

3. Listing: Participants call out fears and hopes as the facilitators lists them on separate pieces of newsprint.

4. Debriefing: The facilitator prompts, “Did you notice anything surprising or otherwise interesting while doing this activity? What was the impact on you or others of expressing negative thoughts? Would you use this activity in your school (at home)? In your classroom? Why? Why not?”

**Facilitation Tips**

The facilitator should list all fears and hopes exactly as expressed, without editing, comment, or judgment. One should not be afraid of the worst fears. A meeting always goes better once these are expressed. The facilitator can also participate by listing his or her own fears and hopes. After the list of fears and hopes are complete, the group should be encouraged to ponder them. If some things seem to need modification, the facilitator should say so in the interest of transparency and make the modifications. If some of the hopes seem to require a common effort to realize, or if some of the fears require a special effort to avoid, the facilitator should say what he or she thinks these are and solicit ideas for generating such efforts. It is easy to move from here into norm-setting: “In order to reach our hoped-for-outcomes while making sure we deal with our fears, what norms will we need?”
APPENDIX H

NSRF Observer as Learner Protocol

The primary “learner” in this protocol is the observer. The observer’s only purpose is to learn how to improve his or her own practice. Since the observer has little responsibility to the observed, the duration of the observation and even the level of attention to what’s going on is determined by the observer, as long as this is fine with the person being observed. This protocol may significantly increase the frequency of visits to each other’s classrooms since observers may be able to do some quiet paperwork during their stay, and therefore are more likely to use a prep period to visit another teacher’s classroom. The time involved may also be reduced if neither party desires a pre-observation conference.

Pre-observation Conference

It is not necessary to have a pre-conference unless either party would like to have one. A pre-conference would help to orient the observer as to what will be happening.

Observation

The observer focuses on whatever s/he wishes.

Debriefing

The observer often asks the observed questions that might help him or her better understand the choices made by the observed.
Note

Given the potential feeling of vulnerability on the part of the observed in any situation, and especially in a situation such as this where the observed may have little idea of what the observer is focusing on, it’s important that the observer try to ask questions during the debriefing in a way that does not put the observed on the defensive.
The underlying assumption for this protocol is that the observer and the observed will work together to create some new knowledge—they are in it together. The observation is a shared experience, and so is the debriefing. One outsider, after listening to such a debriefing, stated that it was a seamless conversation. “The two of you were discovering something about the events you had seen.”

Pre-observation Conference

Because this form of observation is more open-ended, it is not strictly necessary to have a pre-conference, although it may help to orient the observer as to what will be happening.

Observation

The observer maintains an open field of vision, noting anything that strikes her as particularly interesting—anything that may lead to “deep” questions.

Debriefing

Either participant begins by raising a point of interest, stating as clearly and as fully as possible what occurred. A conversation develops around the incident with both observer and observed attempting to sort out, “What was going on there?” As the ideas build, both are responsible for keeping the conversation on track while maintaining the flexibility necessary to create new understandings.
Note: Prerequisite for this protocol is a high level of trust between the two participants: Trust that the debriefing is not about evaluation; trust that each will be thoughtful, will listen and respond to the other; trust that whatever knowledge is created will be shared knowledge.
APPENDIX J

NSRF Debriefing Focus Point Protocol

1. The observed teachers give their impress of the class session that was observed.

2. Observers give feedback only on what their partners have asked them to observe. Start with warm feedback. What went well? Provide specific, detailed information on what was observed. Be sure to refer to and use the feedback norms we developed as a group.

3. Suggestions should only be offered when asked for by the observed.

4. Be careful not to ask questions of the observed teacher that are thinly veiled criticisms. Any questions should be genuine in that they are asking for information that will help the observer better understand what was observed.

5. End the post conference with the observer and observed reflecting on the process and their reactions to it. What might you do differently next time that would improve the process and debriefing?
Back in June we were informed that all teachers in our district would be required to integrate Language Arts Literacy across the curriculum, in the form of the Close Read Initiative, to help increase student achievement. Those of us who were present in June, attended a 2-hour professional development session in the form of a workshop/classroom lesson.

As a follow-up to that initial exposure, I designed and implemented a professional development experience based on best practices as indicated by research. I know many of you need to leave ASAP at the end of the day. Rather than fill out a paper and pencil survey in the cafetorium during our faculty meeting time, I created this online survey as an option that can be filled out during the day if that is more convenient for you. Your feedback about our PD activities is very valuable.

If you’d like to fill this out at the end of the day using a paper/pencil version, please let me know. I will print one out and drop it off to you.

For purposes of confidentiality, please type your Participant ID number, instead of your name, in the box below.

Please respond to the following items:
LAL Standards for Science Session (January 14th Faculty Meeting)

We identified which Standards we integrate into our practice frequently, occasionally or rarely by placing the strips with the Standards on grade-level poster paper.

Please rate the following components of this activity from Strongly Agree to Strongly Disagree.

<table>
<thead>
<tr>
<th>LAL Standards for Science Session (January 14th)</th>
<th>Strongly Agree 5</th>
<th>Agree 4</th>
<th>Neutral 3</th>
<th>Disagree 2</th>
<th>Strongly Disagree 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The activity was engaging.</td>
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<tr>
<td>The activity was appropriate.</td>
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<tr>
<td>The format was different from the other sessions.</td>
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<tr>
<td>The objective was applicable to my work.</td>
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<tr>
<td>The material/information was useful.</td>
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<tr>
<td>The information was understandable.</td>
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<tr>
<td>The content was presented in a logical sequence.</td>
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</table>

Did you encounter any obstacles to learning during this Standards Identification activity? If so, please explain.
Collegial Discussion Cheers and Fears Protocol (February 1st PD Session)

Using a protocol to guide our conversation, we shared successes and challenges associated with Close Read lessons.

Please rate the following components of this activity from Strongly Agree to Strongly Disagree.

<table>
<thead>
<tr>
<th>Collegial Discussion Cheers and Fears Protocol (February 1st)</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The activity was engaging.</td>
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<td>The activity was appropriate.</td>
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<td>The material/information was useful.</td>
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<td>The information was understandable.</td>
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<tr>
<td>The content was presented in a logical sequence.</td>
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</table>

Did you encounter any obstacles to learning during the Cheers and Fears protocol activity? If so, please explain.
Reading to Learn: Helping Students Comprehend Readings in Science Class
(February 1st PD Session)

During this session, we read the above article which included strategies of expert readers. We discussed the author’s conclusions and identified some key words that resonated with group members: Evidenced based, repertoire and competencies.

Please rate the following components of the Close Read PD from Strongly Agree to Strongly Disagree.

<table>
<thead>
<tr>
<th>Reading to Learn: Helping Students Comprehend Readings in Science Class (February 1st)</th>
<th>Strongly Agree 5</th>
<th>Agree 4</th>
<th>Neutral 3</th>
<th>Disagree 2</th>
<th>Strongly Disagree 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The activity was engaging.</td>
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<tr>
<td>The activity was appropriate.</td>
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<td>The format was different from the other sessions.</td>
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<td>The material/information was useful.</td>
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<td>The information was understandable.</td>
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<tr>
<td>The content was presented in a logical sequence.</td>
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</table>

Did you encounter any obstacles to learning during the Reading to Learn: Helping Students Comprehend Readings in Science Class activity? If so, please explain.
Targeting Craft and Knowledge Standards 5 and 6 (February 11th Faculty Meeting)

Based on the data from the January meeting, we collaboratively explored how to address Standards 5 and 6 by using the article Solar Cells.

Please rate the following components of the Close Read PD from Strongly Agree to Strongly Disagree.

<table>
<thead>
<tr>
<th>Targeting Craft and Knowledge Standards 5 and 6 (February 11th)</th>
<th>Strongly Agree 5</th>
<th>Agree 4</th>
<th>Neutral 3</th>
<th>Disagree 2</th>
<th>Strongly Disagree 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The activity was engaging.</td>
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<td>The activity was appropriate.</td>
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<td>The content was presented in a logical sequence.</td>
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</table>

Did you encounter any obstacles to learning during the Targeting Craft and Knowledge Standards 5 and 6 activity? If so, please explain.
Grade-Level Close Read Lesson Development (March 7th PD)

During this activity, we worked in grade levels to create Close Read lessons. Once again, we focused on Type 4 Questions. Colleagues shared ways of creating Type 4 Questions. Students could one or two sentences, a particular word, the inclusion of data, the use of a text box or of a particular quote.

Please rate the following components of the Close Read PD from Strongly Agree to Strongly Disagree.

<table>
<thead>
<tr>
<th>Grade-Level Close Read Lesson Development (March 7th)</th>
<th>Strongly Agree 5</th>
<th>Agree 4</th>
<th>Neutral 3</th>
<th>Disagree 2</th>
<th>Strongly Disagree 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The activity was engaging.</td>
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<tr>
<td>The activity was appropriate.</td>
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<td>The format was different from the other sessions.</td>
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<tr>
<td>The objective was applicable to my work.</td>
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<tr>
<td>The material/information was useful.</td>
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<tr>
<td>The information was understandable.</td>
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<tr>
<td>The content was presented in a logical sequence.</td>
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</table>

Did you encounter any obstacles to learning during the Grade-Level Close Read Lesson Development activity? If so, please explain.
**Observed a Colleague Teach a Close Read (Ongoing)**

Please rate the activity’s helpfulness. If you did not observe a lesson, click “Did Not Observe.”

<table>
<thead>
<tr>
<th>Observed Farrell Teach a Close Read</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I found this activity helpful</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Observed Another Teach a Close Read</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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</thead>
<tbody>
<tr>
<td>I found this activity helpful</td>
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</table>

<table>
<thead>
<tr>
<th>Was Observed Teaching Close Read</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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</thead>
<tbody>
<tr>
<td>I found this activity helpful</td>
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</table>

Did you encounter any obstacles to learning during the Observed a Colleague Teach a Close Read activity? If so, please explain.

Please list any resources or supports that would help you implement the Close Read Initiative more effectively.
<table>
<thead>
<tr>
<th>Aspects of Presentation</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Very Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization/Content</td>
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<tr>
<td>Effective opening (introduction of topic / overview) and closing</td>
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<tr>
<td>Necessary background was given / A clear purpose was conveyed</td>
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<tr>
<td>Presentations/activities focused on implementing the Close Read</td>
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<tr>
<td>The presenter was very organized</td>
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<td>Presentation stayed within the time allotted</td>
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<td>Voice</td>
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<tr>
<td>Presenter uses emphasis effectively</td>
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<td>The speaker was natural and enthusiastic</td>
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<tr>
<td>Presenter has clear articulation/pronunciation; excellent control of volume, speaking rate and pauses</td>
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<td>Speaker makes effective transitions to the next topic and speaker</td>
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<td>Physical expression</td>
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<tr>
<td>Presenter maintains eye contact with audience and uses facial expressions and gestures effectively</td>
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<tr>
<td>Presenter communicates interest in topic with energy and poise</td>
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<td>Speaker shows appropriate posture and appearance to convey confidence and credibility</td>
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<td>Visual aids were easy to see and hear</td>
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<td>Visual aids were effective, appropriate and carefully prepared</td>
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<td>Visual aids are referred to effectively to illustrate points</td>
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<td>Discussion</td>
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<td>Presenter answered questions confidently and effectively</td>
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<td>Questions were answered accurately, clearly and completely</td>
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Please provide constructive comments and recommendations that would help the
presenter be more effective.
Appendix L
Interview Protocol

General

• How many years have you been teaching?

• Did you attend the training in June?

• How prepared did you feel in September to teach a Close Read?

• How prepared do you feel now?

• What supports or factors have changed the way you feel? What supports or factors would make you feel even more prepared or competent to effectively teach a Close Read?

• How many Close Read lessons have you taught?

Peer Observation of Teaching

• Please share your thoughts or reactions to the POT experience. If it affected your teaching, explain how.

• Would you like to observe more teachers? Explain why or why not.

Supports/Resources

What resources would help you?

If someone outside the district who did not know about Close Reads came in to observe you, what would he/she see?

What kind of professional development would help you teach Close Reads even more
effectively?

**Challenges to Acquiring/Implementing PD**

What challenges or obstacles did you encounter in reference to getting the PD needed to help you be successful in teaching Close Read lessons?