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Secondary Content Teachers' Perceptions About Teaching Informational Text

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This is to certify that the doctoral study by

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Walden University
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Abstract

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MA, University of Northern Iowa, 1990

BA, Simpson College, 1980

Dissertation Submitted in Partial Fulfillment

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Abstract

As school districts adopted Common Core State Standards (CCSS), content area teachers were expected to incorporate disciplinary literacy skills into their lessons. The problem for this study was that secondary school science and social studies teachers struggle to teach students how to read and understand informational text. The purpose of this qualitative study was to explore the perceptions of teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text. With the CCSS as the conceptual framework, the research questions focused on content area teachers' perceptions about the challenges of using disciplinary literacy skills to teach informational text and the training and resources that may improve their use of disciplinary literacy skills. A basic qualitative design was used to capture the insights of eight purposefully selected secondary level licensed science and social studies teachers with at least 2 years of teaching experience through semistructured interviews. Emergent themes were analyzed through open coding, and the findings were developed and checked for trustworthiness through member checking, rich descriptions, and researcher reflexivity. The findings addressed content area teachers' challenges in teaching informational text and their need for supplemental teaching resources and professional development focused on reading instruction. This study has implications for positive social change by providing administrators with recommendations for program revisions to improve informational text reading instruction and to provide teacher training.

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Dedication

I respectfully dedicate this doctoral study to my wife and family. My wife, Tricia, always pursued knowledge for herself and shared this knowledge with her students. She also always supported me in my efforts for this study. My children, Margaret, Emily, Claire, and Price, also know the value of education. Through their collegiate experiences, they have achieved. And to my grandchildren, I remind them that "You're never too old to learn!"

I also dedicate this study to other important people who have supported me as a student or a teacher throughout my career in education. My parents, Les and Millie, always encouraged my academic career. My other family members and friends, including my 2016 National Teachers of the Year and my Iowa State Teachers of the Year families, have always expressed their sincere support and encouragement.

I thank God because through this study, I have practiced the patience of Job and the persistence of Jerimiah in order to gain the wisdom of Solomon.

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And to everyone, “A lifetime teacher is a lifelong learner!”

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Chapter 1: Introduction to the Study

The National Governors Association Center for Best Practices and the Council of Chief State School Officers (CCSS Initiative, 2010) authored the Common Core of State Standards (CCSS) and included informational text reading as an essential reading skill and ability for secondary students to accomplish by the end of 12th grade. Informational texts are literary works that contain structural features such as problems, solutions, explanations, and definitions, but they do not contain story components (Braker-Walters, 2014). Informational text within the science and social studies content areas were used to comply with the CCSS relating to key ideas, craft and structure, knowledge and idea integration, and text complexity (CCSS Initiative, 2010). Secondary science standards targeted literacy skills such as analyzing technical text, evaluating a hypothesis, or determining meanings for domain-specific words and phrases; secondary social studies standards targeted skills such as evaluating different authors' interpretation of historical events or analyzing cause and effect relationships (CCSS Initiative, 2010). The informational text for each content area is unique and distinctive.

The authors of the CCSS (CCSS Initiative, 2010) recommended that students should be able to read and comprehend science, technical, history, and social studies informational texts at the secondary level complexity independently and proficiently. In addition, the International Federation of Library Associations had informational text standards specifically focused for teachers to increase content learning, expand cultural response, allow for literacy expansion, and provide personal and professional growth

(Kern & Bean, 2018). Both professional groups identify the importance for teachers to offer reading instruction so that students can comprehend content area informational text.

Literary text was primarily aligned to English Language Arts (ELA) standards, and informational text was included in its standards (CCSS Initiative, 2010). However, informational text reading was the primary set of reading standards for science and social studies. To build comprehension of informational text in science and social studies, teachers helped their students build skills for disciplinary literacy (Holschuh, 2014). The ultimate goal for teachers' instruction and students' achievement of the standards was for college and career readiness and to close the gap between the skills needed for and the skills acquired upon graduation (Lesley, 2014). Through development of disciplinary literacy, the students read and comprehended informational text, and in turn, students were better prepared to read in all content areas (Cervetti & Hiebert, 2015). Effective reading instruction can make an impact on reading comprehension.

These disciplinary literacy skills included reading, writing, speaking, and listening (CCSS Initiative, 2010). For learning to take place, these skills were to be included and integrated in science and social studies classes for students to conceptualize and comprehend the text (Frankel et al., 2017). Disciplinary literacy went beyond word recognition and basic understanding; it was knowing the skills to read as a scientist or a historian (Gabriel et al., 2016). For students to comprehend the technical texts of secondary school science and social studies, teachers in those disciplines built content specific skills of reading as identified in their respective standards; science teachers' standards ranged from hypothesis evaluation to data analysis and social studies teachers'

standards ranged from primary source analysis to historical event evaluation (CCSS Initiative, 2010). Content area teachers need to be reading teachers.

Secondary school science and social studies teachers struggled to teach students how to read and comprehend informational text (Lent, 2016). The literacy skills needed for each discipline are unique. Science and social studies classes required different literacy skills and these literacy skills should have been a part of content instruction (Lent, 2016). Exploration of the perceptions of content area teachers about their challenges and about the resources they need to teach their students to read informational text may lead to a positive social change. Exploration may have increased the awareness of the instructional challenges and the need for teacher preparation and professional development (PD). Whereas the CCSS did identify the reading expectations for the various content areas and grade levels, it did not dictate the instructional methods (Shanahan, 2016). Through science and social studies teachers' acknowledgement of the challenges they faced and the resources they needed, better training could be offered for better instruction. In this way, teachers may develop a stronger academic curriculum and instructional methodology based on this study to help their students improve their disciplinary literacy.

Chapter 1 includes the problem statement, the purpose of the study, the research questions, the conceptual framework for the study, and the nature of the study. It also includes the definitions and assumptions, and the scope, delimitations, and limitations. This chapter closes with the significance of the study and the summary.

Background

Because informational text is included within science and social studies standards, disciplinary literacy plays an important role in teacher instruction and value for student learning. Informational text in areas such as science and social studies is an important and vital resource for instruction from kindergarten to high school and through college (Fisher & Frey, 2015). To read informational text, students need the skills of disciplinary literacy (Gleeson & D'Souza, 2016). In addition, the students' ability to comprehend the complexity of informational text is included in the CCSS (Fisher & Frey, 2015). In the recently updated science and social studies standards, an emphasis was placed on informational text comprehension and text complexity (CCSS Initiative, 2010). By understanding the instructional considerations of text complexity, teachers plan lessons and units (Fisher & Frey, 2015). Students will increase comprehension when teachers use disciplinary literacy skills in content area reading.

Planning skills could have been gained through approved teacher preparation programs which offered needed content area training to teach the necessary skills of disciplinary literacy (Gleeson & D'Souza, 2106). To build these reading skills, beginning and career educators need training to develop their reading instruction (Cervetti & Hiebert, 2015). While science teachers realized the value of inquiry-based learning with experiments and demonstration, they were challenged with engaging their students in the science text itself (McCormick & Segal, 2016). Furthermore, social studies teachers were perplexed with what to teach in terms of text complexity and what was the most effective

method to instruct their students to read informational text (Shanahan, 2016). Preservice teachers and career educators would benefit from content area reading training.

There appeared to be a gap in practice in the preparation and training of secondary school science and social studies teachers to teach students how to read informational text. This study was needed to identify secondary school science and social studies teachers' challenges in teaching informational text and to also identify their needed resources and training. This increased understanding is needed for two reasons. First, reading skills are essential for content understanding and student success (Williams, 2014). Second, while secondary school science and social studies teachers know how to read scientific or historical text, they do not know how to teach these reading skills to their students (Lent, 2016). This gap may be filled by acknowledgement and awareness of the reading challenges and needs of content area teachers.

Problem Statement

The problem explored in this study was that secondary school science and social studies teachers struggle to teach students how to read and understand informational text. The CCSS science standards emphasize literacy skills, but in teaching informational text, science teachers are challenged with assisting reluctant readers and engaging students (McCormick & Segal, 2016). Science teachers are also challenged with changing their methodology to inquiry-based approaches in alignment to the reading standards and with teaching academic language (Chauvin & Theodore, 2015). A secondary science teacher at a local school stated "For science reading skills, I had to teach the students to actually read every word, look at the visual (e.g., chart, graph, diagram), and connect words to

visuals. I also had to teach science vocabulary" (high school science teacher, personal communication, October 2019). A classroom science teacher voiced an authentic concern about teaching informational text.

Social studies teachers may have had some preparation to teach content literacy, but the training was usually in general literacy instruction; this minimal amount of specific training and support compounds teachers' stress and frustration of teaching informational text (Dobbs et al., 2016). A secondary social studies teacher at a local school stated, "I was really unprepared to teach the reading skills for the content. I had methods courses for teaching history, but not for teaching history reading" (high school social studies teacher, personal communication, October 2019). Similarly, a social studies teacher identified their frustration about informational text instruction.

Secondary school teachers see themselves as content area teachers; they do not see themselves as reading teachers, and they do not have the needed preparation to teach literacy (Heller, 2020). Many educators resisted the integration and implementation of literacy instruction into their content area because of they had no education preparation and specific techniques (Dobbs et al., 2016). Even though the CCSS has requirements of content area informational texts, teachers had minimal training needed for content literacy instruction such as how to teach the various genres and how to integrate reading skills into the content (Moss et al., 2015). When content area teachers know how to teach content area reading, their students will be better disciplinary readers.

The development of instructional skills for informational text was missing at both the college preparation level as well as at PD for career teachers. Research about

disciplinary literacy instruction during college preparation is limited (Lesley, 2014). Also, content area career teachers need to recognize the role that they play in teaching disciplinary literacy for planning and implementing lessons that include not only the content knowledge to instill learning but also how to engage the students with the content to improve understanding (Kern & Bean, 2018). When content area teachers involve their students in reading content specific informational text, more learning may take place.

There appears to be a gap in practice in the preparation and training of secondary school science and social studies teachers to teach students how to read informational text. Gleeson and D'Souza (2016) explained that to meet the CCSS informational text reading standards, teachers must be taught necessary disciplinary literacy skills for content area reading success. I explored this gap by conducting semistructured interviews to collect the perceptions of secondary science and social studies about their teaching challenges and needed resources.

Purpose of the Study

The purpose of this basic qualitative study was to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text. Using a basic qualitative design, I conducted semistructured interviews with secondary school science and social studies teachers at a local Midwest school to explore teachers' perceptions of challenges and needed training and resources.

Research Questions

RQ 1: What are the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text?

RQ 2: What are the perceptions of secondary school science and social studies teachers about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text?

Conceptual Framework

The conceptual framework for this study was based on the CCSS (CCSS Initiative, 2010) and the disciplinary literacy skills identified with reading in the content areas. The CCSS (CCSS Initiative, 2010) were developed by teachers and other education professionals from across the United States to establish standards and benchmarks in core subjects so that students are prepared for college and career readiness. Content area reading skills include the following: (a) constructing meaning, (b) accessing prior knowledge, (c) applying metacognition, (d) integrating reading and writing, and (e) engaging collaboration (Urquhart & Frazee, 2012). Disciplinary literacy instruction provided the skills and ability to not only remember but also to better understand the scientific or historical content (Shanahan & Shanahan, 2015). A solid foundation for this study is established by using the CCSS as the framework.

In this study, I focused on the disciplinary literacy skills that support CCSS literacy standards for informational text: key idea and writer's craft (see CCSS Initiative, 2010). Literacy standards include not only literary text, but also scientific and historic

informational text. Scientific and historical informational texts require reading skills in critical thinking, problem solving, and analytical processing (CCSS Initiative, 2010). The CCSS were created to enhance instruction in common core subjects including the improvement of science and social studies instruction to teach informational text (Cervetti & Hiebert, 2015). Focusing on the two areas of key idea and writer's craft will anchor the study.

Since classroom teachers determine how to implement informational text reading skills into specific content areas, the teachers need to incorporate active reading skills to incorporate informational texts (Urquhart & Frazee, 2012). Secondary school content teachers encounter challenges and uncertainty as they attempt to implement instructional strategies to bring informational texts into their lessons (Fisher & Frey, 2016). Fisher and Frey (2016) identified the challenges of secondary school content area teachers to address reading skills and the complexity of informational text.

By using the CCSS framework, I focused on the recommended informational text reading standards for science and social studies. I used interview questions to explore a purposive sampling of secondary school science and social studies teachers from a local Midwest school to collect perceptions about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text (see Appendix A). In this type of qualitative research, the exploration included individual beliefs and perceptions about the phenomenon of content area teachers teaching

informational text for analysis (see Ravitch & Carl, 2016). The authentic data collected will help me gain insight to the challenges and needs of content area teachers.

A conceptual framework is valuable in serving as the foundation to guide planning for a study and its implementation and reflection (Ravitch & Carl, 2016). Using the CCSS, I had a constructive and interpretive framework that allowed me to discover, understand, and describe teacher challenges of teaching informational text and needs to improve their instruction. A conceptual framework identifies the significance and the relevance of the study through the interviews and through the collected and reported data (Ravitch & Carl, 2016). Since the participants in the local Midwest school implement the CCSS into their teaching, it is logical to use it as the framework for this study.

Through in-depth qualitative interviewing, I listened and gained valuable insight from those who have knowledge or experience for this study (see Rubin & Rubin, 2012). I gained insight from eight secondary science and social studies teachers from a local Midwest school about the apparent gap in practice in their preparation and training to teach students how to read informational text. During a 3-week period, I conducted semistructured interviews to allow for flexibility, to adjust to the participant, and to collect the needed data (Rubin & Rubin, 2012). After I collected the data, I organized it, reduced it to themes, and then presented the data in a narrative form.

Nature of the Study

For this study, I used a basic qualitative design. A qualitative design, as an interpretive technique, permits the researcher to be the primary data collector to gather the data and arrive at a conclusion of people's world and their experiences (Merriam &

Tisdell, 2015). A qualitative design allowed me to gather insights from content area teachers about their concerns, challenges, and real experiences (see Ravitch & Carl, 2016). As the researcher for this study, I used the basic qualitative design so I better understood the participants' perceptions so in turn I better understood their situations and circumstances (see Merriam & Tisdell, 2015). The qualitative design allowed me to secure authentic responses from the participants.

By using a basic qualitative design, I explored the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may have improved their knowledge and use of disciplinary literacy skills for informational text. I collected the data from a group of eight science and social studies teachers in a local Midwest public school in semistructured interviews through Zoom. I then analyzed these data to identify the patterns and categories to further identify the themes that run through this study (see Merriam & Tisdell, 2015; Ravitch & Carl, 2016). It is through the rich and deep description from the interviews that the narrative was presented to support my study (see Merriam & Tisdell, 2015).

Definitions

Common Core State Standards: The common core standards serve as learning goals for what K–12 students should know and be able to do upon graduation for college and career readiness (CCSS Initiative, 2010).

Content area literacy: Content area literacy skills are generalized across content areas for literacy usage and development. These skills build comprehension in most

content areas. Skills were taught that can be used in many ways for many courses (Chauvin & Theodore, 2015; Lent, 2016).

Disciplinary literacy: Disciplinary literacy skills are specialized for subject matter disciplines' literacy needs for reading and writing. These skills teach students how to think like a scientist or a historian. Disciplinary literacy focuses on the unique skills needed for each course (Chauvin & Theodore, 2015; Lent, 2016).

Informational text: Informational texts are the major portion of reading completed in non- classes like science and social studies. While literary text included such elements as plot and theme, rhyme and rhythm, and figures of speech, informational texts deal with problems and solutions, causes and effects, and explanations and definitions (Braker-Walters, 2014; CCSS Initiative, 2010).

Assumptions

This study was based on several assumptions. First, participants in this study were assumed to be representatives of other science and social studies teachers who have similar struggles with informational text instruction. Second, I assumed that the interview questions would not be biased but would be neutral to enhance the collected rich and deep data. Third, I assumed participants understood the interview questions and provided honest answers about their perceptions. It was important for me to create and build a conversational partnership in which mutual trust and respect was generated for real and authentic data collection (see Rubin & Rubin, 2012). In building a friendly rapport, participants were open and responsive.

Scope and Delimitations

The specific aspects of this problem included the perceived struggles of secondary school science and social studies teachers to teach students how to read and understand informational text. This focus was chosen because informational texts are the key reading component of their content area in accordance to the CCSS. Also, a key teaching principle is that teachers who understand and value disciplinary literacy offer effective content area reading support (Harmon et al., 2016). This study addresses this problem about content area teachers' challenges in teaching informational text.

Delimitations are the conditions or influences that were controlled by the researcher; they described the boundaries of the study. The boundaries for this study were finite in exploring the teacher perceptions and gathering the data at a local Midwest school. The selected participants included secondary school science teachers because they commonly feel reluctant to teach literacy in their classrooms (see Drew & Thomas, 2018) and social studies teachers who felt that they did not have necessary support (see Dobbs et al., 2016). I used semistructured interviews because they gave rich and deep data about teacher perceptions (see Ravitch & Carl, 2016). Through these interviews, I gained insight into teachers' varied experiences and perspective about their teaching struggles and their needed resources.

Other delimitations included the following:

- Reading instruction teacher leaders or literacy specialists who may offer reading assistance to teachers and students would not be interviewed.

- Curriculum directors and administrators who may develop or choose PD would not be interviewed.
- Students at the identified school would not be interviewed because the classroom challenges lie with the teachers' struggle to teach informational text and their inadequate college preparation or PD.
- Teachers interviewed come from various colleges and experiences so there would be a variety of backgrounds and perspectives.

I did not use observation and fieldnotes because I would have needed to observe participants over an extended period to explore their struggles. I also did not use focus groups because I wished to explore individual perceptions and not that of the collective (see Ravitch & Carl, 2016). Perceptions cannot be observed since they are beliefs or internal cognitive constructs. My purpose was to gather perceptions. Finally, I did not use questionnaires because they would not allow me to ask probing or follow up questions to teacher perceptions (see Ravitch & Carl, 2016).

To increase the potential for transferability, I included rich descriptions and specific details about the context of the participants' responses. Ravitch and Carl (2016) explained that the data collected from a qualitative study may be transferred rather than replicated in contexts to make it applicable. The perceptions collected about teacher challenges and resources needed to teach informational text may have been applicable in other content areas besides science and social studies.

Limitations

Limitations are influences that I could not control. One limitation of this study was the time-consuming nature of collecting, transcribing, and analyzing qualitative data. I conducted one-to-one semistructured interviews and manually transcribed the interviews; this work was labor intensive.

Two possible biases may have influenced the study's outcomes. First, as an ELA teacher, I have had training in my content area to teach students how to read both literary and informational text, how to read in my content area, and how to develop disciplinary literacy. Science and social studies teachers may not have had similar college preparation or professional development to teach their students how to read informational text. I acknowledge this possible difference in training. Second, the interview participants were selected from a local Midwest school which is a former place of employment. To resolve any possible biases, I attempted to remain objective if I interviewed a former colleague. In addition, to possibly resolve this bias, at the time of the study, 5 to 6 years have passed since my employment, and there had been a turnover of many science and social studies teachers since I left. Finally, I reduced possible bias by answering my own interview questions to create self-awareness of my biases. In this way, I was more likely to identify my biases and avoid them. In general, I made the participants comfortable in the interview situation. In this way I was able to have an interview that was open and honest and in turn gathered their perceptions about the challenges and needs in teaching informational text

Significance

The CCSS and benchmarks clearly identified the secondary school science and social studies informational text reading skills to discern key ideas and the writer's craft that students need for college and career readiness. Since the problem explored in this study was that secondary school science and social studies teachers struggle to teach students how to read and understand informational text, I explored the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text. The study was significant because the gap in practice may have been filled by the exploration of the secondary school science and social studies teachers' perceptions about their challenges and their needs.

This exploratory study's result may provide an original contribution to improve teacher practice. Beginning educators reflected on their college preparation, and veteran teachers reflected on their PD about the training needed to teach content area reading. It is through reflection that teachers in my study determine if they are teaching disciplinary literacy (see Paul, 2018). To better meet the CCSS reading standards in content areas, an awareness needs to be made about the challenges of teaching informational text and the training needed to teach disciplinary literacy.

This study may contribute to improvement of literacy education practice and instruction. While it is true that ELA teachers did offer instruction in both literary and informational text, this study may have contribute to the professional practice of content

area teachers, like science and social studies, who also need training to teach their students how to read informational text. This disciplinary literacy along with its embedded critical thinking may lead students to college and career readiness, and it may lead to a transformed curriculum (see Holschuh, 2014). Teachers in their respective disciplines are the ideal educators to teach disciplinary literacy.

This study may lead to positive social change by improving teacher instruction and student learning through the exploration of the challenges of and the needs for teaching informational text. By improving content area teachers' instruction of informational text, students may also improve their disciplinary literacy and increased their informational text comprehension. Additional positive social change may be made by reporting the study to college education professors to inform them of the needs of secondary school science and social studies teachers for content area reading instruction training. Recommendations can also be made to administrators and curriculum directors to plan and develop PD for their content area teachers.

Summary

Chapter 1 began with an explanation of the CCSS focus on informational text and its importance in secondary school science and social studies classes. This background explanation also identified how valuable it is for teachers to build disciplinary literacy in their content areas so that students can understand the text. Since secondary school science and social studies teachers struggle with teaching their students to read informational text, I investigated the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach

informational text and about the training and resources that may have improved their knowledge and use of disciplinary literacy skills for informational text. Using the CCSS as the conceptual framework, I used a basic qualitative study to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may have improved their knowledge and use of disciplinary literacy skills for informational text at a local Midwest school.

In Chapter 2, I review the supportive literature for this study. I explain my literature search strategy and described the conceptual framework that guided my work. I also review the literature related to key variables and concepts. I review literature about common core with focuses on reading standards for informational text and on disciplinary literacy and content area reading. I also review literature that demonstrated the challenges that science and social studies teachers have in teaching informational text reading skills and the need for more adequate teacher preparation and PD for the specific core subjects of science and social studies.

Chapter 2: Literature Review

The CCSS explicitly identified the reading benchmarks for secondary level science and social studies informational text and the benchmark for text complexity in those disciplines (CCSS Initiative, 2010). The problem explored in this study is that secondary school science and social studies teachers struggle to teach students how to read and understand informational text. I explored the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text.

The current literature established the relevance of this problem with teachers and their efforts in teaching informational text. Common core goals include standards for both informational text and complex text (CCSS Initiative, 2010). In addition, content area teachers need to share the responsibility for literacy instruction to meet these content area standards (McCown & Thomason, 2014). Teachers need to overcome their struggles in teaching informational text so that their students can overcome the challenges they face in content reading of complex texts (Lupo et al., 2019). While college programs prepared teachers in specific disciplines and content areas, college instructors often did not prepare content area teachers to teach students how to read within the content area or how to develop disciplinary literacy (Birdyshaw et al., 2017).

In this section, I present and analyze supportive literature. I also discuss the conceptual framework that grounded my study. The literature review is divided into three sections: (a) the CCSS and instructional challenges, (b) best practices for teaching

content area reading and disciplinary literacy, and (c) benefits of professional training and development.

Literature Search Strategy

Literature sources for this review were obtained through multiple search engines. I used the Walden University library to search for peer-reviewed resources from the last 5 years. Older resources are cited as foundational references. Additionally, I accessed articles from the following databases and search engines: Wiley Online, SAGE Publications, ProQuest, Routledge, and EBSCOhost. I also found a few resources through Google Scholar. Key terms used in this search were *common core* and *common core state standards*, *informational text*, *complex text*, *content area reading*, and *disciplinary literacy*. I also used these terms in combination with the following terms: *science reading instruction, social studies reading instruction, secondary level reading instruction*, *PD,* and *content teacher reading instruction challenges*. By using variations and combinations of these terms, I found more than 70 informative, current sources.

Conceptual Framework

The conceptual framework for this study was the CCSS. The CCSS (CCSS Initative, 2010) development followed this chronology: In 2007, educators and other stakeholders began their work to determine expected outcomes in core disciplines and other areas. In 2009, under the direction of state leaders, the CCSS were developed to establish K-12 standards and benchmarks for students' college and career readiness. In 2010, after their release, the standards were revised and finalized based on feedback and input from teachers and schools. In 2011 and 2012, states were allowed to review, adopt,

and ratify them for implementation. In 2013, they were implemented in 45 states and United States territories. In 2020, they are still being improved upon with the recent development of the Next Generation Science Standards (NGSS) and the College, Career, and Civic (C3) Life Framework for Social Studies State Standards.

The standards identified what students should know and be able to do in each core content area at each grade level and upon graduation. The standards addressed and identified the expectations for reading both literary and informational text. In elementary school, student instruction was equally divided to provide for both types of text; in secondary schools, 70 % of instructional time was spent on informational text and 30% was directed to literary text (Shanahan, 2015). In addition, as teachers, curriculum directors, and principals made decisions about text materials for students, they had to consider the balance of literary and informational text of basal readers to ensure an adequate balance of text to fulfill the standards and to offer text complexity (Braker-Walters, 2014). The standards did identify expected outcomes, but they did not dictate instructional pedagogy. While ELA teachers offer instruction in both literary and informational text, science and social studies teachers must also meet the instructional expectations with specific standards for reading informational and complex text to supplement, but not replace content area instruction.

Within the framework of the CCSS content areas of secondary school science and social studies, teachers are responsible to instruct students in not only text complexity but also in the areas of key ideas and details and craft and structure (CCSS Initiative, 2010). Focused instructional expectations on informational text in the content areas of science

and social studies allow the teachers to develop students' disciplinary literacy skills (Cervetti & Hiebert, 2015). Development of disciplinary literacy skills is essential for content area comprehension. However, the reading instruction in science and social studies focused on reading skills rather than content understanding (Cervetti & Hiebert, 2015). Content area teacher are responsible to teach informational text reading skills.

Shanahan (2015) offered much insight to reading expectations and instruction in accordance with the CCSS. To help students meet these expectations, teachers were the stakeholders who made the decisions on content area texts and instructional methods. There were guidelines in accordance to the CCSS for readability specifications that helped teachers to choose appropriate materials (Shanahan, 2015). Shanahan stated that although the CCSS did not include any strategies for instruction, teachers were encouraged to employ a variety of best practice reading strategies to improve students' reading comprehension. Also, the CCSS had undergone a shift from basic reading skills of word recognition and comprehension skills to those of increasing text complexity to challenge the reader (Shanahan, 2016). However, to meet these reading challenges, teachers must offer content area reading instruction and teach disciplinary literacy to avoid instructional struggles in the classroom.

To further explain this conceptual framework, I have defined several important terms. First, college and career readiness is the ability for young adults to be successful after graduation based on achievement of the content area standards (CCSS Initiative, 2010). Business and community colleges, private colleges, career colleges, and state universities expect graduates ready and prepared to step in the workforce or collegiate

world. Second, within the CCSS, there are specific expectations for student mastery of informational text for science and social studies. Both the science and social studies benchmarks include the following: (a) key ideas and details, (b) craft and structure, (c) integration of knowledge and ideas, and (d) text complexity. In my exploration of the problem that secondary school science and social studies teachers struggle to teach students how to read and understand informational text, I focused only on the first two benchmarks: key ideas and author's craft. Key ideas for science ranged from summarizing the central ideas of a process or concept to following the directions of an experiment; craft and structure for science included determining the meaning of vocabulary, and understanding the symbols of content specific vocabulary, and analyzing the relationships among scientific concepts, such as force, friction, and energy (CCSS Initiative, 2010). Key ideas for social studies skills ranged from citing textual evidence from primary and secondary sources to causal analysis of events; craft and structure for social studies ranged from determining the meaning of content specific vocabulary to analyzing points of view of two or more authors on one subject (CCSS Initiative, 2010). Third, it was important to distinguish between content literacy and disciplinary literacy to teach students how to read informational text. Content literacy provides general and basic reading skills such as prereading, making predictions, and making inferences to read content area text to be used by teachers in all disciplines (Chauvin & Theodore, 2015; Lent, 2016). However, disciplinary literacy skills were specific skills to teach students to use the particular skills for content areas such as learning specialized vocabulary, understanding and creating mathematical or scientific models, and analyzing sources and

composing responses (Chauvin & Theodore, 2015). Teachers were responsible for teaching their students discipline specific literacy skills for incorporating reading strategies in content areas (Lent, 2016).

Since the development and implementation of CCSS in schools across the nation, teachers have used and incorporated core content standards into their curriculum and their instruction. The CCSS have changed and challenged the reading expectations for science and social studies to include more informational text in hopes of building reading skills that could improve reading comprehension in all content areas (Cervetti & Hiebert, 2015). Cervetti and Hiebert (2014) explained the value of the CCSS in the development of content area literacy to build learning and inquiry. They also identified teachers' challenges of creating effective units and lessons that incorporated informational text instruction and offered challenging complex text. Holschuh (2014) also identified the value of the adoption of the CCSS to establish consistency and continuity of instruction and expectations to ensure college and career readiness. In addition, teachers face challenges of disciplinary literacy instruction and complex text inclusion (Holschuh, 2014).

In a quantitative analytical content study Braker-Walters (2014) analyzed informational text in basal readers and development of instructional plans. Though the study was focused on fourth-grade reading level, Braker-Walters acknowledged that students who progress to the secondary level are expected to comprehend complex informational text. The results showed inconsistencies of informational text in the basal readers and they showed that while the CCSS expectations indicated increased

complexity of text, the teachers used basal readers with inconsistencies to build these reading skills (Braker-Walters, 2014).

Finally, the International Literacy Association (Kern & Bean, 2018) had developed standards for informational text for secondary teachers: (a) foundational knowledge, (b) curriculum and instruction, (c) assessment and evaluation, and (d) diversity and equity. With these standards as a basis, content area teachers took responsibility to teach disciplinary literacy in order for students to learn and to be engaged in their learning (Kern & Bean, 2018). To alleviate these challenges, teacher librarians play an important role to assist teachers with content area reading instruction. Teacher librarians assisted with locating and accessing a variety of informational text to support the teachers' development of their students' disciplinary literacy (Lawson & LaDuke-Pelster, 2017). I gathered the perceptions of secondary science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that improve their knowledge and use of disciplinary literacy skills for informational text. There was a gap in practice in the preparation and training of secondary school science and social studies teachers to teach students how to read informational text.

Literature Review Related to Key Concepts and Variables

The literature review is focused on the gap in practice in the preparation for and training of secondary school science and social studies teachers to teach students how to read informational text. I reviewed literature about the CCSS and the specific reading standards for informational text for science and social studies, the challenges that

secondary science and social teachers faced in using disciplinary literacy skills, and best practices for teaching with a disciplinary literacy approach. A review of literature was made about the training and resources that have improved student knowledge and use of disciplinary literacy skills for informational text.

The Common Core State Standards and Instructional Challenges

The CCSS serves as a foundation for education and instruction. In 2009, state governors initiated development of the CCSS in response to the federal government's "Nation at Risk" report, and this development led to education reformation (Shanahan, 2015). The CCSS were created to establish core subject standards at K-12 grade levels in and mathematics (Holschuh, 2014). The CCSS were developed from existing state standards, teacher experiences, content experts, and public feedback in order to determine real-world learning goals (CCSS Initiative, 2010). The CCSS reading standards focus on the needs of all students and the instructional needs of struggling readers (Shanahan, 2016). Many secondary students struggle with reading because of minimal instruction, their weak language, or poor reading skills (Nippold, 2017). Nippold (2017) stated that a future study was needed to identify students' reading problems for them to improve their reading and become proficient.

The authors of the CCSS determined that ELA reading standards include both literary and informational text. These literacy standards defined that reading is more than decoding and comprehension; reading is the ability to negotiate various levels of reading complexity (Shanahan, 2015). For students to meet the CCSS, teachers should make

careful decisions for choosing the content area text and offer instruction to engage students in learning (Lupo et al., 2019).

Content reading is an important skill throughout students' K-12 education. Built upon a foundation in elementary school, students are to meet specific reading proficiencies upon graduation in both literary and informational texts according to the CCSS. The informational text benchmarks within those reading standards focuses on genre and discipline specificity for science and social studies (Cervetti & Hiebert, 2014). The CCSS has specific benchmarks for key ideas and details, craft and structure, integration of knowledge and ideas, and text complexity for science and social studies. My study focused only on key ideas and craft. The science benchmarks for key ideas and details include citing evidence to support analysis, determining central ideas and conclusions, tracing explanations of complex concepts, providing summaries, and following complex multiple step processes (CCSS Initiative, 2010). The science benchmarks for craft and structure include determining meaning of symbols, terms, and domain specific words; analyzing conceptual relationships; and analyzing procedure description or experiment discussion (CCSS Initiative, 2010) The social studies benchmarks for key ideas and details include citing evidence to support analysis of primary and secondary sources, determining central idea of primary and secondary sources, summarizing key events of development, and analyzing a series of events in a causal sequence (CCSS Initiative, 2010). The social studies benchmarks for craft and structure include determining meaning of political, social, or economic vocabulary; analyzing how text uses structure to emphasize key points, and comparing viewpoints of

two or more authors' treatment of the same subject (CCSS Initiative, 2010). To meet these CCSS benchmark expectations, secondary science and social studies teachers instruct their students in content area reading skills of disciplinary literacy comprehension, reading engagement and involvement, and assessments to check on learning (Kern & Bean, 2018).

While the CCSS are a nationwide agreement of expected outcomes, the choice of curriculum materials and instructional plans is under the control of each state or districts' teachers, curriculum directors, and administrators (Shanahan, 2015). The CCSS only focuses on how well students read rather than any particular method to meet the goal of proficiency and independence (Shanahan, 2016). Teachers recognize the important role of literacy to facilitate students' knowledge of content area text; teachers need to plan and implement lessons that intentionally use a variety of literacy activities, strategies, and methods to increase students' content learning (Kern & Bean, 2018).

The goal of the CCSS was to prepare students for college and career readiness. The establishment and implementation of CCSS's reading standards has increased the interest in reading, but questions were raised about the actual preparedness of graduates for the rigor of college-level reading (Springer et al., 2015). Concerns have been raised about the reading instruction offered at the secondary level to prepare students for college and career readiness. In a study conducted by Nippold (2017) to analyze reading comprehension, word reading, and lexical and syntactic development, the results indicated the need for more targeted interventions to assist students for college and career readiness. While opinions vary between secondary school teachers and college professors

about the reading expectations for college freshmen, agreement between teachers and professors was needed, and that agreement identified the skills needed at the secondary level, additional skills needed for college preparation, and the performance level expectations for both (Springer et al., 2015). Secondary school science and social studies teachers need to develop the necessary instructional skills to support students in not only reading informational text but also understanding the text in order to be college and career ready upon graduation (Almada et al., 2018).

Informational text is the basis for secondary school science and social studies classroom reading. Braker-Walters' (2014) quantitative content analysis suggests that there was a a minimal informational text reading instruction in schools. Furthermore, the same study showed evidence that students who had minimal experience with reading informational text scored lower on standardized achievement tests (Braker-Walters, 2014). The results of this study are a concern because secondary school science and social studies classes primarily use informational text. Informational text for science includes defining technical vocabulary and both interpreting and creating graphs (Kern & Bean, 2018). Informational text for social studies also includes discipline specific vocabulary. Social studies text expands historical texts to both print and non-print text along with demonstration of understanding of different perspectives through classroom activities and role play (Kern & Bean, 2018). In addition, the amount of informational text in content areas increases through grade levels (Braker-Walters, 2014). Lawson and LaDuke-Pelster (2017) stated that even though secondary school science and social studies teachers may not have had the training or resources to teach informational text,

teacher librarians supported content area teaching and enhanced learning through a collaborative effort to teach students how to read informational text.

While secondary school science and social studies teachers are expected to meet the CCSS content discipline expectations, they are reluctant to assume the responsibility to teach the necessary informational text benchmarks for their content area. Without specific content area teacher instruction and student learning of informational text reading skills, students are unable to understand the content area text. Content area teachers do not have the necessary training and resources to teach students how to read informational text (Springer et al., 2015). Secondary school level science and social studies teachers need assistance to overcome the challenges they have in teaching informational text and the training and resources to improve their instruction. While the CCSS identify explicit goals for reading, they do not offer any explicit instruction to explain reading ability by building vocabulary, learning meaning, understanding nuances, or increasing word knowledge (Holschuh, 2014; Shanahan, 2016). In order to teach informational text reading skills and disciplinary literacy, teachers change their curriculum and adjust their instruction to meet the informational text recommendations (Braker-Walters, 2014).

Secondary school content area teachers expect students to have competence in reading informational text for classroom success. According to the CCSS reading standards, students are expected to read and comprehend both literary and informational text at a complexity level of college and career readiness both independently and proficiently upon graduation (CCSS Initiative, 2010). Students need a variety of reading

skills to meet the reading standards for informational text which include word reading skills, lexical development, syntactic development, and topic knowledge (Nippold, 2017). Without this disciplinary literacy instruction from content area teachers, students may not meet the CCSS reading proficiency, and they will not learn how to become independent readers (Springer et al., 2015).

Content area teachers are responsible for teaching their students the necessary content vocabulary and reading strategies to comprehend the content area text. Additionally, teachers need to support students in developing knowledge through reading by paying attention to informational texts, by connecting knowledge and comprehension, and by acknowledging the importance of reading instruction (Cervetti & Hiebert, 2015). Teachers and schools are responsible to offer the necessary instruction so that the students meet their entry into global citizenship and workforce participation (Almada et al., 2018).

While standards include both literary and informational text, science and social studies standards were exclusively informational text. Secondary school science and social studies teachers expect students to read, analyze, and discuss content specific information from textbooks. The informational reading standards for science and social studies present an integrated model of literacy which is best taught through a disciplinary approach (Holschuh, 2014). For students to become independent and proficient readers of complex text, they need to develop their skills for disciplinary literacy. Since the CCSS has more informational text at the secondary level, students need world knowledge and disciplinary literacy to navigate it (Cervetti & Hiebert, 2015). Secondary school science

and social studies teachers need to teach students disciplinary literacy to meet the CCSS's informational text benchmarks.

Challenges of Content Area Teachers

The authors of the CCSS and the ILA identified the needed literacy standards to be met by secondary-level students to prepare them for college and career readiness; however, the integration of these reading standards pose a unique challenge to content area teachers. To meet the CCSS for reading informational text, teachers need to facilitate the reading instruction in alignment with the informational text through involvement of the student not only with the text, but also with their peers to use the disciplinary vocabulary and to build substantive discussions (Boardman et al., 2015). The authors of the ILA standards attempt to imitate societal changes of needed and authentic reading skills so that students collaborate and communicate in comprehending textual meaning (Kern & Bean, 2018). Teachers play an important role in helping students to meet these literacy standards. Teachers identify students' reading strengths and areas for improvement to pinpoint students' literacy needs (Lupo et al., 2019). When determining proficiency of reading informational text, teachers use both state assessments and school tests to reach the conclusion that teacher-directed disciplinary reading instruction helps students meet the standards (Learned & Morgan, 2018).

The CCSS literacy standards include a specific benchmark focused on text complexity. An oft-repeated point about content area reading is that students struggled with reading and comprehending the text (Lupo et al., 2019). Teachers know that students struggle with text, and teachers either offer text that is below students' reading level to

ensure readability or offered text that challenged the students (Lupo et al., 2019). Teachers make important decisions when they choose texts based on different criteria: (a) text difficulty, (b) interest level, and (c) reading development (Lupo et al., 2019). Teachers help all students understand complex text, and teachers assisted struggling students.

Inclusion and instruction of reading strategies and literacy skills into content area reading is a challenge for secondary school science and social studies teachers. Because students may not be proficient in content area reading, some teachers are cautious and afraid, and others feel unprepared or ill-equipped to teach literacy skills to students (Drew & Thomas, 2018). This teaching challenge must be overcome. Learned and Morgan (2018) conducted a study that showed that students gained knowledge through literacy instruction in many different levels of skill development as facilitated by teachers' connection of text to technique. Through teacher instruction and student interaction with the text and with each other, students deepen their understanding, asked questions, sought answers, and solved problems (Kern & Bean, 2018). To meet informational text reading standards and for this type of learning to take place, content area teachers need to be able to teach both the disciplinary content and the literacy skills with directed disciplinary reading instruction so students understand the informational text (Borda et al., 2018; Wright et al., 2016).

Content area teachers need to develop and enact lessons that deliberately and purposefully connect reading strategies with informational text (Kern & Bean, 2018). If content area teachers wanted to improve students' reading proficiency, teachers need to

progress from teaching content specific information to teaching content specific reading skills to assist all readers, and particularly struggling readers, to improve comprehension (Learned & Morgan, 2018). Learned (2018a) conducted a study that showed that students could read content area text and meet proficiency when teachers engaged students in reading activities that connected content area text and literacy skill method. To improve students' reading skills and to increase content comprehension, teachers need to support students' engagement in a wide variety of texts in a curriculum of content knowledge and cultural diversity (Kern & Bean, 2018; Lupo et al., 2019). In accepting their responsibility as literacy instructors, content area teachers assist struggling students through engagement in the text, the technique, and the learning (Lupo et al., 2019). The teachers' role is essential to build content area reading skills of complex texts; literacy is knowledge (Wright et al., 2016).

Teachers should choose the most effective instructional method with the content reading and differentiate the instruction to meet the variety of students' reading abilities. Teachers should adapt strategies to meet students' needs to improve comprehension (Wright et al., 2016). When students receive this approach to reading instruction, they can develope skills to improve their knowledge and increase their growth as readers (Kern & Bean, 2018; Learned & Morgan, 2018). When teachers use various reading methods applied to content, students extend their understanding and become critical thinkers (Kern & Bean, 2018).

More research is needed to resolve many of the challenges of teaching informational text. Content area teachers need to understand the theories of content area

reading skills to support content knowledge understanding. Secondary school science and social studies teachers need to better understand and use their NGSS and C3 standards to teach students how to read informational texts (Wright et al., 2016). Continued study of content area reading skills help teachers better know how students learn through literacy instruction, how students improve their learning through disciplinary instruction, and how teachers could support both struggling readers and high-performance students (Learned, 2018a). Content area teachers recognize the value and importance of literacy to gain knowledge (Kern & Bean, 2018).

Science Teachers' Instructional Challenges

There are specific literacy standards that secondary students need to meet as identified in the CCSS and the NGSS. The authors of the CCSS have made a major shift from only content standards to inclusion of literacy standards to improve student comprehension of scientific knowledge (Drew & Thomas, 2018). Literacy skills are emphasized in the NGSS, and the specific literacy skills of discovering relationships and interpreting data are emphasized in the CCSS (McCormick & Segal, 2016). Science teachers know the subtle differences between the CCSS and the NGSS: in the CCSS, students are to meet the standards to know their role as a researcher to develop arguments based on facts without developed explanations, and in the NGSS, students are to view themselves as scientific researchers to further scientific inquiry with evidence (Drew & Thomas, 2018; Lee, 2017). When science teachers know the expectations of the CCSS and the NGSS, they can prepare content and literacy lessons to prepare students for college and career readiness (Drew & Thomas, 2018).

Many science teachers struggle with teaching science literacy. Science literacy includes scientific reading, writing, and the knowledge that students gain from scientific study; however, teachers usually focus on content instruction rather than reading instruction (Wright et al., 2016). Science teachers face challenges ranging from vocabulary instruction to discerning meaning from charts, graphs, and experiments (Kern & Bean, 2018). Science teachers may not have had as many preservice college preparation courses to learn literacy instruction to match the reading skills to the content, i.e., science teachers were teaching the content without teaching the skills to read the content (McCormick & Segal, 2016; Wright et al., 2016).

For teachers to meet the challenge of including literacy skills into their science curriculum, they must first understand the literacy standards to improve student learning and comprehension (Drew & Thomas, 2018; Lee, 2017). If science teachers better understand the literacy standards in CCSS and NGSS, they may be more able to effectively teach students how to read science informational text using reading methods to improve students' content understanding (Drew & Thomas, 2018). Furthermore, there is a higher need for more explicit literacy skill development for the NGSS reading requirements as a basis for science, technology, engineering, and math classes and for career, technology, and engineering classes (Wright et al., 2016).

There are many methods about teaching science concepts, but there are few theories about teaching scientific literacy (Wright et al., 2016). Science teachers learned various instructional methods to meet these challenges. Since the primary reading is informational text, science teachers need to create lessons based on scientific readings

that lead to scientific exploration (Lee, 2017). Science teachers need to teach specific skills for students to understand not only the complexity of the text but also the complexity of the discipline (Richman et al., 2019). Through effective and deliberate content area reading skills, science students discover and explore science through inquiry (Wright et al., 2016). Through training, teachers learn strategies to integrate content reading skills with science content to improve understanding (Boardman et al., 2015).

While teachers struggle with teaching science-based informational text, students struggle with reading science textbooks. Reading informational text for science is different from reading literary text for ELA, and science teachers need the specific skills to teach reading and improve student comprehension (Boardman et al., 2015; Wright et al., 2016). For students to be able to read and understand informational text, science teachers need to build scientific vocabulary, supply background knowledge, and connect the reading to real life by either modifying the text or by making it more accessible (McCormick & Segal, 2016). Teachers also need to consider several factors when choosing a textbook: (a) accuracy, currency, and organization, (b) alignment to standards to promote science, and (c) inclusion of scientists and scientific careers (Fang, 2013). A well-chosen text engages struggling readers and encourages the high-achieving students, provides role models and career advice, and stimulates scientific thinking and increases inquiry and exploration (McCormick & Segal, 2016).

Further research may resolve science teachers' challenges in teaching informational text to students. The adaptation of the NGSS requires teachers to continually improve their classroom instruction and to develop instruction to meet the

needs of all students (Richman et al., 2019). Professional development could be led by experts in reading and science and include training about integration of reading skills with content knowledge and allow time for teacher collaboration to plan and develop lessons to teach students how to read informational text (Paul, 2018; Richman et al., 2019).

Social Studies Teachers' Instructional Challenges

The CCSS and C3 have identified literacy standards that secondary students are to meet. To help students achieve proficiency on the CCSS literacy standards, social studies teachers need better college preparation or PD to help them know how to integrate disciplinary reading skills into historical study (Dobbs et al., 2016; Gleeson & D'Souza, 2016). To meet those content area literacy standards, teachers need to teach both implicit and explicit meaning of text, inferences and assumptions, and text evaluation and analysis (Swanson & Wanzek, 2014). Social studies teachers help students meet the standards through planning and preparing lessons that integrate learning methods with content knowledge to further help students be college and career ready (Reisman, 2017).

Many social studies teachers also struggle with teaching reading skills along with teaching content knowledge. Social studies classes are discipline-based interpretation of multiple perspectives, and students need the skills to analyze those perspectives to support an argument (De La Paz et al., 2014). Teachers need to teach students how to note distinctions in different viewpoints, how to justify actions or cause effect relationships based on facts, how to use those facts to substantiate claims, and how to produce a response that is logically developed (Shanahan et al., 2016). Social studies

teachers need to know how to teach students to evaluate primary and secondary sources based on currency, relevancy, authority, and purpose, and by understanding the value of source evaluation, students could then be prepared to determine claims with evidence to develop oral or written argumentative responses (Reisman, 2017). The challenge remains that no matter how good the reading strategy may be, many social studies teachers are only taught how to teach historical content but not historical reading (Reisman, 2017; Shanahan et al., 2016).

The content of social studies text is itself a challenge for teacher instruction and student reading. Teachers struggle in determining effective methods to engage all readers, particularly struggling readers, in reading informational texts (De La Paz et al., 2014; Learned, 2018b). Many new teachers only use textbooks and ignore other historical resources (Wineburg et al., 2015); however, social studies teachers have rich resources to develop history-based literacy lessons to increase learning (Swanson & Wanzek, 2014). In reading the informational text, students focus on only the literal meaning without making inferences or assumptions because they do not have the necessary reading skills to analyze and interpret the text (De La Paz et al., 2014). Social studies teachers realize that students not only struggle with reading textbooks but also reading the necessary primary and secondary sources (Shanahan, 2016). Integrating textbooks with primary and secondary information resources and with historical artifacts result in a balance of informational text, but it does not provide effective use of materials or instruction of reading skills for comprehension (Shifflet & Hunt, 2019).

Students may be confused or overwhelmed by the social studies textbook and the supplemental materials of historical documents, political cartoons, published articles, and more. Students often struggle with reading because they need to analyze the task, read the text, and connect the textual reading to task completion (De La Paz et al., 2014). Teachers need to offer instruction so students could use specialized strategies to read historical texts and documents (Dobbs et al., 2016). Teachers should use reading strategies to allow students to discover historical and current events rather than using the strategies in isolation (Gleeson & D'Souza, 2016). Purposeful use of reading strategies results in powerful learning experiences for students and enhances the learning from not only learning a strategy but also applying the strategy to the text (Dobbs et al., 2016; Gleeson & D'Souza, 2016). Through purposeful integration of reading and instructional strategies, students gain a deeper understanding of social studies, and they could become active and productive classroom members (Shifflet & Hunt, 2019).

Additional research could resolve social studies teachers' challenges in teaching informational text to students. Teachers are skeptical of their ability to make an impact on students' learning through reading instruction (Shanahan et al., 2016). Some teachers receive specialized training of using content area reading skills to support content specific learning; other teachers struggle with incorporation of reading skills instruction with content instruction (Dobbs et al., 2016). Once secondary social studies teachers learn how to teach students to read informational text, they will make an impact on students' understanding of history as revealed in various resources (Swanson & Wanzek, 2014).

When teachers learn how to use content area reading skills to teach historical content, students will understand themselves and their societal role (Shanahan et al., 2016).

Science and social studies teachers face challenges in meeting the literacy standards for their disciplines. Teachers know their responsibility to use the CCSS literacy standards for instructional alignment and their responsibility to help students meet those literacy standards. Teachers know their responsibility to teach the content and for students to learn the content, but they may not know the methods to unite the textual content with the instructional method. Teachers realize the challenges for teaching reading beyond content area reading skills to disciplinary reading skills for science and social studies. Teachers could use the CCSS literacy standards as the foundation for their development of units and lessons to teach not only content area reading skills but also disciplinary literacy (Lent, 2016). With training and resources, challenges could be met, and students could learn to read informational text.

Best Practices for Teaching Content Area Reading and Disciplinary Literacy Skills

The literacy standards for content areas are identified in the CCSS. Literacy is more than the language arts skills of reading and writing; literacy also includes critical thinking, problem solving, interpretation, evaluation, and analysis (Frankel et al., 2017). Because the literacy skills are a part of the CCSS, content area teachers are faced with new challenges in using and including them in their instruction. Teachers need to teach such aspects as identified in the literacy benchmarks: key ideas and details, craft and structure, integration of knowledge and idea, and text complexity (CCSS Initiative, 2010). To achieve proficiency in CCSS, students need more than the basic skill set to

read, instead they need the specific tools to read in any content area (Chauvin & Theodore, 2015). Literacy was considered a skill set, but now literacy is any method, strategy, or technique used to gain understanding from text (Lent, 2016).

Many teachers used data-driven, research based best practices that include methods, strategies, or techniques to teach students how to read informational text. When content area teachers offer instruction of content area reading strategies and disciplinary literacy skills, students would be able to develop and improve their reading skills (Hinchman & O'Brien, 2019). By using research-based strategies to read informational text, teachers could meet instructional challenges by teaching historical themes and broadening students' perspective or by reading about events from different points of view rather than rote memorization (Gleeson & D'Souza, 2016). Paul (2018) conducted a study that showed which specific strategies, such as Close Reading, were successfully used in the science and social studies classroom. The close reading strategy was a guided and repeated reading of a text selection to gain a deeper understanding (Paul, 2018). Close reading is a common strategy for student engagement because of the repeated reading to identify information; this strategy makes the student responsible for building upon their knowledge (Chauvin & Theodore, 2015; Springer et al., 2015).

Another method shows that students' reading ability improves when teachers offer clear explanation focusing on word recognition rather than on fluency (Harmon et al., 2016). Synthesis strategy could be used across multiple texts to identify themes, make connections, see relationships, and synthesize ideas (Springer et al., 2015). Learned and Morgan (2018) explain that literacy understanding is built in a classroom that is

facilitated in a cooperative and social environment. When building reading comprehension, the students also built cultural competence (Kern & Bean, 2018). Learned (2018a) conducted a study that showed that when content area teachers collaborated with colleagues and literacy coaches to build relationships with students, students built a reciprocal trusting relationship with the teacher which in turn builds a receptive relationship for learning literacy skills, specifically disciplinary literacy. In using these strategies, teachers also teach students how to increase reading stamina so that they maintain and build reading commitment over an extended period of time on a large amount of text without support (Springer et al., 2015). When teachers gain confidence in their ability to be both content and reading teachers by using best practice content reading strategies, they also meet the challenge of teaching disciplinary literacy skills (Fisher & Frey, 2014b).

Content Area Reading Skills

Content area reading skills are general skills to gain new knowledge in a discipline. Generalized content area reading skills are used by teachers without any specialization to content, instead they are isolated from, not integrated with, learning the content (Gillis, 2014; Lent, 2016). Even though content area reading skills are considered a set of study skills to be used in learning reading with the emphasis on learning the skill rather than learning the content, students need to increase their ability to apply content reading strategies throughout high school (Shanahan & Shanahan, 2012; Spires, et al., 2018). Students increase their confidence in their reading skills when they learn and apply generalized content area reading skills of creating summaries, making inferences,

or asking questions to almost any text or discipline (Chauvin & Theodore, 2015; Shanahan & Shanahan, 2015). A study conducted by Borda et al. (2018) showed that a school-wide focus on direct instruction of content area reading instruction and its implementation yielded classroom continuity of instruction, reduction of demands on students, and deepening of discipline knowledge.

Students benefit from content area reading instruction. Through instruction of content area reading strategies, teachers encourage students in learning strategies that support reading skills development in all disciplines (Ness, 2016). Since explicit reading instruction is not usually offered in secondary schools, students need more teacher guided and individualized instruction, so content area reading skill instruction did offer some assistance (Gillis, 2014). However, to impact students' reading skills, the content area teachers align the reading strategy with content learning for the greatest improvement of comprehension (Shanahan & Shanahan, 2012). Even more improvement could be made if the strategy is connected to knowledge content and real-world problems (Graham et al., 2017). Through this integrated methodology, students struggle less with the informational text because of the teachers' integration of reading strategies (Lampi et al., 2019). By using the specific reading skills to understand disciplinary text and through teachers' encouragement of students in learning strategies that support reading skill development, students have better understanding of the content (Ness, 2016). As the context experts, science and social studies teachers use the content area reading skills to enhance lessons and improve learning by connecting evidence to reach a conclusion or by teaching scientific or historical terminology (Gillis, 2014). Content area reading skills are similar,

yet distinctive, from disciplinary literacy skills. Science and social studies teachers are the content specialists to help students understand disciplinary texts (Fisher & Frey, 2015). Science and social studies teachers have the added responsibility for students' learning by using reading skills and applying those skills to disciplinary content (Lent, 2016). These skills are used to learn the subject matter of a discipline and to learn a process of learning within the discipline (Learned, 2018b).

Teachers help students improve students' reading and thinking by implementing both content area reading and disciplinary literacy in classroom instruction (Chauvin & Theodore, 2015). Based on content area literacy standards in the CCSS, science and social studies teachers need to help student meet two goals: (a) build upon and develop students' ability to read and understand complex texts and (b) teach the reading skills to comprehend science and social studies informational text (Urquhart & Frazee, 2012). Many secondary school science and social studies teachers are afraid or hesitant to teach the reading skills needed for their discipline; these teachers are eager to teach the study of science but not to teach the needed skills to read and interpret the text (Graham et al., 2017). To be proficient in the literacy standards in the CCSS, secondary school science and social studies teachers need to teach students how to read informational text (Shanahan & Shanahan, 2012). In science, teachers need to build literacy skills for vocabulary, synthesis, and literacy in addition to offering literacy instruction for students to use experimentation for data analysis and evaluation to develop a response (Shanahan et al., 2016; Spires et al., 2018). In social studies, teachers need to build literacy skills to examine and interpret sources, to use valid evidence to create an equally valid argument,

and to identify and evaluate different perspectives on a topic and arrive at an educated conclusion (Shanahan et al., 2016; Spires et al., 2018).

Disciplinary Literacy Reading Skills.

For students to become independent and proficient readers of complex text, they need to develop their disciplinary literacy skills. Literacy addresses the many ways of not only reading and writing but also communicating and collaborating by using traditional print and non-print technologies (Kern & Bean, 2018). Since CCSS recommends more informational texts at the secondary level, students need world knowledge and disciplinary literacy skills to understand them (Cervetti & Hiebert, 2015). Because the CCSS has reduced the disciplinary knowledge within the standards while increasing the content knowledge, teachers are more responsible to build the necessary disciplinary literacy skills so students understand informational text (Cervetti & Hiebert, 2015). For learning and application to occur, teachers need to allow students to use and apply literacy skills to informational text (Lent, 2016).

The goals that teachers attempt to achieve in disciplinary literacy skills are different than the goals for content reading skills. It is true that content area teachers are not reading teachers, but they are content experts who share their methodology with students to read and understand content specific information text through evaluation and synthesis (Chauvin & Theodore, 2015). Disciplinary literacy reading skills are not merely a set of reading tools, but instead, they are the distinct and specific skills to learn a discipline's scientific principles or historical themes (Chauvin & Theodore, 2015; Graham et al., 2017; Shanahan & Shanahan, 2012). Disciplinary literacy reveals the

discipline's reading methodology to support student learning which includes content knowledge and specialized reading skill to comprehend the text (Holschuh, 2014). When students mastered disciplinary literacy skills, they mastered content learning, and they ask questions, they are directed, and they think about the subject matter (Kern & Bean, 2018; Learned, 2018b; Lent, 2016).

To build these skills of knowledge enrichment and reading development, teachers need to accept their responsibility for this instruction (Cervetti & Hiebert, 2014). Disciplinary literacy is both intentional and applicable to content learning because teachers select the strategy to enhance the content, teach students the reason for that reading strategy choice and how to use that strategy to understand the content (Kern & Bean, 2018). The teacher determine which strategies are best used with the various kinds of informational text and how those strategies are best used to understand the content (Swanson & Wanzek, 2014). Shanahan and Shanahan (2015) explain that the skills were introduced in a general method, then the method became more specific to allow the student to explore the content and meet the learning challenge.

Teachers are challenged in teaching disciplinary literacy reading skills. Holschuh (2014) identifies six areas built through teacher instruction to improve students' disciplinary literacy: (a) authentic texts, (b) text complexity and stamina, (c) close reading, (d) productive struggles, (e) motivation and persistence, and (f) student ownership. Teachers introduce skills and text connection and build upon that ability until students connect techniques to text in a repeated process of application (Shanahan et al., 2016). To prepare students to read regular and complex texts, teachers need to instruct the

student how to approach informational text with the lens of a content expert and transform their reading skills to skills of exploration and comprehension (Shanahan & Shanahan, 2012). Teachers develop students' disciplinary literacy development through carefully planned instruction by understanding the text, applying the knowledge of reading engagement, and using on-going assessment (Kern & Bean, 2018). In this learning of disciplinary reading, students know the unique skills needed to read and understand content specific text (Lent, 2016). As students gained proficiency in using disciplinary literacy skills, they also use these skills in all classes to increase their learning (Graham et al., 2017). Eventually, the students know *which* technique is needed, *when* it is needed, and *why* it is needed to build learning (Rainey et al., 2018).

Secondary school science and social studies teachers serve as the teacher, mentor, and facilitator in disciplinary literacy skill instruction. Teachers need to afford students experiences and opportunities to engage with these skills (Lent, 2016). The informational reading standards for science and social studies present an integrated model of literacy which is best taught through a disciplinary approach (Holschuh, 2014). If content area reading skills are taught intentionally in science or social studies, those skills would be disciplinary literacy skills (Lent, 2016). Content area teachers emphasize reading skill distinctions, so students emulate the thought process of a scientist or historian and formulated thinking and learning (Shanahan & Shanahan, 2012; Windschitl, 2019). Through disciplinary literacy skill instruction, students think like scientists and historians.

Disciplinary Literacy Skills for Science

In science classes, the teachers' goal is to build disciplinary literacy skills in students so they read and think like a scientist to improve content area reading ability and meet the CCSS for informational text. To meet the CCSS content standards, science teachers teach students the needed reading skills to interpret the following: (a) charts, graphs, and tables, (b) data, patterns, and symbols, and (c) experiments and models to arrive at a conclusion based on factual evidence (General Education Leadership Network, 2019; Rainey et al., 2018). When teachers are faced with the challenges of meeting the expectations of both the CCSS and the NGSS, they meet standards by making careful text selection to meet specific goals with the students using strategic questions to understand the text (Mawyer & Johnson, 2017). Mawyer and Johnson identify three types of science texts: popular texts, textbooks, and primary scientific literature, and they identified such disciplinary literacy skills as purposeful reading, previewing diagrams and illustrations, and comprehension coding. Teachers need to teach science vocabulary, and in this instruction, they include scientific terminology, an understanding of Latin and Greek roots, prefixes, and suffixes, and mnemonic devices (Shanahan & Shanahan, 2012). Teacher instruction of scientific disciplinary literacy skills could lead students to pursue scientific inquiry and experimental processes which further leads students to make inferences and predictions based on perceived and determined evidence (Graham et al., 2017). General Education Leadership Network (2019) conclude that teacher instruction of scientific disciplinary literacy skills should include the following: (a) problem- based units so that students could identify problems and engage their thinking in problem

solving, (b) scientific and engineering units of investigation and simulation, and (c) teacher developed, text -based units that permit students to scaffold their learning to further scientific exploration. Since science, an inquiry-based subject, is based on students' exploration and discovery of scientific principles, concepts, and theories, teachers need to involve students with group projects and experiments (Lent, 2016). Through increased teacher instruction and improved student learning, students progress from basic understanding to higher order thinking to become innovators and inventors (Boardman et al., 2015).

Many teachers used data-driven, research based best practices that included methods, strategies, or techniques to teach students how to read informational text in science. Boardman et al. (2015) conducted a study using the Collaborative Strategic Reading (CSR) program in which explicit teacher instruction, student discussion, and academic supports led struggling readers to becoming independent readers. In CSR, the teacher gave the reading directions, modeled the reading, and completed a think-aloud for the students; groups were assigned for both individual and partner work, and the students worked together with the text through discussion (Boardman et al., 2015). Paul (2018) conducted a study of various content areas and identified best practices for science ranging from strategic reading, quickly identifying key words and passages in a text as an overview before reading the full text, to using the graphics presented to enhance and complement the text.

Disciplinary Literacy Skills for Social Studies

In social studies classes, the teachers' goal is to build disciplinary literacy skills in students so they read and think like historians to improve content area reading ability and meet the CCSS for informational text. Teachers face the challenge of teaching the CCSS and C3 literacy standards. These CCSS and C3 standards include such skills as citing and interpreting sources, conducting research, and responding either through argumentation or explanation (Nowell, 2016). Teachers also teach the reading skills that social studies students need to use primary sources to address issues and their causation by individuals or society or to consider varying perspectives of events through evaluating sources and interpreting the text (Rainey et al., 2018; Shanahan & Shanahan, 2012). Through a progression of learning disciplinary literacy skills, students are able to communicate with teachers and with peers in a disciplinary method and use the vernacular and reasoning in the manner of the discipline (Dobbs et al., 2016). For students to communicate as historians, they need to be taught how to center discussions around text interpretation and development of evidence-based argumentation in debates or role play (Dobbs et al., 2016). Learned (2018b) conducted a disciplinary literacy study that showed that disciplinary literacy skills bolster students' understanding of historical text including primary sources and artifacts as they determine and pursue learning opportunities within interpretation and analysis of the discipline. General Education Leadership Network (2019) concludes that teacher instruction of historical disciplinary literacy skills should include the units that investigate society using a variety of texts that include primary and secondary sources, units that offer background cultural information, and units that permit

students to reflect on the historical events and their impact on society and self while using different genre formats (maps, political cartoons, charts, etc.). Through teacher instruction of disciplinary literacy skills to read social studies informational text, students became socially aware of history and become participants in a civil society (Shanahan et al., 2016). Teacher instruction of disciplinary literacy skills benefit student learning in many ways.

Content area reading skills and disciplinary literacy skills have value and importance to improve students' reading comprehension. Students need assistance to improve their reading because students have not been able to make assumptions, to understand metaphorical meaning or to arrive at a conclusion (De La Paz et al., 2014). Content area reading skills are general strategies applied to most reading situations. Disciplinary literacy skills are those particular reading skills that students use to deepen content understanding. Science, as an inquiry-based study, includes analysis of facts and evidence to come to a conclusion; social studies, as an interpretative study, include analysis and evaluation of interpretations to support an argument (General Education Leadership Network, 2019; Graham et al., 2017). Teachers need to improve their skills to teach content area reading in order to teach students how to read the information text and to meet the literacy standards in the CCSS and additional training for disciplinary literacy instruction (Drew & Thomas, 2018; Paul, 2018).

Many teachers use data-driven, research based best practices that included methods, strategies, or techniques to teach students how to read informational text in social studies. Paul (2018) conducted a study of various content areas and identified best

practices for social studies: (a) sourcing, (b) consideration of the author, (c) consideration of the author's possible biases, and (d) the document's type and purpose. Learned (2018b) conducted a study and noted the success of three types of disciplinary literacy: (a) the use of historical questions, (b) consideration of author biases, and (c) comparing perspective of the same event from a variety of documents. Reisman (2017) was part of program to develop literacy connections between the CCSS and content areas. A foundational work of the program is development of a template to be used for either argumentative or expository writing that helps the students to define and refine their reading and develop their topic, their focus, and their written response (Reisman, 2017).

Benefits of Professional Training and Development

College professors and secondary school administrators use the standards outlined in the CCSS and the ILA standards to develop education preparation classes and PD. The guidelines include the need for teacher collaboration to develop curriculum, choose materials, and create assessments (CCSS Initiative, 2010). In conjunction with the CCSS were the NGSS for science and C3 for social studies which all required students to read, analyze, interpret, and evaluate complex informational text in each specific discipline (Greenleaf et al., 2018; Mawyer & Johnson, 2019). In a partnership with the CSSS, the ILA standards include opportunities, experiences, and challenges for students' collaboration with students, families, teachers, and specialists (Kern & Bean, 2018). Schools use these guidelines to determine PD, and colleges use them to develop teacher education programs to educate preservice teachers about the literacy standards for content areas (CCSS Initiative, 2010). With more specified development in college preparation

and PD, teachers create lessons and design a curriculum so students could meet the CCSS, NGSS, and C3 literacy benchmarks (Spires et al., 2018).

Effective teacher preparation and PD focus on both literacy instruction and instruction improvement. Literacy is a language process that includes phonemic awareness, phonics, fluency, vocabulary, and comprehension (Will, 2019). Reading skills and literacy instruction are important, but usually neglected in secondary schools. Reading skills increase throughout elementary school and then level out upon entrance in middle school with no increased improvement throughout high school, and in accordance with the CCSS, the text complexity increased (Ramsay & Sperling, 2015). Teachers need to determine students' reading needs and level of proficiency and the different instructional techniques to meet those needs and increase proficiency, to offer assistance for in-class instruction, and to recommend pull-out interventions (Shanahan, 2016). With the inclusion of literacy skill instruction in content areas, teacher preparation and PD are more powerful and impactful for teachers' instructional growth and students' reading success (Chauvin & Theodore, 2015).

Teacher preparation and PD guide teachers to carefully and skillfully choose the best text for content areas. To address the text choices and the needs of the struggling reader, teacher preparation and development trains teachers how to study the curriculum, the instructional plans to meet the curriculum and to meet the CCSS, and to choose the best textbook (Harmon et al., 2016). At the secondary level in content areas, a text is the standard reference point for the class, and to understand the scientific or historical text, teachers need to instruct students the necessary language and reading skills (Fang, 2014).

Texts chosen, including scientific articles and reports for science and primary and secondary sources for history, are carefully and purposely chosen in consideration of students who struggle with reading informational text and teachers who face the challenge of teaching informational text (Chauvin & Theodore, 2015). With the abundance of reading materials and textbooks, teachers struggle with choosing the best text and aligning it to the most effective strategy to help students to read and understand; through preparation and development, teachers are able to connect students to the text in an instructional relationship (Ramsay & Sperling, 2015). Through training, teachers support students as they developed knowledge by attending to informational texts, by connecting knowledge and comprehension, and by acknowledging the importance of reading instruction (Cervetti & Hiebert, 2015).

Teacher preparation programs and PD offer instruction about various ways to teach informational text. This preparation and development focus on content area reading strategies and disciplinary literacy skills built students' reading development (But et al., 2017). To increase student learning, teachers use specialized literacy practices and strategies in the classroom. Superior teacher preparation and PD for content area teachers about disciplinary literacy includes the best use of time and resources and the most effective lesson presentation (Ippolito et al., 2018). Through training, teachers realize that though they may have not been a reading specialist, they are trained to be an effective literacy teacher in order to teach vocabulary, to offer comprehension strategies, and to create engaging lessons (Heller, 2020). Chauvin and Theodore (2015) explain that content reading skills should engage students in strategy application and allow students to

systemically practice the strategy. Teachers could offer instruction about many strategies and skills in content instruction, so students build a tool kit of reading techniques (Mawyer & Johnson, 2019). Teachers build their own tool kit of reading strategies through attendance and participation in teacher preparation or PD, so they implement content area reading strategies so students learn how to analyze, interpret, and evaluate text whether it was data and facts for science or varying perspectives for social studies (Howard & Guidry, 2017). Teacher preparation and professional development establish an understanding of content area reading and disciplinary literacy skills.

Through teacher preparation courses and PD, various content area reading and disciplinary literacy skills are available for teachers' instructional use. Though teachers need more identified disciplinary literacy skills and strategy training, they should be able to easily and successfully transfer students' ability to use content area reading skills to the students' ability to develop disciplinary literacy skills (Lesley, 2014). Content area teachers' PD train teachers to shift from teaching disciplinary content to teaching disciplinary literacy skills. When teachers understood and used content area reading skills as general reading strategies, students improve reading abilities; when science and social studies teachers understood and used disciplinary literacy skills, students would have improved their learning and retain the content knowledge (Fang, 2014). Content area reading not only serves as an initial foundation for disciplinary literacy skills, but also allows the students to think critically about the informational text to analyze, interpret, and evaluate the text (Howard & Guidry, 2017). With focus and direct college

preparation and PD, teachers are able to immerse students in all aspects of the discipline (Learned, 2018b).

Teacher preparation and PD need to be beneficial for secondary school science and social studies teachers. With adequate training and resources, secondary school science and social studies teachers overcame the challenges they had in teaching informational text. There are some models for teaching science and social studies reading that include goals, methods, and facilitator guidelines, and teachers need to practice those models through experience and experimentation with their colleagues (Reisman, 2017). Through training and with resources, secondary school science and social studies teachers teach students the skills for understanding the discipline specific texts: science was facts, data, and reports of experiment or theories; social studies was interpretations, perspectives, and causality of events and people (Fang, 2014). If preservice science and social studies teachers are taught how to incorporate disciplinary literacy instruction into their lessons and units, their students would improve their reading comprehension of the content (Fang, 2014). Through preparation and development, content area teachers meet instructional challenges by not considering themselves as reading teachers, but as secondary school science or social studies teachers who could have creatively integrated reading strategies with content knowledge and supported students in making this connection (Mawyer & Johnson, 2019). Literacy-focused teacher preparation and PD benefit students in secondary school science and social studies.

Teacher Preparation for Preservice Teachers

With inconsistencies of state requirements and college expectations for teacher preparation programs, the question remains: How *did* preservice teachers learn about content area reading strategies and disciplinary skill literacy? (Birdyshaw et al., 2017) Upper institutes may provide the necessary classes for preservice teachers to instruct them in the necessary methods to engage students in the text reading and content learning (But et al., 2017). Lesley (2014) identified guidelines for literacy courses to prepare preservice teachers; the course instruction should teach the preservice teacher this knowledge and these abilities: (a) how to engage students in reading and in reading content specific informational text, (b) how to teach students reading as an iterative process in order to gain understanding, and (c) how to teach a variety of strategies and skills so that student have the knowledge of and resources for reading a variety of complex texts.

Professional Development for Teachers

Professional development that is beneficial reforms and transforms content area teachers' instruction and students' learning (Greenleaf et al., 2018). Content area teachers need PD that teaches them strategies that they would have in turn taught students to improve and increase their reading skills (Ramsay & Sperling, 2015). Content area reading instruction offered in PD helps teachers improve their teaching so that students improve their reading skills, and disciplinary literacy skills instruction helps students understand the content. Since many teachers have minimal knowledge of disciplinary literacy skills and their usefulness of improving student learning, PD allows collaborative

work between secondary content area teachers and others which leads to development and instruction of literacy habits that are evolved through more practice and continued PD (Di Domenico et al., 2017).

Content area teachers need to realize that when students have a clear understanding of the strategy and content for a deep understanding and not merely a superficial grasp, learning comes from a convergence of the text, the strategy, and students themselves (Hsieh, 2017). The connection that content area teachers make between text and technique in student instruction makes an impact on their students' learning (Greenleaf et al., 2018). Good PD trains content area teachers about literacy strategies and skills, understanding of instructional methodology, and knowledge of disciplinary distinctiveness and uniqueness (Fang, 2014). Professional development focused on reading improvement, as a school-wide plan included the following considerations: (a) teacher collaboration and discussion with competent reading teachers, (b) development of assessments to identify student strengths and improvement areas and to formulate a literacy plan, and (c) access to a variety of print and nonprint informational text to incorporate into units and lessons (Harmon et al., 2016). Professional development in literacy serves as the foundation for maintained and sustained reading programs to help improve students' reading of informational text.

Content area career teachers' PD helps them teach secondary school science and social studies students how to read informational text.

Professional development for secondary school science and social studies is helpful. Professional development for literacy renovates, and possibly revolutionizes, the

curriculum through construction of new learning so teachers improve students' engagement with and understanding of science and social studies text (Greenleaf et al., 2018). Dynamic PD for content area teachers builds connections between science and social studies teachers, reading teachers, and literacy coaches in developing instructional skills to content reading (Fang, 2014). Through content area teacher collaboration with reading teachers, PD also includes strong and viable lesson construction with reading strategies and skills with scientific or historical content (Birdyshaw et al., 2017).

Teachers with adequate teacher preparation and with continued PD have the knowledge and ability to teach students how to read informational text. With this shift to disciplinary skill instruction, students learn to apply themselves to the content through guided and directed teaching (Di Domenico et al., 2017). Research is needed to determine the most effective skills and strategies that not only engage students but also assist struggling readers (Harmon et al., 2016). Though colleges offer a general introduction to content area reading skills, preservice teachers need to gain more knowledge in their classes or through classroom experiences. Secondary level teachers need many opportunities either in teacher preparation coursework or in PD to build their own skills to teach students how to apply disciplinary literacy skills to gain deeper insight and understanding of content (Birdyshaw et al., 2017; Ness, 2016).

Summary and Conclusions

In this literature review, I discussed three major themes to further my study about secondary level content teachers' perceptions about teaching informational text: (a) the CCSS and instructional challenges, (b) best practices for teaching content area reading

and disciplinary literacy, and (c) benefits of professional training and development. The CCSS literacy standards for secondary level science and social studies teachers are included as part of content instruction, but teachers struggle with including reading instruction with content instruction. Even though content area teachers are not reading specialists, they need to include content specific reading skills into their classroom instruction to increase students' reading comprehension of informational text (Heller, 2020). These challenges include minimal time for reading instruction, minimal teacher confidence to teach literacy, and minimal teacher training or resources. Content area reading strategies are generalized skills for reading comprehension, and disciplinary literacy are specialized reading skills unique to content areas. Best practices are methods, strategies, and techniques to engage students with the text and the knowledge to independently apply the literacy skills to content area reading. Professional training and development benefit both the preservice teacher and the career educator. Both preservice teachers and career educators could be supported and encouraged in developing their content area reading instruction through specific training and experience in reading strategy and disciplinary literacy implementation (Rainey, et al., 2018). By implementing the needed training and resources, teacher education content reading courses develop better prepared preservice teachers to teach literacy and focused PD about literacy help career educators to teach reading skills.

It is not known to what extent teachers accepted that responsibility or to what extent they felt capable to teach informational text. Content area reading skills and disciplinary literacy skills are similar yet distinct. Content area reading skills are

generalized reading strategies applied to any content area, and disciplinary literacy skills are specialized reading skills that extend learning so that students learn how to read and think like scientists and historians. Content area teachers should share their disciplinary skills with students to improve comprehension. Teachers have various experiences in their college preparation for education or in their PD in schools. The requirement for content area reading coursework for preservice teachers is an unknown; the quality of content area reading instruction for teachers in PD is also unknown. A gap in practice is filled by exploration of secondary science and social studies perceptions about their preparation to teach informational text. This qualitative study reveals needed training and resources for preservice and career teachers in their college preparation and PD, and it may have demonstrate the impact of disciplinary literacy skill instruction to improve student learning in secondary school science and social studies classes.

In Chapter 3, I explain my choice of research designs and why it is appropriate. I discuss the research design and rationale for my qualitative study. I address my role as the researcher and my methodology. I close that chapter with a discussion of the trustworthiness and ethical procedures that I followed in my study.

Chapter 3: Research Method

The purpose of this qualitative study was to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may have improved their knowledge and use of disciplinary literacy skills for informational text. In this chapter, I explain my research design and rationale, my role as a researcher, and my methodology. Within the discussion of my methodology, I explain my participant selection, the instrumentation, and the procedures for recruitment, participation, data collection, and data analysis. I also explain the trustworthiness and ethical procedures of my qualitative study. I conclude this chapter with a summary.

Research Design and Rationale

I used a basic qualitative research design for my study. In a basic qualitative design, interviews are conducted, data are collected and coded, and results are interpreted (Merriam & Tisdell, 2015). In a systematic and procedural method, I used a set of questions to interview teachers and gather their perceptions (see Appendix A). These were the research questions I sought to answer through a qualitative research approach:

RQ 1: What are the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text?

RQ 2: What are the perceptions of secondary school science and social studies teachers about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text?

In this qualitative study, the central phenomenon was that content area teachers struggled to teach informational text. The authors of the CCSS (CCSS Initiative, 2010) have identified literacy standards for science and social studies teachers to implement within their content instruction. Content area reading strategies and disciplinary literacy skills can be used by science and social studies teachers for informational text instruction. I used the conceptual framework as a foundation to explore and interpret key components of the study (see Ravitch & Carl, 2016).

In this basic qualitative design, I used in-depth semistructured interviews to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may have improved their knowledge and use of disciplinary literacy skills for informational text. A basic qualitative design is a systematic approach which allowed me to interview participants and gather first-hand knowledge and perceptions from teachers from which I interpreted and analyzed the data (see Ravitch & Carl, 2016; Rubin & Rubin, 2012).

After a review of various qualitative research designs, I had found that the other approaches were not in alignment with my study. Since this study did not focus on obtaining or developing a theory based on the opinions of participants and a comparison of data, the grounded theory was not employed (see Creswell, 2012). The narrative research design was excluded because I was not collecting the stories of my participants (see Lodico et al., 2010). The ethnography design was also not considered for this study, as it is a design used to examine cultural groups in their native setting over an extended

period (see Lodico et al., 2010). The phenomenological research design was not selected because it concentrates on the core meaning of lived experiences of individuals and their interpretation of the world instead of the perspectives of a group (see Merriam & Tisdell, 2015). Since case study is a distinctive focus on an individual or group as a unit for an detailed description and study, and it requires a complete investigation process of the unit, it was not suited to gathering perspectives from teachers (see Lodico et al., 2010; Merriam & Tisdell, 2015). Based on my exploration of the different qualitative research designs, I selected the basic qualitative design because I am interested in the participants' responses and in the research discoveries (see Merriam & Tisdell, 2015). I created a narrative based on their interviews with chosen participants to understand the collected, interpreted, and analyzed data (see Lodico et al., 2010).

Role of the Researcher

The researcher plays the key role in a qualitative study. My role in this study was to function as a human data collection and analysis instrument. In a qualitative study, the researcher is the main tool that is employed in the data collection and analysis (Merriam & Tisdell, 2015). Therefore, I collected, coded, analyzed, and communicated the findings of the study.

The participants for this study were secondary school science and social studies teachers at a local Midwest high school. There is a population of 20 certified and licensed science and social studies teachers. I had no personal or professional relationship with any of the potential participants, and I had no leadership or supervisory role with the teachers.

I am an ELA teacher, and I have been trained to teach students how to read both literary and informational text, how to teach content area reading strategies, and how to implement disciplinary literacy skills. Science and social studies teachers may not have had similar college preparation or PD to teach their students how to read informational text. I acknowledged and avoided this possible bias in literacy training. Also, I reduced possible bias by answering my own interview questions before interviewing participants to create self-awareness of my biases. To remain unbiased as a researcher, I purposefully noted and avoided any possible personal biases, and I consciously and deliberately attempted to avoid any biases as I conducted the interviews (see Ravitch & Carl, 2016).

I addressed and resolved any possible ethical issues during this qualitative study by using responsive interviewing. Responsive interviews affirm respect and integrity in building a trusting relationship between the researcher and the participant (Rubin & Rubin, 2012). I maintained the privacy and confidentiality of the participants and the research site. I reminded the participants that their identities and their responses to the interview questions would be protected. To clarify, the interview responses and the participants' names remained confidential. I assured them that all notes and study drafts would refer to them with pseudonyms, and that I would have been the only person with the code to their identities. The teachers were also assured that the data shared would not be used for evaluative purposes. They were promised that the purpose of the study and the data collected would be specifically used to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may

improve their knowledge and use of disciplinary literacy skills for informational text. I made the participants comfortable during the semistructured interview situation. In this way I was able to have an interview that was open and honest so I could gather their perceptions about their challenges and needs in teaching informational text.

Methodology

For my study, I interviewed eight secondary school science and social studies teachers at a local Midwest school to explore their perceptions of their teaching challenges and needed resources in teaching students how to read informational text. By using in-depth qualitative interview questions, I asked for honest answers from the participants to gain varied responses (see Rubin & Rubin, 2012). After the semistructured interviews were completed and the data were analyzed, I conducted a member checking process. Member checking allowed the participants to review my initial findings and provide feedback and clarifications for accuracy of the interview's narration, description, and interpretation (see Ravitch & Carl, 2016). More information about member checking is described in the trustworthiness section. From this analysis and interpretation of the themes, I answered the research questions in narrative form.

Before I selected participants, I notified the local school district administrators of the chosen local Midwest school that I would be conducting a study and would be collecting data. The school is not a partner organization since I am using public contact information to contact possible participants. I sought and received approval from Walden University's Institutional Review Board (IRB) by following the research ethics approval

checklist and completing all necessary forms and documentation. My IRB approval # is 03-26-21-0729274.

Participant Selection

Participant and site selection were important considerations in collecting data for this basic qualitative study to collect data from reliable sources in a comfortable setting. It was important to define and justify the site and participants for those choices (Ravitch & Carl, 2016). For ease of collecting data, the study was conducted in a local Midwest secondary school with teachers who volunteered and who met the participation criteria. The student population at the secondary school is approximately 700 students and 80 teachers. The district is comprised of a high school, a middle school, and two elementary schools. The district employs a superintendent and a principal and associate principal at the high school and at the middle school; of the 80 teachers, 20 teachers are certified and licensed to teach science and social studies at the secondary school level. There were nine science teachers and 11 social studies teachers.

After I secured approval from Walden University's IRB, I completed participant selection through a purposeful sampling method. Since the study was focused on secondary school science and social studies teachers and their perceptions, I used a purposeful sampling approach to identify participants who had specific knowledge about a specific phenomenon and who were able to answer the research questions (see Ravitch & Carl, 2016). In a purposeful sampling, the researcher deliberately selects participants who can provide insightful and extensive responses to questions about the study and its purpose (Lodico et al., 2010; Ravitch & Carl, 2016). From this purposeful sampling of

teachers, I conducted in-depth interviews to gather insights and understandings in response to the interview questions (see Mack et al., 2005).

By using the school's website, I identified the secondary school science and social studies teachers and their email addresses. I extended an invitation to the potential participants who met the criteria for their participation through their school email account. The possible participants were chosen by these criteria: (a) they would have been certified and licensed secondary school science or social studies teachers and (b) they have had a minimum of 2 years teaching experience. I verified each potential participant's certification and licensure through the state's Board of Educational Examiner's website.

I used eight participants from the population of the 20 science and social studies teachers. This sampling was sufficient for a qualitative study because the nature of qualitative research features depth of investigation over breadth of investigation as in quantitative studies. I maintained a balance of an equal number of science and social studies teachers of those who volunteered. Since I had not initially secured enough participants, I sent an email invitation to the teachers who had not replied with an inquiry for their reconsideration to participate. I accepted all who volunteered to participate. Each acknowledged their voluntary participation and responded to an informed consent form.

Instrumentation

My primary instrument for this study was myself as the interviewer and the in-depth interviews that I conducted with the participants. Instruments used in this qualitative study were the tools and forms used to collect information from participants

such as interview guides and scripts (see Mack et al., 2005). I had scripted opening and closing remarks for each interview to maintain consistency and continuity of the interviews (see Appendix B). I prepared a set of interview questions that I asked each participant so that I could gather their responses to the interview questions (see Appendix A). To ensure trustworthiness, instruments used were reliable, credible, and dependable (see Lodico et al., 2010). I controlled threats to validity. For in-depth interviewing, I followed this protocol: (a) built rapport and created a positive and conducive atmosphere, (b) emphasized the participant's perspective through sincere interest in the responses and respected the participant's expertise, and (c) adapted to individual differences by adjusting my style to meet the style of the participant (see Mack et al., 2005).

The conceptual framework, the CCSS, was used to create the interview questions. I focused on the first two CCSS disciplinary literacy benchmarks for science and social studies: key ideas and author's craft. Key ideas for science and social studies included summarizing the central ideas of a process or concept, following the directions, citing textual evidence, and conducting causal analyses (CCSS Initiative, 2010). Author's craft for science and social studies included knowing terminology, vocabulary, and word meaning; analysis and understanding of experiment or primary text; and procedure description or evaluation of authors' point of view (CCSS Initiative, 2010). Questions were written to seek participants' perceptions of craft and structure. This included identifying content specific vocabulary and analyzing relationships among content related concepts (see CCSS Initiative, 2010). The questions allowed me to explore the perceptions of secondary school science and social studies teachers about the challenges

of using disciplinary literacy skills to teach informational text and about the training and resources that may have improved their knowledge and use of disciplinary literacy skills for informational text. I audio recorded the in-depth semistructured interviews conducted through Zoom by using the recording feature within the platform. In semistructured in-depth interviews, the participants were the experts, and in a friendly and cordial manner, I asked questions, listened closely to the answers, and continued to ask any necessary follow-up, open-ended, or probing questions to gain understanding or clarity (see Mack et al., 2005). I transcribed these recordings and analyzed the collected data. The participants completed a member checking. Member checking is the act of forwarding findings or summaries of findings to participants for their review to ensure that their responses were not prejudiced by my biases (Ravitch & Carl, 2016; Saldaña, 2016).

Procedures for Recruitment, Participation, and Data Collection

Before I began any of these steps, I secured approval from Walden's IRB. After I received the IRB approval, I recruited and invited teachers to be a part of my study. To maintain participant confidentiality, administrators of the local Midwest school did not know who was participating. The results were not disseminated to the superintendent or to the principals since the "local Midwest school" is not a partner organization for my study. The results were disseminated to only the participants.

Recruitment

There is a total population of 20 secondary level science and social studies teachers at the local Midwest school. Using the school's website, I collected the school email addresses of those 20 teachers. I sent an invitation and an informed consent form to

each of 20 teachers. I extended an invitation with information about my study, the interview process, the risks and benefits of the study, and my contact information. I also explained to the potential participants the requirements and the procedures to ensure participant confidentiality. The message also explained that their participation was voluntary, and that they could withdraw at any time from the study. Those interested teachers were asked to reply, "I consent" in response to the informed consent form through their personal email account. I accepted all eight participants who responded. I notified the eight respondents of their acceptance, and I thanked those who declined for their time and consideration.

Data Collection

After I had confirmed the eight participants, I scheduled Zoom interviews within a 2- to 4- week period outside the school day at the convenience of the participants. I was flexible and accommodating to complete the 45- to 60-minute interviews with each participant. I audio recorded each in-depth semistructured interview. After I transcribed each interview, I coded and analyzed the data for initial findings. I asked each participant to complete member checking. Member checking is the act of forwarding findings or summaries of findings to participants for their review to ensure that their responses were not prejudiced by my biases (Ravitch & Carl, 2016; Saldaña, 2016). The average time for participating in member checking was about 15 minutes per participant. At the conclusion of the interview, I thanked each participant for their contribution to my study. Furthermore, I maintained the confidentiality of the participants names throughout the study.

Data Analysis Plan

I asked the participants the interview questions aligned to each of the research questions to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may have improved their knowledge and use of disciplinary literacy skills for informational text. Because transcription could have been time consuming, I transcribed them using a voice-to-text feature through my word processing document; I then listened to the recording repeatedly to make any necessary corrections on the transcription and to add any nonverbal interactions (see Lodico et al., 2010). To analyze the participants' responses to the interview questions, I coded the collected perceptions. Coding is the systematic method of identifying meaning from the data by classifying the collected data into categories (Lodico et al., 2010; Ravitch & Carl, 2016).

In transcribing the recordings, I maintained accuracy and credibility. Accuracy is the detailed description that was created so that the participants saw themselves with clarity; credibility was careful description of the facts because the participants spoke from first-hand knowledge and experience (Rubin & Rubin, 2012). I completed tasks to ensure accuracy and credibility such as transcribing the recording word for word including mispronunciations and pauses and proofreading the transcription (see Mack et al., 2005).

Coding and Theme Development

Open coding is a strategy used by researchers to examine collected data and to abstract connections among them (Lodico et al., 2010). According to Creswell (2012),

open coding is a strategy of organizing data into chunks of text and then assigning a word or phrase to the segment to develop a general sense of the information. To open code the interview data, I searched for repeated words, phrases, and concepts that pertain to the framework and related literature. Once open coding was completed, I followed with theme development. Lodico et al. (2010) stated that a theme is the combination of several codes that describe the big idea and explains the learned information from the study. Creswell (2012) states that theme development consists of answering the research questions and forming an extensive understanding of the central phenomenon. I used thematic analysis to identify patterns among the codes. Thematic analysis is a method to reduce and analyze qualitative data to identify the key concepts through segmenting, categorizing, summarizing, and then reconstructing the data (Given, 2012). A thematic analysis was completed to organize the data into themes.

I used a thematic analysis strategy by employing the following steps: (1) I familiarized myself with the collected data to gain general meaning from the participant's responses by reading the transcripts several times, and I made marginal notes such as questions or reminders; (2) I generated initial codes by highlighting passages of the transcribed texts and linking them to common ideas and grouping them under initial thematic concepts; (3) I organized participants' statements and grouped them into subthemes using different a highlighter color for each participant; (4) I reviewed and renamed the subthemes into final themes representing overarching research data ideas; (5) I used the CCSS conceptual framework of disciplinary literacy skills for content area instruction to organize the subthemes into final themes; and (6) I produced a final report

consisting of an overview of the participants' collected perceptions (see Braun & Clarke, 2006). At the conclusion of the study, I prepared and shared a one to two page summary to disseminate the findings to the participants.

I identified evidence of discrepant cases. Discrepant cases are those instances of data that do not fit in the determined themes (Ravitch & Carl, 2016). If discrepant cases were discovered, I identified them and addressed them in the data analysis with a detailed explanation (see Creswell & Poth, 2017). This detailed explanation either confirmed or extended the thematic analysis. This explanation also provided more depth to the analysis.

Trustworthiness

Credibility

Ravitch and Carl (2016) define credibility as the researcher's ability to take all the parts of the whole to unite all these considerations: (a) the research design and method, (b) the data analysis and interpretation, and (c) the role of the researcher and the data. I achieved credibility with the study's methodology, the participants' perceptions, and the analysis of the perceptions. Through the coding process, I identified the repetition of ideas and emerging themes (see Saldaña, 2016). Credibility is also evident by the researcher's use of well-chosen participants who are knowledgeable about the study's focus (Rubin & Rubin, 2012). The focus of the study was to collect the perceptions of secondary level science and social studies teachers. Since the participants who I interviewed for this study would have been a group of eight secondary science and social studies teachers from a local Midwest school, they offered their perceptions to the

interview questions. To establish credibility, I captured the participants' perceptions. I had the participants complete member checking. Member checking was the act of forwarding findings or summaries of findings to participants for their review to ensure that their responses were not prejudiced by my biases. To complete member checking, I had sent a one-page summary of the findings to the participants by email. I asked the participants to review the summary for accuracy of the data and absence of any personal bias. I asked them to complete this checking within a week. Furthermore, if the participants found the summary accurate and void of bias, I asked them to respond to the email with "I approve." If the participant found errors in either the accuracy of interpretation or inclusion of bias, I asked them to respond with "I disapprove." I then contacted the participant to arrange a phone call or Zoom meeting to discuss their points of concern for possible revision. To ensure credibility, the researcher should consider their style of questioning, their allowance for the participant to respond openly and freely, and their ability to listen without bias (Ravitch & Carl, 2016). Trustworthiness is secured through establishment of reflexivity. Reflexivity is qualitative researchers' attention to themselves, to their understanding of themselves, and to their assumptions about themselves, others, and the world to reflect on their role in the research (Ravitch & Carl, 2016). This is a method used by researchers to consciously acknowledge their assumptions or preconceived ideas prior to conducting the study that could have later been used in analysis to reduce bias in results.

Transferability

Transferability is the transference of the study and its results to broader contexts (Ravitch & Carl, 2016). To increase the potential for transferability, I included rich descriptions and specific details about the context of the participants' responses. The purpose of this qualitative study was to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may have improved their knowledge and use of disciplinary literacy skills for informational text. The results of this study may be transferred to other secondary school science and social studies teachers who may have similar challenges and needs in teaching informational text and using disciplinary literacy. I considered several factors to construct transferability: (a) describing the various factors of this study, (b) interpreting the data for contextualization, (c) describing the factors of this study in full detail, and (d) writing for clear understanding (see Ravitch & Carl, 2016). College professors who teach science and social studies methods courses may consider the results and develop their methods classes to include informational text reading and disciplinary literacy instruction. School administrators who develop PD may consider the results in developing disciplinary literacy training for science and social studies teachers.

Dependability

Dependability is achieved if the collected perceptions answer the research questions (Ravitch & Carl, 2016). I followed and included the necessary steps to complete this study to make it stable: (a) an explanation of the research design and its

rationale, (b) a description of my role as a researcher, (c) a detailed description of the methodology including participant selection, instrumentation, and various procedures, and (d) a description of the data analysis plan. I considered several factors to construct dependability: (a) justification of my research method, (b) creation and use of a method map, and (c) development of a rigorous study (see Ravitch & Carl, 2016). Through in-depth semistructured interviews with the participants, I collected their perceptions to the research questions, and through in-depth interviewing, I gathered all the information possible and learned from that information (see Mack et al., 2005).

Confirmability

Confirmability is the acknowledgment of possible biases or prejudices of the researcher that may influence the study or the results (Ravitch & Carl, 2016). Ravitch and Carl state that though the researcher may not have been objective, the researcher tries to remain neutral. Reflexivity is the assessment of the researcher, the research, and the subjectivity (Ravitch & Carl, 2016). To establish reflexivity, I used a research log to detail my steps in the research and my progress. I also sought a thought partner or trusted colleague throughout this study to check on my subjectivity (see Ravitch & Carl, 2016). Reflexivity was accomplished by this deliberate method of seeing myself as a researcher and my role in the research.

Ethical Procedures

Before I began any research, I followed the guidelines offered by my dissertation chair and the protocol and policies as established by Walden University's IRB. I completed and submitted the IRB application before I completed any qualitative research

involving participant selection or data collection. I contacted the administrators of the local Midwest school with a letter for their awareness about the intent of my study, the involvement of the participants, and the possible social change that may be gained through the analysis of the perceptions collected from their teachers.

There were 20 science and social studies teachers who met the criteria as potential participants. I attempted to recruit eight to 12 participants, and after two attempts, I secured eight participants. Participants were informed that they could refuse participation at any time during the research process. I treated my participants with courtesy and respect for their assistance in this study, and I did not pressure or coerce them at any time.

The perceptions that I collected, and the participants' identity were confidential to the extent that each participant was given a pseudonym for their identification. I did not share the participants' interviews except through the collected, coded perceptions as presented in the final dissertation. I stored the audio recordings and all corresponding transcripts on a flash drive that I kept in a lock box. My possible bias included my education and training in teaching informational text and disciplinary literacy. To avoid any other biases, I answered the interview questions for personal awareness of possible bias.

Summary

In Chapter 3, I explained the research design and rationale and the role of the researcher for this qualitative research design study. The chapter also included the methodology to be used in this study including the participant selection, the

instrumentation, the procedures for recruitment, participation, and data collection, and the data analysis plan. For this study, I exclusively used interviews to collect and code the perceptions of secondary school science and social studies teachers in a local Midwest school. The purpose of this qualitative study was to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may have improved their knowledge and use of disciplinary literacy skills for informational text.

I also discussed the study's trustworthiness. I developed credibility by capturing what the participants believed, experienced, and perceived through member checking. Transferability was accomplished by gathering and describing their perceptions so they may be compared to other secondary science and social studies teachers' perceptions about teaching informational text. I used rich descriptions and details from the collected data. Dependability was fulfilled through conducting in-depth semistructured interviews through a detailed and procedural method for data collection and analysis. Confirmability was met by avoiding biases and maintaining trustworthiness. In conclusion, I discussed the ethical procedures that I followed to continue the study.

In Chapter 4, I describe the setting for this qualitative study. I also explain the methods for data collection and analysis. I report on the results and the responses to the research questions to identify secondary science and social studies teachers' perceptions about their challenges in teaching informational text and the needed resources to improve

instruction. I identify the evidence of trustworthiness by describing the study's credibility, transferability, dependability, and confirmability.

Chapter 4: Results

The purpose of this basic qualitative study was to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text. Using the CCSS as my conceptual framework, I conducted in-depth semistructured interviews to gather perceptions of science and social studies teachers about content area reading and disciplinary literacy skills. I interviewed participants from a local Midwest school, and I used the research questions to create open-ended, probing, and follow-up interview questions to gather participant perceptions:

RQ 1: What are the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text?

RQ 2: What are the perceptions of secondary school science and social studies teachers about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text?

In this chapter, I discuss the qualitative research design and approach, the research setting, the participants, and the processes for data collection and data analysis. I explain my method of data collection, and I offer the data analysis details including coding and categorizing of the transcript data. Finally, I report my results of the gathered perceptions from secondary level science and social studies teachers in a local Midwest school. I included the evidence of trustworthiness with explanations of credibility, transferability,

dependability, and confirmability. I close this chapter with a summary of my findings and answers to the research questions concerning the challenges and needs of secondary school science and social studies teachers in teaching informational text.

The Setting

The exact setting of the local Midwest school was representative of many rural district schools in the Midwest. This school district used for this study included the middle school for Grades 5-8 (approximate enrollment of 490 students) and the high school for Grades 9-12 (approximate enrollment of 515 students). The participants in this study taught in either the middle or the high school. Each science teacher had a traditional classroom of individual student desks and laboratory stations for science experiments; social studies teachers had a traditional classroom.

At the time of this study, the nation, the state, and this district faced the demands and the needs of students during the Covid-19 pandemic. This particular school made many instructional transitions ranging from virtual to face-to-face and to a hybrid delivery in accordance with district guidelines and state mandates. Because of this unexpected disruption, all previously scheduled PD was postponed for the year, and instead, much of the teachers' PD focused on virtual instruction itself and building coursework on the school's online platform.

Though I wanted to secure eight to 12 participants, I secured the necessary minimum to conduct my study. The eight participants in this study were all state certified teachers with the necessary and required endorsements to teach either science or social studies or both at the secondary level. There was equal representation of participants

teaching science and social studies with one teacher who taught both content areas. All participants met the requirement of teaching at least 2 years. All participants faced the similar and unique challenges of teaching during the Covid-19 pandemic and adjusted to many schedule changes by adapting and modifying goals and lessons from the mid-semester of the spring semester in 2019 to mid-semester in the spring of 2021. To maintain confidentiality, participants were identified as Participant 1, Participant 2, and so on.

Data Collection

I followed a systematic method for data collection. I identified all possible participants from the school's website, and then I contacted them with a letter of invitation with an informed consent form. I asked interested participants to respond through their personal emails to me with the words, "I consent." In this introductory process, I received confirmation from eight participants.

Because of the Covid-19 pandemic, the school administrators did not allow anyone to enter the school buildings except faculty, staff, and students, so I conducted all interviews through Zoom. I purchased a Zoom account so that I could maintain the conference beyond the complimentary 40-minute limit. Each interview lasted from 30 to 60 minutes. I invited the participants to choose from a variety of dates and times at their convenience to schedule interviews within a 3-week period. After each participant responded with an indication of their chosen date and time for their interview, I created and sent Zoom invitations to their personal email accounts. While I conducted the interviews in the privacy of my home office, the participants chose their own location for

the interview. As much as possible, I tried to make them comfortable during the interview to elicit honest and open responses.

Using the record tool of Zoom, I audio recorded each interview. I began with a welcome statement. After I asked for and received recording permission from the participant, I said, “I will now start the recording.” I then conducted the interview using the protocol (see Appendix B) and using the prepared interview questions (see Appendix A) to gather their perceptions. At the close of the interview, I said, “I will now stop the recording.” After I had the audio recorded interview, I replayed it while using the Google voice typing tool to create a working draft of a transcription. I meticulously and repeatedly reviewed each recording and made any necessary corrections or revisions on the transcript for accuracy and precision. The audio recorded interviews were transcribed with indications of pauses and phonetic spelling, and then I coded and categorized the transcripts and identified the themes (see Saldaña, 2016). I also delineated and identified my research questions as well as the follow-up, probing, or open-ended questions for each response within the transcript.

I completed an initial coding of each transcript using key words from the research problem, the research purpose, the research questions, and the conceptual framework. I then identified categories from the codes, and finally, I began a thematic analysis of the responses. All data were kept secure by password protection, data encryption, use of pseudonyms in place of names, and storing names separately from the data.

Data Analysis

Using in vivo coding, I transcribed the eight interviews including pauses and phonetic spellings. In vivo coding allowed me to remain as true to the meaning of the participants' responses as possible (see Ravitch & Carl, 2016). After I read and reread the transcripts many times, I then added notations in the margins and used colored highlighters and Post-It-notes to identify words, phrases, and concepts to code the transcriptions. I used the research questions and the identified perceptions of science and social studies teachers about the challenges and needs of using disciplinary literacy to teach informational text, as the basis for coding, categorizing, and identifying themes.

While reviewing the delineated transcripts I searched for common words and frequently used phrases. The following codes were identified in my review of the transcripts and were used to name the challenges and needs of science and social studies teachers:

1. Implementation and inclusion of standards.
2. Students' varied reading and comprehension levels.
3. Students' attitude and motivation.
4. Teaching paraphrasing skills, predicting outcomes, and vocabulary.
5. Training needed for disciplinary literacy.
6. Teachers need new materials and resources.
7. Teachers need multi-level informational text.
8. Teachers need more time for planning and collaborating.

I reviewed the transcripts again to verify the codes. From these eight codes, categories emerged that were related and reflective of the research questions. These categories emerged for teacher challenges:

- Implementing disciplinary literacy skills.
- Students' varied reading skills and comprehension levels.
- Students' varied skills of paraphrasing, identifying key ideas, predicting outcomes, and vocabulary.

These categories emerged for teacher needs:

- Professional development.
- Reading materials and resources.
- Time for collaborative lesson planning.

From these categories, these themes emerged for both the challenges and needs of the teachers:

- Incorporating literacy skill instruction into content area instruction is an area of concern for science and social studies teachers.
- Varied student reading levels, reading skills, and vocabulary challenge content area teachers.
- Professional development and classroom resources are needed.

The problem that prompted this qualitative study was that secondary school science and social studies teachers struggled to teach students how to read and understand informational text. During this coding process, I used the research questions to gather science and social studies teachers' perceptions for study and analysis (see Table 1):

RQ 1: What are the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text.

RQ 2: What are the perceptions of secondary school science and social studies teachers about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text?

Table 1

Data Analysis Categorization and Theme Identification

Research Question	Categories	Themes
RQ 1 – What are the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text?	Challenges: • Implementing disciplinary literacy skills. • Students' varied reading skills and comprehension levels. • Students' varied reading skills of paraphrasing, identifying key ideas, predicting outcomes, and vocabulary.	1. Incorporating literacy skill instruction into content area instruction. 2. Varied student reading levels, reading skills, and vocabulary.
RQ 2 – What are the perceptions of secondary school science and social studies teachers about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text?	Needs: • Professional development. • Reading materials and resources. • Time for lesson planning.	3. Professional development and classroom resources are needed.

Research Results

In this section, I explain and analyze the three themes that emerged from the coding and categorizing processes: (a) incorporating literacy skill instruction into content area instruction; (b) varied student reading levels, reading skills, and vocabulary; and (c)

PD and classroom resources are needed. These themes emerged from the coding and categorizing of data collected and recorded on transcripts from the audio recordings of the interviews with eight secondary level science and social studies teachers from a local Midwest school. The data were coded and organized into eight categories. Using the interview transcripts, I explained the themes with data collected from statements of the participants or through summary explanations. The participants were identified by a number to conceal their identities and to maintain confidentiality.

Theme 1: Incorporating Literacy Skill Instruction into Content Area Instruction

Theme 1 applies to RQ 1. All the teacher participants expressed concern about not only implementing the CCSS's reading standards into their reading instruction of informational text but also the new content area reading standards of NGSS and C3 Standards. Participant 1 said:

> As for the rest of the team, we have been and are constantly transitioning to the NGSS. Most of us are no longer working with the Iowa Core; we are working with the NGSS. If you look at NGSS, every kind of underlying principle has to do with using an inquiry not with "This is *a* plus *b* equals *c*."

Participant 1 continued with the explanation of the teacher's role: "I use a science inquiry and student's writing and reading to get at ideas in science literacy, and I develop critical thinking skills which is really at the core of the NGSS." Participant 2 explained that the students are "supposed to figure out science concepts on their own first, and then go into the reasoning." Participant 3 explained a concern about the change in reading text, "In my classroom, we don't use textbooks due to going to NGSS. A lot of our curriculum is

using informational text such as articles or small snippets, magazines articles, or research studies to actually get the curriculum across."

Participant 6 expressed another concern about the focused change of the standards from CCSS to NGSS:

> Because we grade on standards, at the end of the quarter, I can't say, "Oh, I didn't get to that one." Sometimes I feel like there's just not enough time for me to actually reteach a standard or a benchmark again to make sure that the students have mastered it. Sometimes I have to leave things and move on, and I say, "Well, we didn't *really* master that standard or benchmark. We only did *okay* on mastery." -- that's probably my greatest challenge.

The science teachers also discussed the storylines which are a teaching component of the NGSS materials. Participant 4 noted that materials are available:

> There are individuals who are doing nothing but creating these great storylines based around a science phenomenon, so there's either a photo, video, or piece of text that is just *weird* science, some strange phenomenon. That's always how we start off a unit.

Participant 1 further defined storylines: "We take the big idea and try to ask questions to break it down and then get back to the little parts to put it all together and synthesize it at the end." Participant 3 said:

> With the storylines we're trying to ask, and we're trying to have students ask questions, and so many times it's trying to align to a specific point or a part of the

> standard. We use NextGen storylines which are one- to two-page article that are used for informational text in our classroom."

Because of the change to the NGSS and the use of storylines, Participant 1 said:

> I personally want to learn more about NGSS storylines because even though I know they are very powerful; I haven't used them much. Using that inquiry process is going to make me more proficient and a better teacher. I will be more conscious of how I use science literacy. Because by using a storyline, we're trying to tell a story: "How do we know what?" or "What is this phenomenon?" for example, "Why don't satellites fall on our heads?' By going through that inquiry process, I could see some very positive developments in science literacy.

Participant 4 explained the use of the storylines to resolve some of the challenges:

> My colleagues and I have been utilizing a lot of great storylines that have been coming out that address the NGSS standards: The standards include readable text, crosscutting concepts, science and engineering practices, and disciplinary core ideas.

Participant 5, a social studies teacher, offered comments about the C3 standards and expressed some confusion about them:

> The C3 standards are the *new* standards? There's an economic component, a 21st century skill component, and more. In 6th grade, they teach geography skills, and in 7th grade, it's world issues. And then in high school, U.S. history starts at the Civil War and goes to present, and in middle school, they start with the early settlement and go to the start of the Civil War.

Teachers faced challenges in understanding and implementing the various reading standards into their instruction.

Teachers expressed their views about using informational text and primary sources as the basis for content area reading use and classroom instruction to meet the expectations of the CCSS, NGSS, and C3 standards. Many of the teachers used informational text and primary sources. Participant 8 said “In every module we use primary sources.” Participant 4 said, “We use informational text almost on a daily basis. I use websites like Newzilla, the *New York Times*, the BBC, and other news outlets.” Participant 4 added, “I provide articles and excerpts from research studies so that students can look for evidence to support a claim in science.” Participant 7 explained the use of informational text, “It's a huge part of 7th grade now. It's a global studies class and there's not really a textbook; we use primary sources We use a lot of magazine, newspaper, and journal articles and informational videos.” Participant 5 explained that “We do not read an entire historical document, but we will use excerpts from historical documents that fit the content that we're studying.” Participant 8 had a similar response: “We’re using primary sources such as first-person accounts, letters, and documents written in the time period by someone who was living and experiencing that time period.”

> Participant 1 identified a benefit to the addition of informational text:
>
> The use of informational text got me thinking more about how I need to incorporate more literacy instruction. It wasn't like a giant A-HA moment, but it was one of those moments: “What if I ask more open-ended questions and allow more interpretations on the students’ side?’ Yes, I'm going to get the wild and

> incorrect answers, but just as often and probably, more important, I'm going to get a clue into what students are actually thinking about the informational text.

However, Participant 1 pointed out a difficulty encountered during their efforts to incorporate disciplinary literacy skills into lessons using informational text:

> Getting students to actually read the text is one of the more difficult things I face. It's really hard to know how to motivate students to actually take the time to read the text, especially if they get the idea, "Oh well, the teacher is going to tell us what to know anyway."

Science and social studies teachers' core reading materials are informational text ranging from their actual text book to primary sources.

With the inclusion of informational text and primary sources, these participants used or attempted many different methods to teach content area reading strategies and disciplinary literacy skills. Participant 1 explained the challenge to teach these strategies and skills: "Getting students to go outside their comfort level is a challenge for all teachers, but I think it's a unique challenge to science teachers." Participant 4 used this method for teaching content area reading:

> I give the students a guiding question before they read any informational text whether it's a visual or actual, I want them to use this question as they are reading through it and to annotate the places that help you answer this guiding question. It's very frustrating that they tend to just go through and identify words in bold with the definition. They're not deeply thinking. My frustration is that the students are not able to connect important pieces of text together to answer the question.

Participant 7 explained a frustration in teaching content area reading: “My frustration is finding activities that will encourage the students to read for comprehension. I want them to read for understanding rather than just finding the answer and being done -- that's the main problem that I'm dealing with.” Participant 5 explained their method to get students to think like a historian or a social scientist:

> I’ve been able to model a vocabulary reading strategy with them: As I read aloud, I’ll stop and say “Hmm, What does this word mean?”, and I’ll take the time during to actually look up the word’s definition, and write it in the side margin. I want them to know the vocabulary and not just skim over words that they don’t know.

Participant 3 explained an approach for using the NGSS and its storylines as a method for inclusion of informational text:

> With the storylines that we're teaching, we're having the students ask questions to master identified standards. This includes adding new information or details to current knowledge and helping them build upon that knowledge. We want them to ask, “What’s the next idea?” or “What’s the next step?” by providing background knowledge as a learning foundation.

Teachers lack the instructional methodology to engage students in reading informational text.

Theme 2: Varied Student Reading Levels, Reading Skills, and Vocabulary

Theme 2 aligns with RQ 1. The participants noted the challenges of teaching students informational text and disciplinary literacy because of the variety of the

students' reading and comprehension levels. In reference to standardized scores**,** Participant 5 said, "How do we as teachers find the students' reading level based on those scores that we can look at. It comes down to 'How do I find the appropriate text for all of the levels?'" Participant 2 said the challenge was "identifying the different levels of students and, of those students, identifying 'Who needs just a little bit more guidance?' and 'Who do I need to be assisting?' So, identifying the different levels is a challenge." Participant 2 explained the challenges in teaching students' disciplinary literacy skills to understand the reading content: "The first challenge is to get them to read. The second challenge is determining their level of reading, for others it's differentiating for the different reading levels." Participant 4 further explained other reading instruction struggles:

> I teach 11th grade, yet I have a wide range of reading abilities in my course; I have students who have 504s and IEPs. Some of the challenge is simply the students' reading ability. The articles I try to use are grade appropriate, but I have students that have a fourth-grade reading ability in some cases, and I have students who find that reading is too easy for them. Finding the right level is a challenge.

In another reference to using informational text, Participant 3 said that a challenge is identification and location of resources, "One of the challenges is the opportunity to find up-to-date information at the appropriate grade levels."

Locating materials for grade-level or reading-level abilities is a challenge for teachers.

In addition to the various grade-level reading abilities, the participants conveyed concern about the students' other reading skills. Participant 1 explained that teachers have no control of the students who come into their room with varying abilities and that "There are some students I can help, but some of them are out of my control. I don't know how to help them." Participant 1 added that student attitudes are an additional challenge; "14- or 15- year-old students are coming into my class with an 'I don't care' attitude about reading." Participant 1 also said:

> The challenge of using informational text is getting the right level because something that might be typical for advanced chemistry students is going to be maybe too abstract and a little too above on the average reading level for a14- or 15-year-old freshman.

Participant 1 offered insight to understanding the varied reading levels:

> Honestly, the ability to read and understand is dependent on the student. I see variations in general education classes between reading abilities. Some kids really struggle; some kids, if I give a reading assignment to them, they'll read it, and they'll know it forever. This is the real difficulty -- it's hard to find material that's not too easy for some students and not too hard for others.

Participant 8 expressed another concern about the general education students with low proficiency and students with identified learning needs: "The challenges I have are with both my resource room students and with students who are not strong readers." Participant 7 expressed similar concerns and explained a method of reading instruction for informational text:

> I have students of all different reading levels. Some students really struggle with reading informational text and for my higher-level reading kids, the text is not challenging enough. It becomes a little tricky to find appropriate texts for all levels.

Participant 8 explained that there seemed to be minimal fundamental reading skills at the lower grades:

> I believe that the students' language acquisition is not there or not where it should be. If the students don't have the needed language skills, they can't understand what they're reading. If a students' reading comprehension is low, it's even harder to read when they don't have language acquisition. You will have a deficit in reading comprehension when the language is seemingly *foreign*. If words are not sight word or words that they're not used to hearing or reading, the struggle is an increasingly layered difficulty.

Participant 8 also stated that needed fluency reading skills are absent that are needed for the rigors and complexity of secondary school reading CCSS expectations: "The students from the middle school are not coming to the high school with any fluency abilities, so maybe the students can comprehend the material, but they only read 55 words a minute." Teachers face struggles with not only students' reading skills but also their reading abilities.

Both students and teachers faced other challenges in learning and teaching content area reading strategies and disciplinary literacy skills. Participant 1 explained a teaching and learning struggle:

> If students don't have strong reading comprehension or don't like to read or don't care, and unfortunately, I encounter these students all the time, it's really difficult to use science literacy as part of my instruction. If I give students something to read, many are going to tune out. They want the answers, some of them are like, "Awww, I don't care." These are the real challenges.

Participant 8 explained another teaching and learning struggle in teaching content are reading:

> During one project based on reading, one of the best students I've ever had was weeping in the class. Their frustration level goes up with this kind of informational text if I push too hard or I don't carefully choose the materials.

Participant 6 explained a frustration with securing appropriate materials to meet the needs of the students with varied abilities:

> In a science class, I had the class use the same article and to talk about it before we did the activity. I found an alternate reading selection that was so far below the students at first- and second-grade level. I do have some students at that level, but I needed a *medium* selection that wasn't so low. So, I just gave up.

Participant 1 said that students' attitude toward learning affected their comprehension:

> Some students will say "Sure, sure, I'll try; I don't care if I'm right or wrong, but I'm going to try anyway." That's actually a great moment when science teachers have those students. Those students are actually easier to teach than those that say, "What's the right answer?"

Participant 1 further explained the effect of the students' attitude on their learning:

> I teach content comprehension, but students are often afraid to make mistakes. They're afraid to be wrong.

Participant 7 explained a method that was a struggle to teach and for the students to learn:

> I have the students complete an activity, and I know that the learning activity is going to be difficult. I want you the students to really stop and think about it. I want them to explain their thinking in a way that is clear to anybody -- even someone who wasn't in the room. I struggle with getting them to slow down and take the time to do it well.

Participant 7 further explained the challenge of students hurrying through the reading of informational text:

> The main thing that I'm dealing with every year, but especially this year, is that students want to rush through the reading. They want to find *the* answer, and they don't want to slow down to read, think, and explore.

Participant 3 shared a struggle with students completing multiple steps to a reading task:

> If I'm talking about how to follow steps or looking through specific structures, it's getting the kids to actually follow those procedures or having too many procedures. I know that with certain students if I give them two tasks, they're more likely to complete it; if I give them seven, then that's too many -- so I keep it simple.

Participant 4 explained another struggle about content area reading for comprehension and the actual ability to read:

> I would say the biggest challenge is helping students to actually read the text for understanding at their grade level because so many of my students will not use tools like Google Read and Write that reads the text to them. They refuse to do it. The students say, "It's not *cool."* I really don't know what is the reason.

Teachers also face challenges with students' attitude toward reading content area informational text.

The participants identified more challenges based on students' varied skills of paraphrasing, identify key details, predicting outcomes, and vocabulary. The CCSS for science and social studies outlines for key ideas and details for the skills and abilities (science) "to summarize complex concepts" or "by paraphrasing complex concepts in simpler, but still accurate terms" and (social studies) to "provide an accurate summary that makes clear the relationships among the key details and ideas" (Common Core State Initiatives, 2010). Nearly all participants identified paraphrasing and summarizing as a struggle for them to teach and for students to learn and demonstrate. Participant 1 said that teaching and students learning that skill can lead to frustration:

> I try to keep paraphrasing instruction and practice from being frustrating, but students have a hard time paraphrasing something that they don't understand. I use paraphrasing to check on students' concept understanding. When I start adding new vocabulary and new phenomenon, some students really struggle with paraphrasing.

Participant 2 said that **"**Having students read and then summarize or paraphrase what they've read is challenging for students." Participant 2 identified more student challenges

and the value of summarizing and said: “When students summarize, they have to explain what they have actually read and put those ideas in their own words, and so they struggle.” Participant 3 explained the students’ challenge:

> Based on the reading, when students take their thoughts and then put it back on paper without copying word for word, but actually putting down their *own* thoughts while using evidence from the text, I find that students really have a hard time taking ideas and concepts out of the articles and putting them in their own words.

Participant 4 matched Participant 3 and stated, “I'm definitely concerned because many students cannot paraphrase. Adding to these comments, Participant 6 said:

> I would say paraphrasing is a challenge for my high school students. They can summarize fictional stories, but when it comes to non-fiction, they want to copy the information word for word. I’m not sure why paraphrasing is difficult. Students can’t discern such things as “What are the important facts?” or “What is the author’s viewpoint?” in order to paraphrase.

Participant 6 concluded and said, “Paraphrasing is probably the hardest reading skill.” Participant 7 attempted to offer paraphrasing instruction and said, “Paraphrasing is something that we've been working on within our last unit. Students struggle with putting the information in their own words.” Participant 8 matched comments of the others and said:

> Paraphrasing and summarizing both are really difficult skills for my kids, and those skills are really hard to teach. I do a whole unit on paraphrasing and

> summarizing. I would say that there's a plateau level of ability and understanding where students either can or cannot paraphrase in spite of me helping them. The ability or understanding is not there -- it's just a struggle.

Participant 1 also explained a similar challenge of paraphrasing instruction:

> I've noticed is that when students paraphrase, they really don't say anything new. They'll just throw the words back in a different way, not necessarily showing understanding. They just trying to rewrite the language in a way so that it looks different, but there isn't anything different.

Participant 2 offered a reason for this challenge and said, "To get the kids to summarize, they really have to understand what they've read and break down the text into a simpler form. I think *chunking* the main ideas is difficult for them." Participant 4 furthered Participant 2's explanation and said, "Paraphrasing is very challenging for some students because they don't understand what they're reading, so it's really hard to paraphrase something if you don't know what the text is saying."

Teachers are challenged in teaching the necessary CCSS benchmarks for informational text.

Many participants attempted methods of instruction to teach students how to paraphrase and summarize. Participant 5 said:

> I can model it through my understanding of the text, but again if a student doesn't understand a word or a concept, then they'll just recopy the words and maybe switch around a couple of words. I try to encourage them, as they read, to think, "Well, what does it mean?" I want them to be able to answer the question, "What

> does the reading mean to you?", and I have them write that down a summarization of understanding versus word for word of what they're reading.

Participant 7 explained a similar questioning method: When I pose these questions, "What did this really mean?" or "What was this author trying to say?", the students face difficulty because this understanding and responding requires them to really stop and think -- so that's a struggle."

Participant 4 explained another method of paraphrasing instruction:

> I gave them a graphic organizer hoping that could help them organize their thoughts because there is a lot of information, and it comes back to that paraphrasing, I wanted them to put it in their own words

Participant 7 also gave assistance to students:

> I make sure that I'm providing them with a text, first of all, that they understand. Second, I help them identify words or concepts that they don't understand, and I teach them how to handle that before they paraphrase it.

Several participants expressed concerned that too often paraphrasing and summarizing becomes plagiarizing. Participant 3 said, **"**The students are really quick to copy and paste without restating it in their ideas or even giving credit to the author." Participant 4 said:

> A lot of students just copy and paste because the text is online, and their notebook is digital. The students who paraphrased understood what they were talking about, but I can tell the students who just copied and pasted from the internet. Those students had no clue because they copied and pasted information that didn't answer the questions.

Participant 2 further explained a detailed lesson that included many literacy skills and the many students still plagiarized:

> The students were reading about electric forces. They had to read the text, put the headings, and take notes from the text. They also had to write down any vocabulary word, define it, and draw images that they saw in the text. And the last thing that they had to complete was a summary statement, an answer to the questions: "What's the big idea?" and "What's something that you remember from just this section?' in summary statements. What I found from that is that either the students didn't do it, or they just copied something directly from the text without quotation marks or citations.

Participant 8 said that "Student plagiarizing is horrible. The tendency is to just copy what the students exactly just saw. I mean they truly do. I say to them "You just copied and pasted." and then I have to explain paraphrasing again; it's a really hard skill. Finally, Participant 2 said, "With the summarizing, they have to be able to explain what is actually going on in their own words and so they struggle with it." Participant 3 explained another struggle with paraphrasing:

> Concerns that I have with identifying paraphrasing is that the instruction is not necessarily consistent across the board. I know other colleagues who will accept Wikipedia, and with other colleagues Wikipedia is not acceptable. And then "How do the students actually paraphrase?" or "What does that look like from class to class whether it's in science or social studies or English?"

Participant 2 offered a series of questions to guide student to avoid plagiarism:

> To avoid plagiarizing I make sure that the text is in their own words and having them ask themselves, “How much do I need to include?” or ‘How much should I include from the text?” or “How much should be completely in my own words?” I make sure that the students can read the informational text, and then I teach them how to formulate their own ideas or thoughts from it.

Participant 5 explained their use of metacognition for paraphrasing instruction:

> Paraphrasing is a hard skill to teach because, when I take a note, when I paraphrase for myself, it's from my understanding of the term or from what I read. And so, to help the students go through that when they just want to copy word for word almost, I model my thinking for them.

Teachers struggle with teaching paraphrasing and summarizing so students can avoid plagiarizing.

The CCSS for science and social studies outlines for key ideas and details for the skills and abilities (science) of citing “specific textual evidence to support analysis of science and technical texts” and (social studies) of citing “textual evidence to support analysis of primary and secondary sources” (CCSS Initiative, 2010).

Participant 3 identified that the disciplinary literacy skill that appears to be the most difficult for students: “I would say identifying specific evidence.” Participant 4 also said that “identifying what is evidence to support a claim is probably the hardest overall challenge to teach students.” Participant 4 continued to explain and said, **“**The students understand it, but they don't know how to pick out most important evidence to support the claim that's being made.”

Participant 3 stated the while students may be predicting outcomes, gathering evidence is important to science comprehension: “In science, we’re not necessarily always predicting outcomes. but we are providing evidence and samples. I want the students to use the data that's there to understand the context.”

Participant 4 explained this challenge:

> One of the difficulties in teaching identification of key details is that it is hard to help the students understand what are the most important parts of the text. The students will highlight everything, underline everything, or the students won't do it at all because they feel that “Well, it was all important!”

Participant 3 made a connection between students’ paraphrasing and identifying key ideas:

> In reference to challenging reading skills, some students may take their thoughts and then put them back on paper, not necessarily just copying it word for word, but actually putting their own thoughts, with added evidence. And sometimes kids will make really broad statements, and I ask, “Where did you read it?’ And students are actually using those context clues, the data, and the evidence that they've actually found in the articles.

Participant 3 said students were hesitant to draw conclusion based on evidence and “to actually make conclusions or an inductive jump if the text doesn't literally point out the answer to the question. Sometimes it's hard to bridge that gap between what's being read to what should be concluded.” Participant 6 identified and explained a challenging reading skill of identifying key ideas and using text features:

> A literacy skill that probably is the most difficult to teach and to learn is *deciphering* important information. I want them to know what is really important in the reading in either an article or the story: "What is really necessary to answer the question?", "Where do I go back to find the answer?', "How do I use those heading to help me?", or "Well, if the answer is here, but it's not jumping out at me, how do I find it?" That's difficult for them: "Where should I look in the article or the reading to find the answer to the question?", and "How can I use the headings and other text features to help me?" That's difficult for students to do.

In reference to identifying key ideas for categorization, Participant 7 said:

> One of the reading skills that is a struggle every year is categorizing. I give them four categories of information, and they have to figure out in this long article where that the information fits. Categorization is something that the students always really struggle with.

Participant 7 further explained this challenge:

> If I give them students categories of information to look for, and there are some things that are very clearly into one category or another, but the student won't slow down and don't really think about their answers. They miss a lot by trying to speed through it. I'm really struggling with how to teach them to just take their time and think.

Teachers also struggle with teaching students to identify key ideas and determine evidence.

The CCSS for science and social studies outlines for craft and structure for the skills and abilities (science) of analyzing an explanation, a procedure, or an experiment and (social studies) of analyzing how "larger portions of the text contribute to the whole" (CCSS Initiative, 2010). Participant 1 offered an explanation of the challenge of teaching outcome prediction in classroom instruction:

> Correlation does not equal causation. It is always a tough to teach students to get at the basis of trends. Sometimes the student can pick up trends and then use trends to predict outcomes, and I may be really straightforward and make a lot of sense if all this kind of falls into place. But unfortunately, constantly in the background, there are misconceptions that are really close to the truth, but not quite true. And so, I try to teach students to sort those subtle differences in language using science literacy and trying to get to "Are you *really* understanding what's going on? or Are you just at the surface level of understanding?' Teaching outcome prediction is always a challenge.

Participant 1 said:

> While predicting outcomes is the main goal of science, I try to teach them not necessarily, "What's the right or wrong answer?", but "What is a logical process that goes from beginning to end that can be used to evaluate scientific context?"

Participant 2 made a similar connection of outcome prediction to the content area and said, "Predicting outcomes works well with science because the students can form their hypothesis, they're introduced to the problem, and then they have to make a prediction as to what's going to happen next." Participant 4 was unable to make any connections

between outcome prediction and content area reading, and said, “I'm not 100% sure how to apply outcome prediction to the type of readings we do. It could be because I probably don’t know enough about that application in science?” Participant 5, a history teacher, used outcome prediction for lesson planning and said:

> In planning my lessons with outcome prediction outcome is like a cause-and-effect relationship. We used Wilson and Roosevelt’s speeches asking to declare war, and we’ve done a cause-and-effect unit.

Participant 5 further explained the application of outcome prediction to lesson development and said:

> I pose these questions to the students, “What are your options?” and so then they predict again. And then we may consider, “Well, try this since that didn't work.” So then we predict again. And this instruction works really well for the students to look at the pros and cons and think: “What would be a good outcome in predicting what may happen?”

Many teachers explained their attempts and their struggles of using outcome prediction as a tool for lesson development. Participant 8 explained:

> I haven't had as much of a problem with outcome prediction as I have with some of the other skills, but I always have the concern “What if they can't do it?” And there are those days where the students just predict crazy things. I then back up and do some re-teaching.

Participant 2 cautioned that “The students must be able to identify misconceptions because if a student makes a prediction, how are they going to support their answer?”

In reference to outcome prediction, Participant 3 said, “A lot of times prediction may be step-by-step or kind of using data to draw the next conclusion; I'm just not for sure which.” Participant 8 explained the correlation between literary text and informational text and the challenge faced because of those differences and said:

> Outcome prediction is maybe a bit easier for students because they do it in fictional text. When teachers are teaching stories and novels, they say, “Based on this foreshadowing, “What do you think might happen?”

Participant 3 realized the challenge of outcome predictions in informational text and said, “Predicting outcome is not necessarily like in a story where you would predict ‘Oh, this is going to happen next.’” Participant 5 said, “Predicting outcomes is a little bit easier for them, particularly if we’ve read the text together. It’s easier for them to predict an outcome.” Participant 2 said, “If it's something like reading a text that is given to them that goes into that explanation, they struggle with finding the connections between what they're doing, the reasoning, and what they're reading.”However, three participants noted that outcome prediction was not a challenge for their students. Participant 6 said:

> The students are not too bad at predicting outcomes when are doing something in science. We think like scientists, and the majority of them can predict and make connections to what's going to happen based on their life experiences. There are some students without those life experiences predicting what might happen in the experiment or what might happen in a situation is a challenge. Outcome prediction becomes harder when it's something that they have no connections to.

Participant 7 expressed similar thoughts about predicting outcomes and explained the importance of prior knowledge:

> The students are better at making predictions because of the topics that we've covered this year. They're bringing in background knowledge. Hearing, reading, and seeing something about it makes it easier for them to predict rather than if they were doing something that they really had very little information.

Participant 8 also mentioned prior knowledge as well as real-life connection in making outcome prediction an easier skill, “Even when the students are talking about something, like their post-secondary goals, they can make a prediction.”

Teachers expressed even more struggles with teaching students how to predict outcomes.

The CCSS for science and social studies outlines for craft and structure the skills and abilities of determining “the meanings of … domain-specific words and phrases” and the “meanings of words and phrases as they are used in a text” (CCSS Initiative, 2010). Many participants explained the value of knowing vocabulary in order to build comprehension of informational text. Participant 4 said:

> The vocabulary is certainly a challenge, so I try to support the students by picking out some of the vocabulary. I don't front load a lot of the vocabulary, but I introduce it as we start and assign words to certain concepts. So, in the midst of it all is when we address some more of the vocabulary.

Participant 3 explained the challenge of vocabulary adapted to grade level appropriateness and said, “I think about what words were in the articles, and I may even change the vocabulary to fit the grade level better.” In explaining another challenge with

the vocabulary within informational text, Participant 8, a history teacher, said, “They don't understand the language. The farther back you go in history, the language is more formal, and the kids don't speak like that or read things like that anymore.” Participant 8 added, “There's a language barrier between the vocabulary of someone who's a World War vet and how a Level 2 special education kid speaks. The kids get bored very easily.” Participant 5 explained similar challenges in using primary sources:

> We have read excerpts from presidential speeches, President Wilson's Declaration of War, the Treaty of Versailles, and Franklin Roosevelt's “Fireside Chats” and his Declaration of War on Japan. Depending on the length of the document, the students may pay attention, but the time frame that it's written and the type of vocabulary that they use can be challenging.

Participant 8’s viewpoint summarized these instructional challenges, “The vocabulary struggle is just that language barrier; the vocabulary leads to not understanding what they're reading -- they just don't get it.” The specialized language of science and social studies is a challenge for students. Participant 6 said a challenge was “with vocabulary in science and social studies. Our stories have certain vocabulary that go with them that are 5th grade level, and it's hard for some students.” In collecting reading materials, Participant 3 said**,** “I have difficult time finding an article that's not going above the students’ heads using scientific, jargon.” Similarly, Participant 5 said, “The vocabulary that the students use is not the language of the time period. Another challenge is that a word or phrase itself is not a part of students’ vocabulary such as a *political vacuum* or *conscription*.”

Because of this minimal knowledge of vocabulary and word meaning, students are unable to comprehend the informational text, so teachers are challenged in offering vocabulary instruction. Participant 3 said, **“**Having students understand what they are reading or even pulling vocabulary words from the text, especially if we're jigsawing or something like that, making sure that they're all exposed to the same words is sometimes hard.” Participant 2 explained another method: “If the text or article is short enough, we may read it as a whole group. If it's a little bit longer, it's partner or individual reading. We then break it down and do the vocabulary and summary statements.” Participant 6 said, “I use strategies for learning how to use context clues to help figure out a word that the students don't know, but finding different levels of things, especially for my lower-reading ability students, that's difficult.” Participant 6 reluctantly stated:

> With one lesson I gave up, and the student all used the same article for our activity in science. I tried to find a lower-level adaptation, but it was too far below at the first- and second-grade level, I just needed a mid-elementary text.

Participant 8 admitted offering direct assistance to students: “Vocabulary is a little easier to teach because I can explain to a kid what these words mean.” Participant 6 said:

> A lesson on vocabulary before we read is a huge thing that we don't teach well enough across the curriculum. As teachers we just expect students to be able to pick out the words and figure them out and know them, but that just doesn't work.

Participant 5 explained a situation of a vocabulary challenge and when assistance was offered, the students did not utilize the assistance:

> I posed the question: “Why did Islam spread so quickly?”, and we had excerpts

> from different texts. And again, a lot of the language, because it was unfamiliar words, the students needed to figure out what do these terms mean. We did a student-led activity, and we went through the first term together to model the method. And once the students were on their own, they didn't take the initiative really to look up a word they didn't know. They didn't want to take the time, so that's a challenge.

This challenge of the diminished student initiative was also explained by Participant 7:

> Because the vocabulary word is something that they read and maybe they don't understand it or maybe they have to look up a word, they have to go back to the glossary and see what that word is in order to be able to understand the context of it. Taking the time to do that is a struggle for students."

While vocabulary understanding is important for reading comprehension, teachers struggle with methods to teach vocabulary.

Summary of Challenges

Secondary level science and social studies teachers in the local Midwest school faced many challenges in teaching students how to read and understand informational text. Participants offered their perceptions of using disciplinary literacy skills to teach informational text. First, they were challenged in their implementation of the CCSS as well as the NGSS and C3 standards for informational text instruction. The science participants were also challenged in using the NGSS's storylines and crosscutting concepts to further informational text understanding. The social studies teachers were also challenged by the grade-level expectations of content and informational text.

Overall, the participants felt challenged in implementing disciplinary skills using informational text into their lessons. Moreover, they were challenged with the students' grade-level reading skills and their students' varied reading levels of performance. Participants were challenged with locating and accessing grade-level materials and resources to use for informational text instruction. The participants were further challenged with their minimal skills to assist struggling readers. Finally, the participants struggled with instructing their students the CCSS literacy skills for their content area. They explained their challenges with instructing their students the skills necessary to paraphrase, to predict outcomes, to identify key ideas and details, and how to teach their students vocabulary.

Theme 3: Professional Development and Classroom Resources are Needed.

Theme 3 aligns with research question 2. Many of the participants expressed a need for PD to learn how to use disciplinary literacy skills in teaching content area reading. Many also felt that there was minimal PD for their specific content areas. In explaining the possible reason for this PD deficiency, Participant 4 said:

> My district, administration, and school don't truly understand my curriculum, the NGSS, and how science education works. I have requested many times to have PD based on what we need in science. This opportunity doesn't come about very often at the high school level.

Participant 6 said:

> We haven't done anything. We've tried to revamp our benchmarks and our teaching sequence. Because more non-fiction reading is included in the upper

> grades, we're trying to revamp the literacy standards. That PD wasn't necessarily focused on informational text; it was just an overall PD.

Participant 5 explained the minimal amount of PD for disciplinary literacy skills training and said, “PD is never content specific. The facilitators try to make PD content specific, but they put it into a general theme rather than saying ‘All social studies teachers here and all science there.’” Participant 2 explained the need for PD about NGSS implementation:

> NGSS has crosscutting concepts for consideration and so, it would be cool if I could go to a workshop or have PD where all these crosscutting concepts could be broken down and aligned with the text.

Participant 5 described past PD that pertained to the C3 standards:

> The last PD about informational text was an attempt 2 or 3 years ago. The Area Education Agency (AEA) specialist had an elementary school base, so the PD didn't seem very relevant for me as a high school teacher. She even kind of admitted to that, but she would help with what she could. And with the social studies standards, there was some initial training for the new C3 standards, and they did provide many resources that would help. When all the social studies teachers went to the AEA, that was one of the first times when we, as social studies teachers, really met together. We were given the standards, but it wasn't necessarily about putting the standards into practice.

Participants explained that other initiatives replaced disciplinary literacy PD. Participant 2 said:

> Our current PD is focused on Leader in Me. All of our PD has only focused on that, and we aren't given any other training. There's no other PD put out by administration or any other PD to to work on within the school district. So, I have to go outside the district for any continuing education; I have to go about that on my own.

Participant 6 identified another initiative that replaced literacy PD: "We did Authentic Intellectual Work continuously for several years. Even though it has kind of gone away, people still use the program in their rooms."

Participant 6 explained another possible reason for the minimal amount of PD:

> There are so many things to cover, and some things just have to take precedence over other things. It's a choice of what we can cover and how many days we have available. Also, we would do a focused PD one year, and then all of a sudden, the next year it's gone, and we're doing something else. With this kind of PD nobody's going to remember any of the previous year's PD learning because we're just dropping it for something else. While each year's PD is probably really good, some things got lost because we didn't have time to implement it.

In addition to school initiatives replacing disciplinary literacy PD, Participant 7 stated that technology training is also a PD replacement:

> We are allowed to identify the areas that we need to work on in PD, for example, literacy. But we knew that Canvas classroom software was coming up. We knew that we were going to be using Canvas, and so, we wanted to feel comfortable with it, and we really had an opportunity to learn how to use it.

Because of the minimal amount of PD, Participant 1 searched for PD beyond the school district: “I attended conferences, and I read new materials or a book.” Participant 5 expressed a similar viewpoint, “I think we’re kind of on our own.”

Many of the participants expressed a need for PD to learn how to use disciplinary literacy skills in teaching content area reading. Participant 1 questioned, “Do we get enough PD? We probably never will!” Many also felt that there was an insufficient PD for their specific content areas. Participant 8 said there is no adequate PD, and further explained, as a co-teacher who works with resource students, “I personally am not always provided with sufficient PD because I am expected to have PD in multiple content areas, I just get pulled in different directions.” Participant 6 said that the disciplinary literacy PD was insufficient, and said, “Could there be more? Sure.”

Teachers expressed the concern that they needed informational text reading training, so they could integrate those methods into their instruction.

Participants further explained the insufficiency of PD and the need for instructional training. Participant 2 said:

> Since reading instruction is not necessarily my strongest area or since I haven't had as many classes, I need the instructional methods broken down to how to teach students how to be able to read scientific facts. If there was something more of a method that we could use, for example, first, do this; second, do this; third, check and see if you did this -- that PD would help me.

Participant 3 said, “As a department, we've actually pinpointed an overall literary training need.” Concerning reading instruction and student assistance, Participant 1 said, “It's not

that I don't want to help, but I'm not an English teacher; I don't have that background. Reading instruction is a major hurdle.” Like the others, Participant 3 said, **“**I haven't necessarily received a huge amount of training about informational text.” Similarly, Participant 7 stated:

> Teaching informational text is not something that I feel comfortable with, and it's not for me. An incredibly helpful PD would be getting together with the language arts teachers to focus on those areas of informational text instruction. This instruction is my weakest area, and it would be really helpful to learn instruction methods.

Participant 7 said, **“**We haven't done any PD with informational text. In our team meetings, we share resources that could be helpful when we find them because we know what each other is doing.” Teachers also expressed a concern that there is no PD focus on content area reading instruction.

Participants also expressed their needed training to assist students with development of their actual reading skills and abilities. Participant 1 said:

> For some students, reading is difficult, I don’t think it’s just reading science text. I think actual reading instruction is a school concern. How do we get students to actually take the time to focus and read? Reading is a skill that takes work -- I always think of the brain as a muscle. If a student doesn't ever work that muscle, it's weak.

Participant 8 expressed similar frustration and explained changes in reading expectations:

> I feel like I should be teaching students how to read. But the attitude is, "Well, you're in 9th grade with those reading expectations, but you're still reading at the 6th grade level. Too bad. I feel that the chances that I'm going to get the student much beyond that reading level is unlikely. Even the fluency goals are exempted from the 8th grade reading expectations. The students are not even coming from the middle school to the high school with any reading fluency, so maybe the students can comprehend the material, but they read 55 words a minute. The students struggle with the grade-level reading expectations.

Participant 8 also stated the need for students' to be fluent readers:

> By the time the student gets to 9th grade, and in a perfect world, we would be just teaching reading, teaching reading, and teaching reading. But we're not because we have to teach all of the required core content, and there's just not enough time to teach both reading and content.

Teachers explained that the training must be authentic and applicable.

Participants expressed a need to learn specific content area reading strategies and disciplinary literacy skills in their PD. Participant 2 identified a need for examples and methodology for guidance in reading instruction and motivation:

> I need help so I can help my students be better content readers. I could use several examples and different ways of teaching. Because for eighth grade, I need to know ways for students to actively engage themselves, so they want to read and want to find out more information.

Participant 6 also needed strategies to teach paraphrasing skills:

> I need PD that will give me strategies to teach students how to paraphrase non-fiction. Informational text doesn't have a beginning, a middle, and an end like a fiction story. I need strategies to answer these questions: What do they need to look for? or How can they find it? So, different strategies that I could use in teaching paraphrasing would be helpful.

Participant 4 also identified the need for assistance in teaching students how to paraphrase and how to become independent as readers of informational text:

> Because a lot of students cannot paraphrase, I definitely need help to help them help themselves. I need some education to learn how to teach paraphrasing in an appropriate way so that I can help the students learn how to do it. Paraphrasing is a skill that many of them just really struggle with, and I need to know how to move them forward other than just trying to do it over and over.

Participant 6 identified the need for assistance in teaching students how to predict outcomes:

> The best kind of PD for teaching outcome prediction for me would be PD where I'm working together with people that know the standards that we're teaching, and we could work together on how we could implement that skill.

Participant 6 identified the need for assistance with strategies to teach students vocabulary, "PD that would be beneficial and needed would be any type of teaching strategies for vocabulary in science and social studies." Participants were challenged by the minimal needed PD to develop their skills to teach students how to read informational text, so several participants individually pursued continued education or training.

Participant 4 explained the minimal disciplinary literacy PD for the past 3 years, and said, "Most of my literacy PD has been on my own." Participant 6 also commented on disciplinary literacy PD in the school district and said, "It seems that we've stopped doing literacy PD, so I took a vocabulary strategy course online. It wasn't PD offered through the school." In agreement with the others, Participant 3 explained an approach to PD. Participant 3 said, "There's always new things to learn as a teacher. I think I can continue to expand on what I've learned from PD." Participant 1 explained another method of personal PD:

> A couple of years ago the science team got the approval and funding to go to the National Science Teachers Association (NSTA) conference. So, as far as PD, the conference was really good. I went to a workshop where I learned a literacy strategy that used guided reading and writing to use in science to solve a problem: the students get a phenomenon, they get an idea, they pose questions, and they continue with "How do we continue?" It was literally a template, and the goal was "How do we take science literacy and make it front and center in science lessons and classes?" instead of "Read this and now you'll do this."

Teachers acknowledge the difference and the value of learning both content area reading strategies and disciplinary literacy skills.

The participants said that they needed reading materials and resources to teach their students how to read informational text. Participant 6 explained the need "as finding resources that students are interested in and finding supplemental materials to the book." Participant 1 said:

> We need more resources and more time. NGSS actually aligns itself with literacy. One of the core concepts of NGSS is “How do we take informational text and make it real and make it applicable?” And NGSS uses a cross-cutting discipline, the idea that things don't work in isolation. When I use science literacy, it is a cross-cutting concept. I’m taking science, and I’m taking literacy, and I’m putting them together. However, the resources are just scattered in terms of quality, and there's just not a ton of it out there yet. The materials are really being fleshed out actively by science teachers and writers from all over the world.

Participant 4 explained that vast number of materials and resources are available for individual PD to develop disciplinary literacy that could be discovered through the national professional organizations:

> I have seen resources through the NSTA about disciplinary literacy skills and informational text. I have browsed through the sources, but I need time to really discover the sources. NSTA resources have a science focus at the high school level. Our district tends to focus on the elementary level. Middle school and high school gets bypassed. It seems that the district feels that “High school reading literacy? Who needs it?” My response: “I need it.”

Participant 2 expressed the need for the national standards to be more applicable for instruction: **“**So much of the NGSS, the content standards are so open-ended. I need a more systematic way for me to teach.” Participant 2 referred to the reading skills assessed on standardized tests and said:

> We stress science skills in our testing. It's important, and it's something that the students can apply in whatever they do, especially with scientific reading. I need to be able to teach students how to analyze data, see patterns, and understand cause and effect.

Participants identified that they needed to locate materials and resources easily and readily for their use for informational text reading instruction. Participant 3 said, “I wish I had the opportunity to know how to find where those science resources are located.” Participant 7 had similarly said:

> I don't even know where, and I haven't really tried to look for informational text materials and resources. I’ve mostly avoided it because it’s not something that I’m good at. I don't know where to start. I need someone who can direct me to “These are some good resources.” or “This is a way to think about the search.” That assistance would be really helpful.

Participant 5 explained the need for flexibility of materials and resources so they can be used for both for general education students and struggling readers: “I need to find some materials that are already adapted. And I need to take a resource and adapt it myself, but that seems too daunting. I haven’t tried that.” Other participants explained their need of using informational materials and resources with or without a textbook to develop disciplinary literacy. Participant 3 said:

> So, without using a textbook, I am not using the information from the same source. So, a lot of times, it'll be different sources that I’m pulling it from. I need

> to make sure that the informational text isn't choppy from one topic to another, but the text is coherent for the students.

Participant 8 who also works with resource students indicated a need for focused PD for using informational materials and resources in place of a textbook:

> The best PD for literacy skills for me personally would be for someone to sit down and say, "What is it you're going to teach this year?" and "What are the general education kids are going to read?" and "Let me help you find things that are primary sources that are still accessible for your lower readers where they could get the same content."

Participant 3 expressed a concern and a need for multiple resources for supplemental reading or for research: "When I'm teaching several sections during a day, how do I have a hundred magazines in a classroom? Or if I'm doing a specific research project, how do I make sure I have enough resource books? Another participant explained their need for content specific resources to supplement and complement the C3 standards. Participant 7 said:

> Because of C3, our focus in 7th grade is not so much on history, but more on current topics. I need to find resources that are for sociology or psychology. Because of the content shift in C3, what I've done in the past is really history-focused and -based is not needed. I need additional resources in terms of economics or political science. It would be helpful if I could use materials and social studies lesson ideas from teachers that they've used with kids.

Participant 8 said, “It’s really difficult, especially when I start talking about first-person sources, to find a collection of resources to draw from.” Participant 2 explained the need to find informational text aligned to their standards, **“**As a challenge, I think finding the text or materials that are related to our standards is a challenge.”

The participants identified needing new materials and current resources to develop their skills and knowledge in implementing disciplinary literacy for a variety of reading levels. Participant 8 explained the frustration of possibly using the state agency library:

> While I know that I could use the AEA, do you know how long it takes to go through the AEA resource catalog and find stuff? And then I have to order all of it, not knowing what it is, I have no way to see it, so I order it all, just to find one thing I might want to use.

Participant 7 talked about her experience with finding needed resources and materials.

> I find a lot of good information, but often, it isn't necessarily at their grade level. So, I have to rewrite the information to make reading it simpler to understand. So, sometimes finding good materials can be difficult for 7th graders because we're exploring some pretty complex issues. But I need to find things that are written at their level. I can find stuff that's written at a much lower level or at a much higher level, but for middle grades, that's always a struggle.

Participant 6 expressed similar struggles.

> One of my biggest challenges is finding multiple levels of passages or reading content that the whole class can use for the same skill. My students have such a

> wide range of reading skills and not everybody is at the same reading level. I need materials that are differentiated in a way so that they are all reading the same thing, but at a lower level, an on-level, or at a higher level.

Participant 8 expressed a similar feeling about finding a variety of grade-level materials to use with students, “I really could use some help finding all those appropriate materials. It's time-consuming, and I don't know where to look, and when I do know where to look, I don’t have the time.”

Participants needed materials and resources to supplement and complement their current informational text materials and resources. Participant 6 said:

> Finding resources that meet the expectations that I’m trying to find is a big challenge. My curriculum does come with some materials, but sometimes it’s not always enough. I can’t always just teach a lesson one time and the kids get it, and then finding other sources that I can use to have everyone doing the same skill. And I don’t want it to look like some students are reading something totally different. Kids notice that, and say, “Oh, they’re reading a different book, so it's harder so they're smarter, and I'm not.” If they're all reading what *appears* to be the same source, but on different levels that would be great. But my biggest challenge is to be able to find those resources for that.

Participant 3 needs included “up-to-date books, but not necessarily textbooks. I need books that are on specifically related areas or even research articles.” Participant 6 said, “I think current resources would be great for informational text, and I would say that the students could choose from lots of different choices that we could go through.”

Participant 8 needed to find "primary source accounts that are accessible to struggling readers. Finding them is very difficult and very time-consuming. I do have some resources that maybe came with the adapted text, but not enough." The supplemental materials for the textbook were explained by Participant 6:

> We have a textbook, so we have, and we use that informational text. And since I teach reading, I use those materials for instruction. In addition, the students' reading textbook is at least 50% or more non-fiction, informational text. So, I am sometimes able to align the reading textbook with what we're also doing in science or in social studies. I've also found articles online to go with our units.

Participants needed multi-level informational text and reading materials. Participant 3 said, "I need resources available in the classroom, and I need to make sure that they are grade-level specific." Participant 6 explained the connection between the content standards:

> I need materials that I can relate to what I am teaching or to the benchmarks which are at different levels. I need materials to be at multiple levels, material that would almost go together with the same vocabulary, the same skills, for example, an author's viewpoint or theme.

Participant 5 said that the multi-level reading material "would almost be like something that's already broken down to their reading level."

Participants identified attempts made and resources needed to implement and various methods of content area reading strategies and disciplinary literacy skills. Participant 6 said:

> The resources might be just other people's ideas of how they go about doing different lessons to show those different skills and different ideas. I could try it in my class; I could try different methods that have worked for different teachers and use their ideas. And it would be great to be able to watch other people teach lessons. I wouldn't really know that a method worked until I saw somebody else demonstrating the lesson. So, for disciplinary skills, I need some sort of resource of methods, and then I could look at it and say, "Oh, I'm going to try that in my class this time."

Participant 7 also said, "I need materials with how-to approaches that I could do with my students -- that would be really helpful." Participant 2 said:

> The skill approach would be helpful with a step-by-step check off; for the text, I need grade-level appropriate materials that are related to the content and are engaging, too. If somehow or someone could connect it all, those would be the resources that would make it easier on me.

Participant 7 offered similar comments:

> Seeing lesson examples of how other people have implemented methods would be really helpful. I would also be happy with just rubrics that they've used because rubrics are something that I find very difficult to construct, I'm never ever happy with the rubrics that I come up with so seeing how other people have done it would be helpful.

Participant 7 added, "There was an idea that someone of an activity that they did with the kids to help them learn and it was really focusing on how to do the work of the historian.

I found that really, really helpful." Participant 1 concluded by identifying the need to persevere in assisting students by using disciplinary literacy:

> I am trying to use more and more informational texts because I've seen the deficiency and where we're at in scientific literacy. It honestly sometimes comes right back to things that I can't control as a high school teacher. I've got some students with reading issues coming into the room. We have literacy issues in our culture. We see that in the end of the specific kind of lens from science, but one of the ways I'm trying to help with the whole thing by putting more reading materials in front of the students to read. I'm trying to be more conscious about that as I go forward.

Participants expressed their need for time for lesson planning to include disciplinary literacy skills to help students understand informational text.

Participant 1

> I just need more time to get lessons developed. Classroom teachers don't have much time to develop lessons. On a broader scope, we need more time to let professionals who have the time to just get it done and put the resource out for all of us. Once a resource comes out, we share things: "This is awesome, check this out." It's not that anybody is not caring or not trying. We need more resources and more time.

Participant 7 explained the use of internet to identify possible resources and save time:

> First of all, I'm always looking for information, so I have news feeds, and I have a news aggregator page. I check those a couple times a day just looking for

> headlines that might be about things that we talk about, and I just bookmark them. I save them for later. And when I'm thinking about a unit that I might want to do that might be new, I look at all the articles I've gathered, and say, “OK. What kind of information do I have?, How can I build a lesson using these articles?, Are there other materials, like videos, that I can find from different sources that will supplement it or that will take it further?”

Participant 1 needed time for preparation of the materials for students to use in class:

> A lot of the time when I’m planning lessons, I’m taking resources and putting them together. I’m doing my own paraphrasing saying, “These are the highlights.” The collected information will do the most good for most of the students in the amount of time that we have. I like to design curriculum, but it takes a lot of time.

Participant 1 continued:

> For example, today, I was looking through a PowerPoint that I've been using for several years teaching the concept of forces to my physics class. Thinking about disciplinary literacy has prompted me to reorder things, reword some things, add some things -- I've been forced to rethink and rework the way I've been teaching a lesson.

Participant 6 explained how the focus on informational text has changed classroom reading instruction for the students:

> We probably take a lot more time now than when we first started by having more informational and nonfiction texts. I take more time talking about text features: “What does this text have compared to what a fictional story has? or Why do we

> have these elements in a nonfiction piece of writing? and Why are they there?, What they helpful for?, and How can we use them?" I take a lot more time with dissecting the text, so they understand how to use it."

Participant 7 explained hesitancy in teaching informational text:

> I feel the least comfortable with instructing informational text because I don't want to contradict what language arts teachers are doing. The school had a whole new group of language arts teachers coming in, and I really haven't had time to sit down with them. I want to have common instruction of the craft and structure of informational text. This also includes how the whole text is organized. I'm just not comfortable enough with the text yet, and I want to make sure that what I'm doing is aligned to language arts instruction of informational text."

Teachers also acknowledge the value of materials and resources to supplement and complement their informational text reading instruction.

The participants needed time for preparation and time for repeated instruction for development of disciplinary literacy skills into lessons that use informational text. Participant 6 said:

> I only have so much time to teach reading or science or social studies. Each class is only about an hour or less. And I need to teach the skill two or three more times with the students for their understanding. For example, as a class we needed to talk about what's really a fact and opinion. I needed to repeat instruction so that they understood it. Because of standards-based grading, I can't at the end of the quarter say, "Oh, I didn't get to that skill." because that skill has to be on this

> quarter. Sometimes I feel like there's just not enough time for me to actually reteach something again to make sure that the students have mastered it.

Participant 2 made decisions about the presentation of the text either before, during, or after the laboratory:

> First, I take the aligned standard, and then I figure out the lab or the investigation that the students will do. Then I ask myself, “Are the students going to need the informational text before the lab?, Do they have enough needed knowledge?, Do they not have enough prior knowledge?, Do they need something to help them or guide them through the lab?” And finally, I determine the best place for the inclusion of the informational text. So,I decide that the student may do the reading as a follow-up, but if I think that they need more guidance, prior knowledge, or background information, then they’ll read the text before the lab.**”**

Participant 5 explained a method to develop a lesson with informational text:

> I start with an essential question, a big question, and the the student write their own guiding questions that will leading them to “How can we answer our big question?” At that point, the students complete some very simple research to find the answers using the informational text.

Participant 6 explained another method to using informational text and also explained the need for more instructional skills:

> I just don't know how do I teach informational text. In my class, it is a part of the reading curriculum. This quarter the focus is on persuasion so the articles and everything I'm doing is nonfiction. I either use what's in the textbook, or I have to

> try to find something similar to that the lesson plan. As a class, we talk about vocabulary prior to reading the text. And, and then I try to use some sort of reading strategy or vocabulary strategy along with building fluency skills. Those plans are, maybe, not as thorough because of all of the informational text. I know that sometimes there's just not enough information, and so, if I feel like the kids need more, I will try to find text materials to add to the next day.

Participant 1 explained lesson planning for inclusion of informational text, “In lesson planning, my use of information text is a process of determining what the students need to know. And then I’ll start putting it all together for a presentation method that is needed for that lesson.” Participant 6 teaches lessons to distinguish the differences between the reading skills for fiction and nonfiction textual materials:

> I usually do so many lessons on how nonfiction is different than fiction and how it is to be treated differently. The students have to read it differently because it's not like a sit-down, easy kind of story. I take more time doing smaller lessons repeatedly every time we do that we read informational text.

Because teachers want to be effective educators, time should be allotted for instructional preparation for inclusion of informational text.

Participants felt that they do not have the time to teach informational reading skills to their students. Participant 1 also explained the needed time to prepare informational text lessons:

> In the lesson preparation process, for all of its frustration, I know that I'm going to be a better teacher once I get through learning how to use and adapt lessons that I

> wrote three, four, or five years ago to include informational text. It is a very, a frustrating, time-consuming process, but I recognize that overall, learning how to include information text is positive.

Participant 8 expressed similar feelings, “We don't have the time to teach reading, which is what we need do -- to continue to teach reading. I feel so bad for the kids, and I get frustrated as a teacher.” Participant 8 explained another frustration about the minimal time for reading instruction:

> The time it takes to read an information a source or primary source, especially if the language is *foreign*, we have to realize the time constraints. I feel like we're really failing kids by not teaching reading, but at the same time, I don't have the answer for “Where can student learn reading skills at the secondary level?”

Participants expressed their concerns about the sufficiency of the PD that they received to meet their instructional needs. Participant 1, a science teacher, said, “PD as a stand-alone, it is not sufficient. There’s a lot that goes into the presentation, but it’s like ‘It was a very good workshop, but an hour is not enough to learn science literacy.” Participant 2 explained a needed PD, “I wish we could have a PD about like different types of graphic organizers to help the kids. The presenter could offer ones that are going to work just so the kids have a way to organize their thoughts.”

Participants also expressed that they need more time to collaborate with others. Participant 1 said:

> I need more time and more experience in working with the NGSS as a group, I am the only teacher who teaches two independent classes that no one else teaches, but

> when I can collaborate with the teacher across the hall every day about shared content classes, that is true PD. We work through brand new materials, so, having the collaborative time to work is a positive experience. It takes time, and it takes dedicated time, but I know that there'll be some good PD that comes from that collaboration.

Participant 5 said, "It is just so valuable and needed to meet with teachers of our own content and discuss what works, what doesn't work, and to try to help each other to find needed resources." To develop effective PD, Participant 2 explained the value of:

> "being with someone who also is in the same content area and going through the course and developing methods with grade-level text expectations, such as, "What should this strategy look like?", "What are some examples?", "What are non-examples?" and then actually implementing those methods in my classes.

Participant 7 explained, "We've been very lucky as a social studies team to have some literacy training. At the middle school we have a grade-level team meeting a couple of times a week, and we have disciplinary team meetings, too, so we get to meet a couple of times a week to collaborate." Participant 7 explained one PD that was helpful:

> We met once for the specific purpose of collaboration and literacy training. It was designed like this: What do you want to do? and What do you need? Then the school worked really hard to make sure that our team had access to the resources, the people, and the expertise that we needed to make it happen. It was really a useful professional opportunity for us.

Participant 7 had a similar, but not as powerful experience:

> We, as a collaborative team, haven't done anything with informational text as of yet. In our team meetings, we share resources when we find them because we know what each other is doing, and if we find things that could be helpful, we share.

Participant 8 explained how even colleague partner collaboration is beneficial:

> My co-teacher pushes me. I'm constantly learning new curriculum to modify and accommodate, and I sometimes I say, "Come on, you just changed the material from last semester. Can't we just go a year without change?" And he laughs, but I grow as a teacher, and we're always adding more and more informational text for the students.

Participant 5 explained the need for collaboration for other professionals, "A good content specialist or a literacy coach could really help us that works with secondary level teachers particularly. They could have the objectivity to our instruction, and they could really help us." Participant 3 expressed the need for and the value of working with professionals to gain skills for inclusion of disciplinary literacy in reading instruction, "So, specific training that we've received for literacy? I know we've met with the AEA specifically reading consultants and looked at some texts." Participant 7 expressed similar statements, "If the department had someone come in who was a specialist in literacy and really work with us the whole time to come up with skills that we felt comfortable with and to help us practice those skills -- that would be really helpful."

Participant 7 explained the need for collegial collaboration and the use of a specialist:

> If we, as a department team, could collaborate and create rubrics, then we, as a team, could come up with what we needed. And then through the district's instructional coaches and through the AEA consultants, we could find materials, and we could find people that can help us to meet those needs. We really need someone to come in who is a literacy specialist who could really work with us the whole time.

Some participants identified that the schools' teacher-librarians served an important role in their inclusion and instruction of informational text in their classrooms. Participant 8 said:

> The current librarian is good resource. I say, "This is what I need." and she will help you. It does take a lot of time on her part to locate and secure the text materials, and it takes a lot of time on your part to just set up time to meet with her, but we "get 'er done."

Participant 8 added:

> Even when the previous two librarians were here, I could go to them and say, "Hey, could you help me find materials on a certain topic?", and they would find the materials or if they had money in their budget, they would make the necessary purchase.

Participant 8 continued:

> Our current librarian is wonderful. She would probably assist more, but with the changes in the school's use of the library and the study hall liberties, she would help if I asked her, but she just doesn't have the time. The administration is giving

her other duties this year. Because the library has been a commons area, she monitors the students. She can no longer assist as much as she had.

Teachers know the powerful results that can occur by collaborating with colleagues and professionals.

Summary of Needs

Secondary level science and social studies teachers in the local Midwest expressed many needs to teach students how to read and understand informational text. Participants offered their perceptions of their needs to teach informational text. First, they needed quality PD that not only is content area specific but also disciplinary literacy focused. These types of PD should remain primary for the participants with other school initiatives as secondary. There needed to be sufficient training opportunities for reading instruction training to help students develop their reading abilities. The participants also needed training to help students improve on both their comprehension and fluency to meet the CCSS expectations of students' abilities to read complex text. Other PD needed to help teachers teach other CCSS standards such as paraphrasing, predicting outcomes, and vocabulary. Second, the participants needed up-to-date and multi-leveled reading materials and easy-to-locate and readily-accessible resources. Third, the participants said that they all need time for lesson planning. The lesson planning needed to include not only the CCSS, but also the NGSS and C3 standards. As they planned lessons, the participants said that they need lesson examples and presentations demonstrated. While they offered many personal methods of reading attempts, they need more grounded methodology. They also needed time to plan lessons individually and collectively. They

also explained their need to collaborate with content area colleagues, professional consultants, and teacher librarians. They identified the power of collegial collaboration to share ideas with department members to gain new methods and techniques from consultants and to locate needed resources through the librarian.

Discrepant Cases

The data collected include differing ideas and opinions from the participants. There were no discrepant cases in this study. After I sent out the member checking information, Table 1 and each participant's verbatim transcripts, all participants felt that the coding, categorizing, and identifying of themes and their transcripts were accurate. No participant expressed any issues with the results. However, during the interviews, two response areas were not in congruence with the study. When questioned about the challenges that teachers face, most participants expressed the challenges of teaching students how to annotate text and how to build reading stamina. While those points are very valid concerns, neither of them was in alignment to the focus of the study.

Evidence of Trustworthiness

A qualitative study must be trustworthy. Trustworthiness is the degree of confidence in data, interpretation, and methods used to ensure the quality of a qualitative study. Trustworthiness can be attained by an initial coding as the researcher transcribes the interview, maintaining a reflective journal, and checking the interpretation with the participants (Saldaña, 2016). I completed transcript coding, thematic analysis, and member checking. I followed the guidelines of semistructured interviews by asking specific questions in a determined order while also allowing for follow up, probing, and

open-ended questions with the participants (see Merriam & Tisdell, 2015). I also followed the guidelines for an in-depth interview by remaining unbiased and neutral and asking open-ended, probing, and follow-up questions (see Mack et al., 2005). To ensure trustworthiness, I collected and analyzed the data to ensure the study was credible, transferable, dependable, and confirmable.

Credibility

Credibility was addressed through my accurate check of transcripts and the use of direct quotes from the transcripts, by member checking, and through thick descriptions. The participants were asked to member check their transcripts and a summarization of the findings so that they were engaged in the authenticity of the data (see Saldaña, 2016). I emailed a copy of their transcripts and a summary of the findings, and I allowed them the opportunity to respond and to discuss any issues of concern or to answer any questions. The participants had no questions or concerns about their transcripts or the summary. To also address credibility, I included thick description of the setting and the methodology and by using the participants' direct quotes. Thick description included the study's context and the participants involved so that there is deeper understanding and authenticity (Ravitch & Carl, 2016). Thick descriptions can also include the participants' reactions (e.g., laughter or frustration), un/voiced pauses, and the interviewee's tone (Rubin & Rubin, 2012). Transcript use, member checking, and thick descriptions are important to achieve credibility in a study.

Transferability

To increase the potential for transferability, I included rich descriptions and specific details about the context of the participants' responses and background data to establish the context of the study. In determining the themes from the codes and categories, I progressed from the specific codes to the broad themes which is transference, and further the themes may indicate a pattern that may be noted in similar situations (see Saldaña, 2016). In using the collected perceptions from this eight secondary level science and social studies teachers, the data itself, the manner of collection, and its analysis is transferable. The data collected and its analysis are authentic and real (Ravitch & Carl, 2016).

Dependability

Dependability was addressed by maintaining data stability (Ravitch & Carl, 2016). To demonstrate the dependability of the process, I included the research steps I used for clarity of process. I made marginal notations, wrote memos to myself, and kept a reflective journal so that I would have a consistency of findings. I avoided bias by answering the interview questions myself. To mimimize bias, I reflected on the interview questions by answering them in my journal at different times during the study. This journal helped me become aware of my own preconceived ideas and thoughts so that I would not impose them on the study In addition, I recorded my reflections after the interviews and during other steps of the data collection and analysis. I also maintained consistency of the data and the data analysis process. After I transcribed the audio recorded interviews, I separated the responses into units of thought, and I number the

delineated transcripts. From these transcripts, I then coded them with a clear and concise word or phrase of the meaning of the delineated transcript (see Rubin & Rubin, 2012). From this coding, I then categorized those codes by grouping them by their commonalities. Categorizing led to identifying themes of combined and grouped categories as the primary instrument (Ravitch & Carl, 2016). Through methods of dependability, the identified themes were used for responding to the research questions.

Confirmability

Confirmability was strengthened through the reflexivity of my thoughts during the coding process. Reflexivity is referred to as the examination of my own beliefs, judgments, and practices during the research process and how these may have influenced my research (Ravitch & Carl, 2016). I answered my own interview questions; therefore, I avoided any possible biases. Reflexivity involves questioning one's own assumptions. I maintained confirmability by referring to marginal notations, memos to myself, and a reflective journal (see Ravitch & Carl, 2016).

Confirmability was also addressed by ensuring the accuracy of participants' thoughts, beliefs, and opinions. Confirmability was strengthened through the reflexivity of the my thoughts about the data during the coding process While the data are based on the participants' perceptions, through reflexivity, I gave meaning to the phenomenon. I interviewed eight secondary level science and social studies teachers in a local Midwest school about their challenges and needs in teaching informational text. The problem explored in this study was that secondary school science and social studies teachers struggle to teach students how to read and understand informational text. All participants

spoke from first-hand knowledge and classroom experiences and answered the questions truthfully (see Rubin & Rubin, 2012). Each participant was asked, “To the best of your knowledge and experience will you answer the questions honestly?”, and each participant answered in the affirmative. I used verbatim quotes to support the identified study’s themes. Collectively, I used the interviews and the transcripts to present the gathered information authentically and truthfully (see Ravitch & Carl, 2016).

Summary

This chapter included a detailed description of the setting of this study. I also explained the details of the data collection including the number of participants, the method of securing interviews, and my use of Zoom to conduct, record and transcribe the interviews. The data analysis explained how I coded, categorized, and identified themes. The results offer thick and rich descriptions from the transcripts that supported and developed the emergent themes. After gathering the perceptions from eight secondary level science and social studies teacher in a local Midwest school, I transcribed, coded, and categorized data and identified themes to answer the research questions:

> RQ1: What are the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text.

Through this study, secondary science and social studies teachers shared their perceptions of using disciplinary literacy skills to teach informational text. Teachers were challenged in many ways. The participants stated that they were challenged by the incorporation of the standards. Participant 1 said “I personally want to learn more about

NGSS", and Participant 5 said, "The C3 standards are the *new* standards." The participants are challenged with assisting students because of the students' varied reading skills and comprehension levels. Participant 8 said, "I have students of all different reading levels." The participants are challenged in teaching students such reading skills as paraphrasing, identifying key ideas, predicting outcomes, and vocabulary. Participant 2 said, "Having students read and then paraphrase what they've read is challenging." Participant 4 said, "One of the difficulties in teaching identification of key ideas is that it is hard to help students understand what are the most important parts of the text." To summarize, the teachers are challenged with incorporating literacy skills into instruction. They are also challenged in teaching to students' multi-level reading performances along with teaching students reading skills vocabulary.

RQ2: What are the perceptions of secondary school science and social studies teachers about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text?

Through this study, secondary science and social studies teachers shared their perceptions about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text. Teachers have various needs to make improvements. The participants stated that they needed PD that was meaningful and purposeful. Participant 4 said, "I have requested many times to have PD based on what we need." The participants needed access to reading materials and resources. Participant 7 said, "One of the basic problems is that I can find a lot of good information, but it often

isn't necessarily at their level." To summarize, the teachers needed dynamic PD as well as useful classroom resources.

In Chapter 5, I discuss the data gathered from the secondary level science and social studies teachers to fulfill the purpose of this study. The purpose of this basic qualitative study is to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text. I interpret the collected data about the challenges and needs of secondary level science and social studies teachers in teaching informational text. I include recommendations and implications of these interpretations which may lead to positive social change by improving teacher instruction and PD and further improve student learning through the exploration of the challenges of and the needs for teaching informational text.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of my study was to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text. This study was conducted to address a gap in practice in the preparation and training of secondary school science and social studies teachers' ability to teach their students how to read informational text.

The problem explored in this study was that secondary school science and social studies teachers struggle to teach students how to read and understand informational text. I interviewed content area teachers about the challenges they faced in informational text instruction and their need for resources and training. I used a basic qualitative design. This design allowed me, as the sole data collector, to gather data from participants through interviews and to draw a conclusion based on their experiences (see Merriam & Tisdell, 2015). And as the sole researcher, I used the basic qualitative design to understand the participants' perceptions to better understand their situation (see Merriam & Tisdell, 2015). Through these interviews, I discovered that the participants were challenged in teaching secondary school students informational text. In reference to RQ1, the teachers expressed their challenge in teaching students the skills to read informational text as identified in the CCSS as well as the NGSS and the C3 standards. In reference to RQ2, they expressed the instructional challenge of teaching students with varied reading skills and comprehension levels. Furthermore, they were challenged in teaching the

reading skills of paraphrasing, identifying key ideas, predicting outcomes, and vocabulary. In reference to RQ 2, the participants revealed that they needed focused PD for disciplinary literacy training, varied reading materials and resources, and lesson planning time.

Interpretation of the Findings

The findings confirmed the peer-reviewed literature described in Chapter 2: science and social studies teachers struggle with teaching informational text in accordance with the expectations of the reading standards in the CCSS, NGSS, and C3 standards. The CCSS (CCSS Initiative, 2010) established clear standards to be met for informational text for both science and social studies. Content area teachers are to instruct their students in reading the text and in building comprehension (CCSS Initiative, 2010). The CCSS served as the foundation for identifying and developing reading skills in informational text for content areas (CCSS Initiative, 2010). Teachers in this study faced particular instructional challenges. The supportive literature from Chapter 2 identified that content area teachers are reluctant to teach informational text and many have not had the necessary preparation (Drew & Thomas, 2018; Springer et al., 2015). Participant 1 stated: “I personally want to learn more about NGSS storylines because even though I know they are very powerful; I haven't used them much.” Participant 5, a social studies teacher, expressed some confusion about the C3 standards, “The C3 standards are the *new* standards?” Even though the reading standards are established in the CCSS, the NGSS, and the C3, these teachers may need more training about them and their implementation in the classroom.

Also, the teachers were challenged by the students' varied reading skills and their reading comprehension. Specific reading skill standards and benchmarks were specifically defined and delineated for science and social studies (Cervetti & Hiebert, 2014). Participant 4 said, "Some of the challenge is simply the students' reading ability." Science teachers face the challenge of teaching students to read science because both the skills and the discipline itself are complex (Richman, et al., 2019). Participant 7 said, "I have students of all different reading levels. Some students really struggle with reading informational text." Both teachers and students face challenges in meeting the reading standards.

The standards and benchmarks identified specific skills of craft and structure and of key ideas and details (CCSS Initiative, 2010). Participant 2 said that "having students read and then summarize or paraphrase what they've read is challenging for students." Participant 3 identified another challenging literacy skill to teach and for students to learn: "I would say identifying specific evidence." These reading skills and others can be taught by teachers and learned by students. Fang (2014) said that student comprehension can increase through incorporation of disciplinary literacy skills into lessons when teachers can have focused training, and students can have adequate reading materials. Content reading teachers need to know that informational texts are written by content experts, and that students can comprehend complex informational text by increasing their vocabulary knowledge (Fisher & Frey, 2014a). They need to understand the text features and the content specific vocabulary when teaching students how to read science and social studies texts. Because the CCSS directly identified vocabulary directly

in four standards and indirectly in many others, teachers need to help students be knowledgable in content area academic vocabulary to comprehend the content area concepts (Fisher & Frey, 2014a). When teachers teach students content area reading skills, in such areas as text features and vocabulary, student reading comprehension increases.

Furthermore, the findings confirmed the peer-reviewed literature described in Chapter 2 that content area teachers need better preservice preparation and focused PD for informational text instruction and disciplinary literacy skill implementation. Preservice teachers need courses about student engagement with reading, methods to build reading comprehension, and various strategies and techniques to assist students with a variety of reading abilities (Lesley, 2014). Classroom content area teachers need PD that can inform them of reading methodology and transform their classroom instruction (Greenleaf, et al., 2018). In reference to specific content area PD, Participant 6 said, “We haven't done anything.” In addressing the PD deficiency, Participant 4 said, “My district, administration, and school don't truly understand my curriculum, the NGSS, and how science education works.” Participant 5, a social studies teacher, described past PD that pertained to the C3 standards, “The last PD about informational text was an attempt 2 or 3 years ago.” Classroom content area teachers need PD that can inform them of reading methodology and transform their classroom instruction (Greenleaf, et al., 2018). Content area teachers must understand the intricacies of informational text to teach students how to read informational text as well as teaching students how to learn from informational text. When teachers can connect reading text and instructional

technique, then their instruction can influence their students' reading comprehension (Greenleaf et al., 2018). Teaching content knowledge and learning reading skills is a reciprocal and iterative process. Students learn to read informational text to improve learning of course content.

Limitations of the Study

In any study, it is important to identify and describe limitations to trustworthiness that may have arisen. A limitation that I needed to consider was that I was conducting this study during the COVID pandemic. While I wanted to achieve 12 participants, I only secured eight. Though I contacted nearly 20 potential participants, many responded with reluctance that they were too overwhelmed with both face-to-face and online instruction, and "I just don't need one more thing" (secondary teacher, personal communication, March 2021). Another limitation was the interview location for one participant. I allowed participants to choose their location sites; one participant chose to be interviewed at school. The interview was interrupted with many office announcements which interrupted and delayed many of the question-and-answer responses. However, from the eight participants who I interviewed, I secured thick and rich responses about their perceptions of the challenges of teaching informational text and their needed resources through semistructured in-depth interviews.

Recommendations

Based on the data gathered from the semistructured in-depth interviews, secondary school science and social studies teachers' faced challenges of using disciplinary literacy skills to teach informational text. These challenges included

implementation of the informational text reading standards identified in the CCSS, the NGSS, and the C3 standards. I focused on only two benchmarks of the CCSS for informational text: (a) the key ideas and details and (b) craft and structure. As a recommendation, future research could be made into content area teachers' challenges and needs for informational text with the focus on the other two benchmarks: (a) integration of knowledge and ideas and (b) range of reading and level of text complexity.

The participants also expressed their need for training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text instruction. Since this study was conducted at a local Midwest school, further research could be conducted in a statewide or regional study to determine the extent of the challenges and needs that science and social studies teachers face in teaching informational text.

Other recommendations for future research are the needed training and resources for preservice and career teachers. I recommend that a similar qualitative study be conducted with administrators to identify their concerns or training needs to lead the staff. I also recommend that a similar qualitative study could be conducted to investigate preservice teachers’ experiences with implementation of the CCSS’s information text reading standards. By possibly fulfilling these recommendations, the gap in practice may be filled by the realization and awareness of the concerns of secondary science and social studies teachers about teaching informational text.

Implications

The implications of this study may affect science and social studies teachers as well as administrators and preservice college professors by contributing to improvement of literacy education practice and instruction. It is important for science and social studies teachers to know their role in teaching their students how to read and comprehend informational text. The teachers also need to know that the CCSS, the NGSS, and the C3 standards have specific reading standards and benchmarks established, and teachers should offer reading instruction so that students meet and possibly exceed the proficiency level.

The implications for positive social change are based on improving teacher education and student learning. A positive social change may result through this exploration of secondary school science and social studies teachers' perceptions of the challenges of using disciplinary literacy skills and the needed disciplinary literacy skill training. Based on this study's results, secondary level science and social studies teachers may be cognizant of the CCSS reading standards. Greater understanding of the standards may lead teachers to assume more responsibility to teach students both the content and the methodology to read the content and to incorporate more reading instruction in the content subject areas. Urquhart and Frazee (2012) explain five principles for content area teachers to consider when teaching students to improve reading comprehension and content learning. Of those five, the first premise is aligned to this study: Teachers need to teach students how to construct the meaning of the text. Teachers need to teach students different mental maps to build comprehension (Urquhart & Frazee, 2012). In this study,

mental maps were considered among the variety of disciplinary literacy skills to understand the content.

These recommendations of this study may provide administrators with suggestions to revise PD to address content area teachers' concerns. Such revisions would provide administrators with the insights to offer PD that is pertinent to the teachers' needs and to improved reading instruction. Through training, teachers may be able to develop their students' abilities to know and use appropriate strategies and skills with assigned reading tasks (Shanahan & Shanahan, 2012). Though administrators may plan PD for their staff, training is needed for content area teacher to improve their reading instruction.

Conclusion

Science and social studies teachers need to overcome their teaching challenges of information text, and they need more training and resources. Teachers can be more effective in their instruction of informational text through more focused preservice training and PD. This dynamic PD and training may resolve this frustration voiced by Participant 1: "Do we get enough PD? We probably never will!" Through content specific training, teachers may overcome their frustrations of teaching informational text by learning content area reading methodology and disciplinary literacy skill application. They will build their knowledge and skills in these strategies and skills; they will learn when, how, and why these strategies and skills can be applied and implemented. Through content area teachers' effective instruction, students may build and increase their comprehension of science and social studies. The students may also increase their own

performances to use and apply learned strategies and skills independently. In this way, science and social studies teachers who teach strategically prepare students to understand the author's message and to read and think like scientists and historians.

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Appendix A: Interview Questions

RQ 1: What are the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text?

Interview Questions:

1. Since the implementation of CCSS, you are now expected to use informational texts as part of your classroom instruction.
    a. How do you use informational text in your classroom?
    b. Tell me about some of your experiences of using informational text in your classroom?
2. What are your challenges in teaching your students disciplinary literacy skills to understand your reading content?
    a. Which disciplinary skills are more challenging for you to teach?
    b. Which disciplinary skills appear to be most difficult for your students?
3. Two important features of disciplinary literacy are (a) predicting outcomes and (b) paraphrasing what has been read.
    a. What challenges do you face in integrating these skills into your curriculum?
    b. Tell me about a lesson featuring disciplinary literacy skills in which students had difficulty understanding the presented skill.
4. What difficulties have you encountered during your efforts to incorporate disciplinary literacy into lessons using informational texts?
    a. Tell me about how you plan lessons which include informational texts.

b. Explain how your instructional delivery approach has changed since you began using informational texts.

RQ 2: What are the perceptions of secondary school science and social studies teachers about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text?

Interview Questions:

1. Describe the local professional development program to support disciplinary literacy instruction in content area subjects.
    a. What kind of disciplinary literacy professional development have you participated in during the last three years? Explain how the workshops influenced your instructional approach.
    b. Was this professional development sufficient for you to teach literacy in your subject area? Explain why you believe or do not believe you are provided with sufficient professional development.
2. What was the most beneficial professional development activity that you participated in during the past year?
    a. Can you tell me how it was different from other professional development activities? What makes you feel that way?
    b. Tell me how you believe this beneficial professional development improved your use of disciplinary literacy skills and informational text?
3. What types of disciplinary literacy professional development would be most beneficial to you as a science/social studies secondary level teacher?

   a. Identify specific instructional delivery concerns about teaching outcome prediction.
   b. Identify specific instructional delivery concerns about improving student skills in paraphrasing.

4. What resources or materials do you need to help you teach students how to read informational text or to use disciplinary literacy skills?
   a. Give me examples of the resources or materials you would like to help you teach your students to read informational text?
   b. Give me examples of the resources or materials you would like to help you teach your students to use disciplinary literacy?

Appendix B: Interview Protocol

This scripted outline will serve as the opening and closing statements to the participant at the interview (Lodico et al, 2010; Mack et al., 2005). I will ask for an affirmation of understanding from the participant for many of the prompts.

Opening Statements:

- Introduce self. I will greet the participant. I will push the button to audio record the interview through Zoom.
- Review purpose of study: "The purpose of this qualitative study is to explore the perceptions of secondary school science and social studies teachers about the challenges of using disciplinary literacy skills to teach informational text and about the training and resources that may improve their knowledge and use of disciplinary literacy skills for informational text."
    - Do you understand?
- Request for honest response: "To the best of your knowledge and experience, will you answer the question honestly?"
    - Do you affirm?
- Remind the participant of the confidentiality of the study: "Your identity will be kept confidential within the limits of the law. I will not link your responses to your contact information. I am only allowed to share your identity or contact information as needed with Walden University supervisors who are also required to protect your privacy. I will not use your personal information for any purposes outside of this research study. Also, I will not include your name or anything else

that could identify you in the study. If I were to share this dataset with another researcher in the future, I am required to remove all names and identifying details before sharing; this would not involve another round of interviews or completion of an informed consent form. Data will be kept secure by password protection, data encryption, use of pseudonyms in place of names, and storing names separately from the data. Data will be kept for a period of at least 5 years, as required by the university."

    - Do you understand?

- Tell the participant: "The interview will last 30 to 60 minutes."
- Tell the participant of the minimal risks and the potential benefit: "Being in this type of study involves some possible risks, such as minor fatigue, similar to what might be experienced at a job interview or classroom observation. Participation in this study would not pose risk to your safety or wellbeing. Though the study offers no direct benefits to the participants, the benefits are that the final narrative may help develop content area teacher education programs or improve professional development."
    - Do you understand?
- Remind the participant of volunteer status: "Research can only be done with those who freely volunteer. Even though you decide to join the study now, you can still decline at any time, or you may stop at any time."
    - Do you understand?
- Ask for confirmation of consent: "I consent to be a volunteer in this study."

- Ask for confirmation by repeating the statement.

I will conduct the interview with the main questions and also ask follow-up, open-ended, or probing questions.

Closing Statements:

- I will allow the participant to ask any questions.
- Reconfirm consent: “I consent to be a volunteer in this study.”
  - Ask for confirmation by repeating the statement.
- Tell the participant: “We will schedule a member checking at your convenience. Member checking is the act of forwarding findings or summaries of findings to participants for their review to ensure that their responses were not prejudiced by my biases.”
  - Do you understand?
- Thank the participant.
- I will turn off the audio recording on the computer.