

**EXAMINING SECONDARY SCHOOL REFORM
THROUGH DISCIPLINE SPECIFIC LITERACY INSTRUCTION**

by

Kellee Dyanne Jenkins

B.S. Education, University of Alabama-Birmingham, 2001

M.Ed, Cambridge College, 2003

Submitted to the Graduate Faculty of
School of Education in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

University of Pittsburgh

2011

UNIVERSITY OF PITTSBURGH

SCHOOL OF EDUCATION

This dissertation was presented

by

Kellee Dyanne Jenkins

It was defended on

January 4, 2011

and approved by

Dr. Rita Bean, Emeritus Professor, School of Education

Dr. Kimberly Gomez, Associate Professor, School of Education

Dr. Karen Wieland, Assistant Professor, School of Education

Dr. Charlene Trovato, Clinical Associate Professor, School of Education

Dr. Don Bialostosky, Professor, School of Arts & Sciences

Dissertation Co-Advisors: Dr. Rita Bean and Dr. Kimberly Gomez

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Kellee Dyanne Jenkins, B.S., M.Ed., Ph.D

University of Pittsburgh, 2011

ABSTRACT

This case study examined the integration of discipline specific literacy instruction as part of a comprehensive literacy program at the secondary level. Eight teachers were interviewed and observed to investigate their knowledge of and beliefs about discipline specific literacy instruction. Two literacy coaches and the school's principal were also interviewed and shadowed to understand how they supported teachers' efforts to include disciplinary literacy instruction and how they influenced instructional decision making.

Results from this study indicated that teachers believed they were responsible for developing students' literacy skills in the discipline they taught. Teachers emphasized discipline specific literacy practices and strategies to improve students' literacy skills as well as to enhance students' content knowledge.

Professional development was a key factor in the continuity and success of teachers' literacy instruction across the disciplines. Through professional development, teachers were developing a deep understanding of what it means to engage students in discipline specific literacy practices.

The school principal and instructional coaches played an active role in developing teachers' literacy knowledge and strategy instruction. Their primary role was to support teachers' efforts to implement disciplinary literacy instruction through systematic professional development and instructional coaching.

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1.0 INTRODUCTION

The ability to read and write has never been as critical as it is today. With a recent explosion of technological advancements, literacy in the 21st century has become a necessity for success in one's personal, social, and professional lives. The routine of everyday life depends on one's ability to consistently read and filter information through various media ranging from printed materials to online resources. With adolescents reading and writing more than at any time in history (Birdyshaw et al., 1999), advanced literacy skills are no longer a prerequisite for only the elite or educated but have become a requirement for all citizens to live and contribute to a productive society.

According to Langer (2001) advanced literacy skills refers to the ability to use

language, content, and reasoning in ways that are appropriate for particular situations and disciplines. Students learn to 'read' the social meanings, the rules and structures, and the linguistic and cognitive routines to make things work in the real world of English language use, and that knowledge becomes available as options when students confront new situations. This notion of advanced literacy also refers to understanding how reading, writing, language, content, and social appropriateness work together, and using this knowledge in effective ways. It is reflected in students' ability to engage in thoughtful reading, writing, and discussion about content in the classroom, to put their knowledge

and skills to use in new situations, and to perform well on reading and writing assessments including high stakes testing (p. 838).

Literacy in the 21st century has expanded far beyond reading and comprehending texts. Adolescent learners must contend with a multitude of information from multiple sources. Alvermann (2001) suggests that adolescent literacy encompasses a broad spectrum of varied forms and “that privileging one form of literacy, such as academic literacy, over multiple other forms ignores the fact that different texts and social contexts (reading for whom, with what purpose) require different skills” (p.4). Adolescent literacy includes the academic literacy necessary for success in school contexts as well as acknowledges the literacy skills that students utilize outside of school that often exceed or seem inconsistent with those that are emphasized in school (Alvermann, 2001; Moje, 2000).

While the foundation of the American educational system relies on the ability to read and write effectively, its goal of producing students with proficient literacy skills has fallen short. Peterson et al. (2000) report that more than 23% of students at the twelfth grade level demonstrate only partial knowledge and skills that are considered as fundamental for their grade level. Research consistently conveys that secondary schools fail to help students move beyond basic reading and writing skills in order to reach an advanced level of literacy (Biancarosa & Snow, 2006; Heller & Greenleaf, 2007).

The lack of literacy achievement among adolescents in the United States has become a national crisis. NAEP (2005) reports that fourth grade students reading at or above the proficient level remained the same from 1992-2005. Likewise, there was no significant change in the percentage of eighth grade students reading at or above the proficient level during the same time period (NAEP). Currently, more than two thirds of all eighth and twelfth graders do not read at a

proficient level and more than half of those students score below basic (NAEP). Seventy percent of high school students are identified as struggling readers who read two or more grade levels behind and who need extensive remediation. Of those struggling readers, nearly 7,000 students drop out every school day (Biancarosa & Snow, 2006) due to a lack of sufficient literacy skills needed to effectively manage the high school curriculum (Snow & Biancarosa, 2003). In addition to struggling adolescent readers, college bound students also experience difficulty in achieving advanced literacy skills. Recognizing that the knowledge and skills needed for college are equivalent to those needed in the work force, ACT (2006) has developed college readiness benchmarks which indicate that half of high school graduates are not prepared for college level reading and writing. Eleven percent of students entering college are enrolled in at least one remedial reading course and 70% of those students do not earn a professional certificate or college degree (NCES, 2003).

In response to declining reading achievement, schools began renewed efforts in developing students' literacy skills as the most paramount issue in the educational system. Emphasis on middle and high school students' reading performance has given rise to greater attention being placed on the importance of effective literacy instruction at the secondary level. Traditionally, intensive literacy instruction has been reserved for elementary students for the purpose of developing basic decoding, fluency, and comprehension skills. As a result of considerable resources and attention devoted to early literacy instruction, data from the National Assessment of Educational Progress (NAEP, 2005) reveals that the reading achievement for K-3 has increased significantly.

However, those gains in reading achievement have not transferred to the reading achievement of adolescents. While early reading achievement ultimately improved as a result of

extensive efforts from local and state programs and abundant funding from the federal government, little investment has been made at the secondary level when it comes to focusing on literacy instruction and learning. NAEP (2005) reports that reading scores for secondary school students have remained relatively unchanged.

Students' literacy needs drastically change after the third grade. They begin to transition into a different type of reading in which they move from learning to read to reading to learn (Chall, 2000). Once they enter the fourth grade, students engage in reading that requires them to comprehend a variety of texts in multiple forms of print and for multiple purposes (Bean, 2000; Alvermann, 2001; Moje, 2000). Thus, reading becomes a means for learning information by which students apply more sophisticated literacy skills. Reading encompasses the ability to make meaning from complex text and information by evaluating, interpreting, and applying the information obtained from reading. Adolescent learners also engage in extrapolating information from reading assignments that become longer and vary in purpose, style, text structure, and vocabulary (Heller & Greenleaf, 2007).

In order to develop literacy skills that allow adolescent learners to read for learning, secondary schools must develop literacy programs that include the following:

1. The role of engagement and motivation in literacy development
2. The active involvement of constructing meaning from text
3. The interconnection of reading, writing, speaking, listening
4. The integration of discipline specific literacy instruction throughout the content areas in order to maximize student learning (Meltzer et al., 2000; Biancarosa & Snow, 2006; Langer, 2001; Peterson et al., 2000; Alvermann & Moore, 1991).

Effective literacy instruction at the secondary level begins with creating a culture of literacy in every content area classroom – a culture that seeks to engage students by connecting their life experiences with their work at school. Such engagement allows for students’ choice of text, student collaboration, and opportunities to participate in meaningful discussion about what they read. A culture of literacy requires instructional practices that focus on higher order thinking skills by modeling a variety of learning strategies effectively guide students in making meaning from texts. For struggling adolescent learners, best practices include explicitly teaching vocabulary, text structures, and discourse features for each academic discipline (Perterson et al., 2000; Meltzer et al., 2000). However, successful secondary literacy initiatives depend not only on research based instructional practices, but they also rely on vision, leadership, ongoing professional development, and a school’s overall strategic plan to adhere to the literacy reform efforts.

Thus, the challenge is to create a literacy program that connects discipline specific literacy instruction to over all school reform efforts. As a result, literacy instruction becomes the foundation of a school’s improvement agenda, one which ensures the development of knowledge and skills all students need to succeed both in and out of school (Heller & Greenleaf, 2007). Without a comprehensive effort that involves more efficient school organization, more involved and effective leadership, and extensive professional development for teachers and leaders, significant improvements among adolescent learners are unlikely to be made or sustained (Meltzer et al, 2000; Torgeson et al., 2007; Heller & Greenleaf, 2007; Biancarosa & Snow 2006).

1.1 PROBLEM STATEMENT

The absence of ongoing literacy instruction beyond the third grade, the lack of greater reading achievement among adolescents, and inadequate literacy skills among students entering high school have remained persistent problems. While “enough is already known about adolescent literacy, both the nature of the problems of struggling readers and the types of interventions and approaches to address these needs” (Biancarosa & Snow, 2006, p.10), a variety of complex issues plague secondary schools’ efforts to provide effective literacy support to adolescent learners. Common factors that often impede school wide efforts to build effective literacy support include:

1. Belief systems of content area teachers
2. Lack of knowledge and understanding of adolescent literacy
3. Inadequate professional development
4. Organizational obstacles

Although secondary literacy instruction involves complex interaction, support, and coherence between districts, school leaders, and teachers, there is limited research and a lack of understanding as to how to implement an effective, school wide literacy program at the secondary level.

1.2 THEORETICAL FRAMEWORK

This study is anchored in a disciplinary learning perspective. From a disciplinary literacy stance, learning in the disciplines involves instruction that embeds advanced literacy practices that are

critical in building and understanding specific content area knowledge (Moje, 2008; Shanahan & Shanahan, 2008). Content area teachers, therefore, become responsible for engaging students in content information while integrating sophisticated literacy practices that are characteristic of their disciplines. If students are to develop an array of advanced literacy skills that are specific to each discipline, then teachers must possess the necessary content knowledge of the subject they teach, and they must understand the importance of promoting discipline specific literacy practices in order for students to gain deep understanding of content specific information.

Disciplinary literacy learning evolves as subject matter becomes more differentiated and complex and moves from using reading, writing, and speaking to learn content knowledge to incorporating higher order thinking skills such as investigating, conceptualizing, reasoning, and inferring (McConachie, 2010; Heller & Greenleaf, 2007). Since disciplinary learning involves students developing content knowledge by using advanced literacy skills, teachers must provide students with ongoing support so that students are capable of accessing knowledge in discipline specific classes. This type of learning requires students to engage in a range of higher order thinking skills that will allow for varied and thorough understanding that is associated with learning complex knowledge for each discipline.

Students continually develop critical literacy skills to gain and access disciplinary knowledge. This view of literacy conveys that content and literacy instruction are inextricably intertwined and are equally important. Disciplinary learning emphasizes the notion that content understanding is promoted through literacy understanding and literacy is used to support and enhance content learning (McConachie, 2010; Moje, 2008; Shanahan & Shanahan, 2008).

Disciplinary learning involves teaching students how the disciplines are different from one another and how to develop the critical literacy skills that are necessary to understand how knowledge is produced and obtained in each discipline (Moje, 2008; Bain, 2000). Through disciplinary learning, each discipline functions as its own unique domain that specifies the ways in which literacy is used to access and learn information in a particular discipline. Students develop specialized knowledge by gaining an understanding of the ways of thinking and knowing within a discipline. As a result, students become part of different discipline specific communities who are able to think and act as if they were historian, mathematicians, and scientists.

As junior members of a particular discipline, students are able to use distinct bodies of knowledge specific to that discipline to learn content knowledge more deeply and to develop discipline specific literacy skills. Disciplinary literacy allows students to learn the core concepts and ideas of a particular discipline. Thus, disciplinary learning involves a process in which students learn how to read, reason, write, inquire, speak, and to construct knowledge within various discipline specific communities.

The disciplinary learning perspective also supports the intentionality and commonality of purpose in preparing teachers and schools to integrate and sustain discipline specific literacy instruction (Conley, 2008). Teachers' decision-making and instructional practices are influenced by the structure of the school's organization. Integrating literacy practices into content area classes is highly dependent upon the coherence of multiple, complex and interactive components of a school's structure and organization (Owens & Valesky, 2007; Knapp, Copland, & Talbert, 2003). Meeting the literacy needs of adolescent learners is complex. The goal of developing proficient readers requires an organizational approach in which school leaders create structures

that allow teachers to acquire the necessary knowledge about discipline specific literacy instruction that reinforces important literacy skills while teaching discipline specific concepts (Biancarosa & Snow, 2006; Heller & Greenleaf, 2007). An effective, comprehensive, and coordinated literacy program at the secondary level is only obtainable when student learning, professional learning, and system learning are addressed (Knapp, Copland, & Talbert, 2003).

The basis for disciplinary learning stems from the need to prepare students for challenging tasks, both in school and beyond, that would require them to read and write about complex subject matter material and to communicate their contextualized thinking in varied forms (McConachie et al.). For this type of disciplinary learning to take root, secondary schools have to create integrated and coherent framework that articulate how successful students think and learn and define the level of literacy instruction and skill development students need for continued academic growth and preparedness for college and the workforce (Conley, 2008).

Opportunities for students to develop advanced literacy skills depend on secondary schools' professional development efforts, teacher collaboration, infrastructural improvements, and leadership involvement all working in tandem in promoting systematic and effective literacy instruction that occurs across the curriculum. What and how students learn depends on what teachers know and how school leaders support teachers' efforts to improve student learning (Elmore, 2004; Knapp, Copland, & Talbert, 2003). A school's organization functions as a whole to accomplish the common goal of incorporating discipline based literacy instruction in which teachers, administrators, and other literacy leaders play critical roles in creating a variety of instructional elements that enhance a coordinated school-wide literacy program.

1.3 PURPOSE OF STUDY

The purpose of this study is to explore the integration of discipline specific literacy instruction as part of a comprehensive literacy program at the secondary level. This study focused on the collaborative process that occurred between teachers, administrators, and instructional coaches throughout one school's effort to create and sustain a comprehensive, school-wide literacy program.

1.4 SIGNIFICANCE OF STUDY

To successfully handle the rigor of a secondary school curriculum, adolescent learners need advanced literacy skills. However, current research shows that the lack of advanced literacy skills continues to be one of the most pressing challenges facing adolescents in the 21st century. This study seeks to contribute to the understanding of how a school's organization functions or fails to function as a whole to improve the literacy skills of adolescent learners by creating the common goal of integrating discipline based literacy instruction at the secondary level. Teachers, administrators, and other literacy leaders play critical roles in developing a variety of instructional routines that enhance a coordinated school wide literacy program.

This study also contributes to an increased understanding among educators, administrators, and policy makers with respect to the necessary organizational and instructional support needed for improved literacy instruction and learning at the secondary level. Finally, this study provides insight for teacher education programs as to how to design and improve programs to prepare content area teachers to integrate discipline specific literacy instruction.

1.5 DEFINITION OF TERMS

ADOLESCENT LITERACY - is the broad term that refers to the literacy development and instructional needs for students in grades 4-12 (Snow & Biancarosa, 2006). The National Council of Teachers of English (2006) also includes in their definition of adolescent literacy the idea that adolescents need school based opportunities to use their knowledge and skills to participate in multiple literacy practices in order to expand ideas about texts, shape their emerging sense of self, and to suite their own lives.

DISCIPLINARY LITERACY - advanced literacy instruction embedded within content area classes such as math, science and social studies (Shanahan & Shanahan, 2008).

MULTIPLE LITERACIES - multiple literacies are an aspect of adolescent literacy that acknowledges the various contexts and forms of literacy in which adolescents encounter including the Internet, compact, music, television, magazines, other forms of print, and other sign systems and media (Bean, 2000).

PENNSYLVANIA HIGH SCHOOL COACHING INITIATIVE (PAHSCI) – is a state-wide coaching initiative designed to directly focus on classroom instruction in high need high schools. The PAHSCI design is comprised of three central components: instructional coaching, professional development, and the Penn Literacy Network’s framework. These central components work within a theory of change to improve academic programs and student achievement (RFA, 2007)

PENN LITERACY NETWORK – a research based framework and practical strategies for establishing literacy-rich, student-centered classrooms across all subject areas. PLN is based on four interrelated “lenses” from which instructional strategies are derived.

1.6 DELIMITATIONS

This study is designed to describe one high school's attempt to incorporate discipline specific literacy instruction into all classrooms. Since this research offers an in-depth description of the instructional and organizational processes that influence this single school's ability to implement a school wide literacy program, it can neither generalize the effects of discipline specific literacy instruction, nor convey causality between discipline specific literacy instruction and student literacy achievement.

2.0 REVIEW OF LITERATURE

For more than a century, research has supported the benefits students receive from literacy instruction in content area classes (Hall, 2005; Moore, Readence, & Rickelman, 1983; Herber, 1970). The integration of literacy instruction into content area classes has remained a salient topic in research literature, teacher preparation programs, and school reform efforts. Addressing students' literacy needs at the secondary level have traditionally revolved around content area teachers promoting literacy through the infusion of generic reading strategies within their content instruction and supplemental interventions for struggling readers.

Despite continued efforts to meet the needs of adolescents by encouraging teachers to incorporate literacy instruction into their classes, discipline specific literacy instruction has been difficult to infuse at the secondary level and has done little to significantly enhance the reading achievement of adolescent learners.

Adolescent learners entering high school must possess a range of reading abilities that allow them to navigate through various content area texts for different purposes. Thus, content area literacy has shifted from the use of general reading strategies to a more discipline specific approach to learning in which students engage in sophisticated and specialized literacy practices particular to the various subjects (Moje, 2008; Shanahan & Shanahan, 2008). This type of disciplinary learning approach to literacy instruction not only emphasizes students' ability to

construct meaning from multiple texts in multiple forms of print, but also promotes content knowledge and critical literacy skills unique to each academic discipline.

Discipline specific literacy instruction at the secondary level involves a complex process that entails changes at the instructional, leadership, and organization levels. Thus, teacher beliefs and knowledge of literacy instruction, the lack of effective professional development, teacher collaboration across disciplines, and organizational constraints are the most influential factors that challenge a school's ability to integrate discipline specific literacy instruction.

2.1 TEACHER BELIEFS AND LITERACY KNOWLEDGE

Bransfords et al. (2000) state that expert teachers know the structure of the knowledge in their disciplines, which provides them with the cognitive roadmaps that guide their instructional decisions. Content area teachers can anticipate when students may struggle with grasping difficult information or where they may encounter conceptual barriers that hinder their learning. Similarly, teachers use pedagogical knowledge in conjunction with content knowledge to make decisions about instructional practices and to create effective learning environments (Bransford et al, 2000; Shulman, 1987).

Despite the type or amount of knowledge content area teachers may have, their instructional decisions are largely influenced by their beliefs (Buchmann, 1997). However, teacher beliefs and knowledge are closely related. Teachers typically have knowledge about the subject they teach, but they may also have a range of beliefs about what and how students should learn (O'Brien & Stewart, 1990; Shulman, 1987). Teacher knowledge can influence teachers' beliefs in that they use their knowledge about content or teaching methods to guide their belief

about how they teach and what students should learn. However, teachers' beliefs can also shape their knowledge. Pajares (1992) suggests that when confronted with new knowledge, teachers process and interpret that knowledge and decide whether that knowledge aligns with their beliefs. Regardless of whether or not their beliefs are correct, teachers tend to hold to their beliefs when presented with new or more accurate knowledge.

Teacher beliefs are not only situated within their knowledge about specific subject, but also within their instructional practices. The structure of secondary classrooms has historically revolved around a classroom culture defined by the teacher's beliefs about the following: the nature of knowledge, learning and instruction within a specific academic discipline, and past school experiences (Moje, 1996). Depending on the teacher's beliefs, discipline specific literacy instruction may or may not be a relevant component in secondary classrooms. Moore, Readence, & Rickelman (1983) note that subject matter specialists tend to emphasize content rather than students' acquisition of information.

In a two-year ethnographic study, Moje (1996) examined the literacy beliefs and instructional practices of a high school chemistry teacher. Moje found the teacher-participant tended to emphasize her beliefs about discipline specific literacy, teaching and learning, and the general value of literacy in one's life interactions. The teacher represented in the study incorporated reading strategy instruction that supported her philosophy of teaching and learning in her own discipline. Moje found that the chemistry teacher's instructional practices supported her beliefs about content area reading. In this chemistry classroom, literacy practices were implemented as a way for students to organize thinking and learning about the content. The teacher believed that her primary goal as the instructor was to help students be successful in her classroom; thus, she taught reading strategies that would aid students in building foundational

knowledge that would foster their independent learning. Students were deemed successful when they were able to use reading strategies to independently read, write, and talk about chemistry texts.

However, the teacher in Moje's study likely represents a minority population of high school content teachers. Although some teachers choose to incorporate content area literacy instruction, the majority of teachers believe that reading is not a necessity for success in content area classes and that they are neither qualified nor responsible for literacy instruction (Heller & Green Leaf, 2007; Hall, 2005). In an extensive review of research that included nineteen studies involving 248 pre-service teachers and 702 in-service teachers, Hall (2005) found that content area teachers believe that they are not qualified to teach reading nor are they responsible for reading instruction. Unlike the chemistry teacher in Moje's study, pre-service teachers in Hall's study believed that reading was not a necessity in order for students to be successful in each of the disciplines.

In order to combat such enduring beliefs, universities began requiring a content area reading course to assist the future endeavors of pre-service teachers' reading instruction in their discipline specific classes (Hall, 2005, Herber, 1970). Although research conveys that teacher education courses can encourage pre-service teachers in developing positive attitudes and beliefs towards discipline specific literacy instruction, it also suggests teachers' knowledge about literacy instruction in the disciplines may not transfer into their instructional practices upon entering the classroom (Hall, 2005; Bean, 2000).

Donahue (2000) argues that a content area reading course can influence teachers' beliefs toward discipline specific reading instruction. While instructing a graduate content area reading course for pre-service science teachers, Donahue encouraged teachers to examine their

knowledge about and experiences with reading to better understand the role of discipline specific literacy instruction. By engaging in more experiences with reading through professional learning opportunities, students in Donahue's class embraced the act of reading and were able to develop methods that would help students become better readers based on their own professional learning experiences.

To further deepen understanding of their knowledge about themselves as learners, Bintz (1997) believes that content area teachers should have continuous professional development opportunities themselves to interact with texts as readers so that they begin to develop attitudes and perceptions that view reading as a valuable and meaningful process within the content areas. Regardless of the approach used to increase teacher knowledge about discipline specific literacy instruction, middle and high school teachers express difficulties in incorporating literacy instruction, and they continue to use their beliefs to guide their instructional practices and decisions about teaching, learning, and literacy in discipline specific classes (Anders, Hofman, & Duffy, 2000; Hall, 2005).

In a study of 131 in-service teachers, Bintz (1997) found teachers did not view themselves as sophisticated readers; thus, they found it difficult to perceive themselves as motivating students to read or teaching students to read. On a professional level, teachers felt frustrated, confused, and ill equipped to teach reading in the disciplines because they received no formal training or knowledge about how to teach reading. Realizing that their personal attitudes towards and negative experiences with reading impacted their instructional decisions, teachers overwhelmingly expressed concern about being trained and hired to teach content, but then being held responsible for teaching reading. Bintz's findings present a serious, yet common dilemma for secondary schools in that teachers who know the least about reading are being asked to teach

what they don't know to a population of students who need effective reading instruction the most (Bintz, 1997).

Though teachers may hold beliefs that support the integration of literacy instruction into their discipline specific classes, their actual instructional practices often do not match their stated beliefs due to a variety of institutional factors including, but not limited to a lack of time, large class sizes, and an overwhelming curriculum. The challenge with implementing literacy instruction within content classes is due in large part to the conflict between secondary teachers' literacy beliefs and practices that are embedded into a complex school culture in which teachers with various beliefs and educational backgrounds are faced with instructing students with different ability levels. O'Brien, Stewart, & Moje (1995) define school culture as the construction of beliefs, values, and ways of acting among teachers and administrators within a school. More specifically, school culture refers to how individual teachers in a secondary setting construct their instructional work within the larger school system's shared beliefs, practices, and knowledge base.

Situated within a school's culture are the contextual factors that involve the ways in which teachers and administrators enact their beliefs and values about instruction and learning. Contextual factors entail all components that are involved in the teaching and learning aspects of a school and include materials used by students and teachers, the written and/or enacted curriculum and instructional methods of teachers. Unresolved and interwoven complexities between a secondary school's culture, context, and teacher beliefs also contribute to the difficulties with infusing discipline specific literacy into secondary schools.

The school's culture, context, and structure have become influential factors in how and why secondary teachers may or may not use their beliefs to guide their literacy instructional

practices. Bean (2000) suggests that once teachers finish their content area reading course, both pre-service and in-service teachers struggle with existing tensions between their stated beliefs about literacy and literacy practices of the school in which they work. Once teachers enter the classroom, they tend to favor the traditional, teacher-centered approaches over reading strategies previously learned during their university content reading course. Those teacher-centered approaches, which reflect the culture and context of traditional secondary schools, focus on teaching content while omitting reading instruction in single subject classes.

In a series of observations and interviews with content area teachers, Bean (1997) revealed that the reality of a secondary classroom became highly dependent on the school's culture and context, one that encourages covering the content and curriculum as opposed to students' acquisition of the content specific information. While the teachers may believe that literacy instruction was paramount to student learning, they adopted the transmission model of teaching in an attempt to cover more content and to maintain classroom order and control. Thus, developing teachers' knowledge of and beliefs about literacy instruction in discipline specific classes becomes critical in creating a school culture devoted to literacy learning for both teachers and students.

2.2 TEACHER LEARNING & PROFESSIONAL DEVELOPMENT

Research suggests that teacher attitudes and beliefs about literacy instruction in the disciplines can be changed when teachers are given the opportunity to learn how to incorporate discipline specific literacy instruction (Torgesen, 2007; Biancarosa & Snow, 2006; NASP, 2005; NRP, 2000). In order for teachers to transform their thinking and learn how to integrate literacy

instruction in their discipline, schools must develop an infrastructure that allows teachers to engage in professional learning opportunities that aid them in developing and incorporating effective literacy practices. Professional development opportunities are ultimately designed to improve student learning and academic achievement by enhancing teachers' attitudes, knowledge, and instructional skills (Guskey, 2000).

Within a school wide literacy reform at the secondary level, such professional development evolves from extended opportunities to learn over an period amount of time. Anders, Hoffman and Duffy (2000) suggest that effective professional development involves an extensive commitment to involving teachers in opportunities to learn through ongoing support, deliberation, and collaboration. While teachers need to participate in activities that allow them to critically reflect on their instructional practices, they also need time to develop the necessary subject matter knowledge. In addition to the characteristics that Anders et al. identify, Desimone et al. (2002) emphasize that the focus of school based professional development should primarily revolve around the content that teachers teach and should align with their actual work in the classroom so that teachers develop deep content and pedagogical knowledge as well as understand how students learn the content. Nonetheless, research widely supports the notion that professional development must expose teachers to sustained, ongoing, job-embedded professional learning opportunities that are supported by effective modeling and coaching that specifically address the needs of the teachers and the school (Bean, 2004; Anders et al., 2000; Guskey, 2000; Darling-Hammond & McLaughlin, 1994).

Meeting the professional development needs of secondary teachers is particularly challenging in that the goal is to build on their literacy knowledge and pedagogy within the specific disciplines they teach. In an effort to help content area teachers infuse their content with

literacy instruction, Draper (2008) conducted a study to explore the ways in which content area teacher educators promote literacy learning and literacy instruction across the curriculum. As part of her study, Draper organized a Content Area Literacy Study Group (CALSG) that involved teacher educators who represented various academic disciplines (biology, science, math, art and music). CALSG members discussed various topics related to content area literacy instruction and evaluated the usefulness of their instructional approaches toward literacy and the effectiveness of the overall teacher education program.

Although the teacher educators in CALSG accepted responsibility for the literacy development of their students, many of them stressed the importance of integrating discipline specific literacy instruction as a means to access content specific knowledge, navigate content specific texts, and acquire content specific skills (Draper, 2000). Thus, literacy learning was a by-product of teaching students how to approach reading, writing and thinking like expert scientists, historians, and mathematicians.

As the facilitator of CALSG, Draper supported content area teacher educators by providing professional learning opportunities to develop an understanding of how educators use their discipline based knowledge and practice to integrate content and literacy instruction as well as to assist them in helping students master discipline specific literacy skills. Draper (2008) found that each of the teacher educators involved in the study all had the same goal of promoting literacy instruction and learning; however, they all approached the integration of content and literacy instruction in very different ways. While literacy learning and instruction may not have been the explicit goal, each teacher educator taught and supported literacy in various ways by requiring reading assignments and supporting their students in literacy based activities.

Shanahan and Shanahan (2008) also note that secondary content teachers display a range of different instructional approaches that vary in how each discipline addresses content knowledge and literacy instruction and learning. Therefore, teachers need professional learning opportunities specific to the discipline they teach since they engage their students in unique literacy practices depending on the content being studied. In a study of high school chemistry, history and math teachers, Shanahan and Shanahan (2008) examined how content area teachers approached reading discipline specific texts and subsequently engaged them in professional learning opportunities to enhance their overall discipline specific literacy instruction. Findings from the study revealed that content area teachers possess an awareness of how they use reading and texts to convey and evaluate content knowledge; however, the teachers struggled to understand how the use of discipline specific literacy strategies enhanced content learning (Shanahan & Shanahan, 2008).

Similar to the teachers in Draper's study, teachers in the Shanahans' study also focused on literacy activities that were pertinent to their content. While history teachers emphasized reading for factual accuracy and chemistry teachers focused on reading for understanding the process of experimentation, each teacher saw the incorporation of reading strategies as a distraction from learning content. It was not until the high school teachers participated in learning communities and were guided by literacy experts that teachers began to embrace the idea of, and later occasionally integrated, discipline specific literacy strategies that were relevant to their discipline.

2.3 LITERACY COACHING

The integration of advanced literacy instruction into discipline specific classes requires content area teachers to possess the literacy knowledge to explicitly address the discipline specific literacy demands of the content they teach (Draper, 2008; Shanahan & Shanahan, 2008). However, teachers are currently not required to receive any additional training for literacy instruction and few practicing teachers have the literacy knowledge to effectively integrate literacy instruction with content instruction. To help teachers integrate literacy instruction into content area classrooms, recent professional development efforts have focused on the concept of literacy coaching in an effort to improve teachers' instructional practices (IRA, 2006).

The inclusion of literacy coaching at the secondary level includes several key components that allow for successful implementation of content specific literacy instruction. Schools that have undergone school wide literacy reform have had similar approaches for employing literacy coaches including: (a) selecting coaches who possess in-depth knowledge, skill, and experience with literacy instruction at the secondary level; (b) integrating coaches into the larger system of professional development as an additional layer of teacher support; (c) using coaches to build and support teacher literacy knowledge; and (d) providing coaches with ongoing professional development through district training and collaboration with other district coaches (Sturtevant, 2003).

Literacy coaching has been a vital component in the success of the Alabama Reading Initiative (ARI), which strives to significantly improve reading instruction and learning in all K-12 classrooms. Each school participating in the ARI has access to a literacy coach who collaborates with teachers and helps teachers learn new strategies by modeling effective instructional practices. In addition, coaches partner with literacy professors from local

universities to build teachers' capacity to provide effective literacy instruction. This is accomplished through professional development sessions that take place throughout the year and during the summer (Alabama Department of Education, 2003). Evaluation reports stated that schools that participated in the ARI model generally outperform schools that did not participate (Moscovitch, 2001; Strutevant, 2003). Other key findings also suggested that middle and high school teachers on average re-enforced interdisciplinary literacy instruction and learning throughout the day and attributed their growth of literacy knowledge and improved literacy instruction to their in-depth, hands on interaction with the school's literacy coach.

In a study of the effects of extended professional development with coaching, Cantrell and Hughes (2008) found that sixth and ninth grade teachers increased their literacy knowledge and improved their teacher efficacy and instructional practice as a result of working with a literacy coach. Although they also participated in summer institutes and monthly professional development sessions, teachers in the study reported that they benefited the most from on-site coaching which involved opportunities to practice and master literacy techniques that were of importance to the specific discipline they taught. Since the goal of the project aimed to help content area teachers employ literacy skills to facilitate students' academic reading and disciplinary learning, teachers interacted with the literacy coach through team meetings, individual planning sessions and modeled lessons (Cantrell & Hughes, 2008, p 105).

Thibodeau's (2008) study of high school content area teachers also benefited from the job embedded nature of professional development in that it afforded teachers the time to learn new instructional practices and collaborate with colleagues. However, teachers' professional learning in this study followed more of a peer coaching model. Although teachers were guided by an interdisciplinary literacy specialist, they also engaged in collaborative problem solving and

planning that were dependent on the “collective knowledge, expertise, and experience of the group” (Thibodeau, 2008, p. 61). In the past, these teachers were involved in on-going district based professional development focused on integrating literacy instruction in the content areas. However, teachers failed to accurately and consistently implement literacy instruction in their discipline. When teachers participated in team learning, they structured the group to learn from one another and meet their individual needs; thus, teachers became closely involved in shaping their learning experiences.

Though few studies address literacy coaching at the secondary level, content area teachers’ experiences with coaching were consistent with those commonly reported in the research literature regarding the effects of coaching as a vehicle for professional development. When coaches modeled, offered support, and provided teachers with resources and individual feedback, teachers developed instructional habits that enabled them to value and gradually take ownership of their professional learning, share their instructional practices with colleagues, and ultimately allowed them to become more proficient in their instructional routines (Bean & Morewood, 2006; Fullan, 2001; Guskey, 2000).

2.4 INSTRUCTIONAL LEADERSHIP

Changing teacher beliefs and instructional practices can shift over time when they are involved in relevant professional development that targets teacher learning and classroom practice (Nelson, 1998). This process of change involves the influence of an instructional leader who builds teachers’ capacity by providing instructional and structural support that allows for sufficient time for teachers to engage in opportunities to learn and to increase their content

knowledge (Marzano, 2003; Nelson, 1998). The successful integration of literacy instruction at the secondary level involves collaborative efforts between teachers, administrators, and other literacy leaders within a school that provide professional learning opportunities for all who are involved that lead to in-depth and sustained changes in classroom practices.

In order for teachers to learn and implement new instructional practices, they will need on-going interaction and support from instructional leaders. To have an impact on teacher learning and their instructional practices, instructional leaders must possess a high degree of subject matter knowledge in which they understand how teachers learn and how to provide on-going instructional support (Stein & Nelson, 2003). In a study of school administrators and curriculum coordinators, Burch and Spillane (2003) examined the relationship between administrators' subject matter knowledge and their interactions with teachers and their instructional practices. As part of district wide literacy reforms, principals involved in the study consistently relied on their subject matter knowledge of literacy instruction to shape their leadership strategies. Principals made critical decisions about the school's instructional reform, including when to seek external expertise to help teachers' improve literacy instruction. Regular interaction and collaboration with teachers helped principals to realize the need to seek external help in improving literacy instruction as well as to understand the various types of support teachers needed to effectively implement a school wide literacy program (Burch and Spillane, 2003).

The Burch and Spillane study illustrates the integral role that instructional leadership serves in planning and implementing an effective school wide literacy program. School leaders must establish an agenda that creates shared goals and influences the thoughts and actions of teachers that enable them to teach effectively (Leithwood & Riel, 2005). While highly effective

teachers who possess a great deal of content and pedagogical knowledge are key in improving students literacy skills, Liethwood et al. (2004) found that school leadership is second only to classroom instruction among school-related factors that impact student learning. However, these findings indicate that school leaders indirectly affect student learning through their influence on teachers and the school's overall organizational structure. Instructional leaders who create a school organization that supports and sustains teachers' ability to integrate literacy into discipline specific classes provide resources that allow teachers to engage in research based professional development that increases their literacy knowledge and improves their instructional skills.

Instructional leaders should be able to use their subject matter knowledge to assess the instructional needs of teachers and guide them in learning the new subject matter content of a school wide reform. School leaders can have a significant influence on teachers' learning if leaders know how to guide and support instructional improvements (Stein, Hubbard, & Mehan, 2004). Successful school leaders emphasize a core set of school practices that allow teachers to effectively implement school wide initiatives, such as discipline specific literacy instruction, by establishing organizational conditions that promote professional learning. Stein et al. (2004) studied instructional leaders in two large urban districts who were responsible for implementing large-scale literacy reforms. Though schools within the district had potential to support teachers' learning, many instructional leaders could not sustain the capacity to continue teachers' professional learning at their individual schools (Stein et al., 2004).

Once school leaders and teachers completed district sponsored professional development, many instructional leaders struggled to create school based learning communities that supported teachers in developing necessary skills to improve literacy instructions. School leaders were expected to influence classroom instruction by providing job-embedded professional

development; however, Stein et al. (2004) found that many instructional leaders possessed a limited amount of subject matter knowledge and understanding of how to foster professional learning opportunities that allow teachers to practice new instructional routines and to develop a rich understanding of the school wide literacy reform.

Without the appropriate content and working knowledge, instructional leaders will struggle with implementing school wide literacy reform. Coburn (2005) argues that school leaders directly and indirectly influence teachers' understanding and instructional responses to the implementation of literacy reform. In studying two principals and their interactions with teachers while implementing new literacy reforms, Coburn (2005) revealed that principals implemented similar reading initiatives in very different manners based on their knowledge and understanding of the initiative, teacher learning, and literacy instruction. Although principals were successful in implementing district wide literacy reforms, each principal influenced and engaged teachers differently and created different conditions for teachers to work. While one principal provided teachers with technical support and guidance within a confined context, the other principal supported teachers by creating time and space for teachers to collaborate. However, these differences in implementation were not of the most importance in reforming literacy instruction. Rather, the "nature, quality, and content of teacher-leader interactions" proved to shape the degree to which teachers transform their instructional practices (Coburn, 2005, p. 501). Both school leaders in the study who possessed a deep knowledge of teaching and learning built professional learning communities that influence teachers' instructional practices.

Although content knowledge is of importance, Spillane, Diamond, and Jita (2003) argued that instructional leaders not only use subject matter knowledge to guide teacher learning, but also to distribute leadership so that multiple people work interdependently to achieve the

common goal. For secondary school leaders, the concept of distributed leadership is of particular importance since the task of implementing school wide literacy reform is more complex. Spillane et al. (2001, 2003) consistently found that high school principals often depend on department chairpersons and literacy coaches for a complete understanding of subject matter knowledge pertinent to the literacy reform. As a result, principals spread leadership roles across several key people including assistant principals, language arts or curriculum coordinators, grade level or content area teachers, and external partners.

The instructional leader's knowledge and understanding of discipline specific literacy instruction and learning will guide school leaders in how they spend their time, with whom they spend it, how they allocate resources, and ultimately how they go about implementing the school wide literacy reform (Coburn, 2005; Leithwood et al., 2004; Spillane, 2001; Coburn, 2005). While subject matter knowledge is critical, the ability of the instructional leader of a school is key in providing a coherent thread between the distribution of leadership and meeting the school wide goals of any reform initiative. It is the instructional leaders responsibility to develop the appropriate content knowledge that allows him to organize a school and create contextual conditions that provide teachers and administrators with the tools and professional learning opportunities they need to successfully implement a school wide reform.

2.5 SUMMARY OF LITERATURE REVIEW

The integration of disciplinary based literacy instruction is a complex process that has eluded secondary schools for many years. Decisions about what to teach and how to teach are largely influenced by content area teachers' beliefs and knowledge about disciplinary based literacy

instruction. Also influencing teachers' decision making about literacy instruction is the organizational context of a school. The awareness that teachers develop about the importance of discipline specific literacy instruction depends on the instructional leaders' knowledge and understanding of literacy instruction in the disciplines. Effective school wide literacy reform requires that instructional leaders provide organizational structures and professional learning opportunities that support teachers' efforts to integrate disciplinary based literacy instruction.

To have a significant impact on adolescent literacy achievement, secondary schools must have a concentrated and interconnected approach to literacy instruction that involves the collaboration of teachers, administrators, and literacy coaches. Secondary schools that have a strong commitment to improving students' literacy achievement systematically create a climate that values the practice of disciplinary based literacy instruction by organizing the structure of the school to support teachers' efforts to integrate literacy instruction. Teachers need more information and experiences with the implementation of literacy instruction; thus, secondary schools can support teachers by (a) planning ongoing professional development for teachers and administrators, (b) building collaborative relationships and learning communities that support literacy instruction and learning, (c) implementing literacy coaches to guide teacher learning and to help teachers improve instructional practices, and (d) providing appropriate resource materials for teachers to use in the classroom.

As part of a school wide reform, integrating disciplinary literacy instructions is not viewed as an added component to an already overloaded curriculum, but rather as an opportunity for teachers to learn how to develop students' advanced literacy skills while learning discipline specific information. As a result, teachers can teach content as well as support students as they employ advanced literacy skills in order to read to learn content information. Only then can

students become competent readers who understand how to produce and build discipline specific knowledge while exploring and constructing meaning from a variety of academic texts.

3.0 RESEARCH METHODOLOGY

A case study method was used to gain an in-depth understanding of one high school's attempt to create a culture of literacy and implement a school wide literacy program. This methodology allowed for intensive, holistic and meaningful description and analysis of the instructional routines and processes of teachers, literacy coaches, and administrators within the real-life context of their work (Merriam, 2002; Yin, 2003).

In addition, a major strength of the case study approach is that it allowed for collection of evidence from multiple sources; analysis of these multiple data sources was necessary to understand how teachers' beliefs and literacy knowledge influence instructional practice and how school leadership and organizational structures supported teachers' efforts to integrate literacy instruction. In order to gain a complete understanding of the relationship among teacher beliefs, knowledge, instructional routines, and contextual factors, three methods of data collection were used: semi-structured interviews, classroom observations, and artifact reviews.

3.1 RESEARCH QUESTIONS

The following research questions were examined to guide this study:

1. What were teachers' knowledge and beliefs about disciplinary based literacy instruction?

- a. How did teachers define the literacy of their discipline?
 - b. What instructional practices did teachers employ to address literacy learning in their discipline?
2. How do the school's principal and literacy coaches support teachers' efforts to integrate discipline specific literacy instruction?
- a. How do the principal and literacy coaches' knowledge and beliefs about discipline based literacy instruction influence their decision making?
 - b. What are the principal and literacy coaches' roles in developing teachers' instructional practices that promote disciplined based literacy instruction?

The following table gives an overview of the instruments that were used to answer each research question.

Table 3.1 Research Questions and Data Sources

Research Question	Interview	Observation	Artifact
RQ 1	*	*	*
RQ 1A	*	*	*
RQ 1B	*	*	*
RQ 2	*		*
RQ 2A	*		*
RQ 2B	*		*

3.2 PURPOSE

The purpose of this study was to explore the integration of discipline specific literacy instruction as part of a comprehensive literacy program at the secondary level. While comparative case study is often used as a method of empirical inquiry to investigate contemporary situations within authentic contexts, a single case study approach more specifically allows for the examination of an individual component and its effects on a number of variables (Yin, 2003). Thus, this study used a single case study approach in which the implementation of one high school's literacy initiative and its effect on teachers' instructional practices was explored.

Intensive immersion at the research site allowed for rich description of how formal structures were created within the school and how these layered processes of interactions between these structures and those who work within the organization take place over a period of time (Miles & Huberman, 1994). Using a single case study approach allowed for a close, in-depth examination of the interactive processes and organizational structures that support a school wide literacy program by portraying the interaction of many professionals including teachers, administrators, and instructional coaches, to document events that lead to the integration of literacy instruction in discipline specific classrooms (Merriam, 2002).

3.3 SITE SELECTION

The selected school for this study was a large high school located in eastern Pennsylvania which housed 4,787 students and 252 teachers. Ramsey High School (*pseudonym*) was the only high school in the Ramsey School District (*pseudonym*). The school district consists of fourteen

elementary schools, four middle schools, and three gateway schools that specialize in the following areas: performing arts; communication and technology; and agriculture, science, and ecology. The district serves a diverse student population in which a large number of students who come from migrant families and who speak English as a second language. Academically, the district as whole has struggled to make adequate academic progress. Roughly 50% percent of third, fifth, and eighth grade students scored at the proficient or advanced level on the PSSA. However, only 33% of eleventh grade students scored at the proficient or advanced level on the PSSA.

3.4 SETTING

The majority of students at Ramsey High School were students of color who represented diverse, multicultural backgrounds. Some of the students of color were immigrants who came from thirty different countries, and they spoke seventeen world languages. Of the 4,787 students, 69% were Latinos, 15% were African Americans, 16% were Caucasians, 1% were Asian, and 1% were classified as other. To meet the various academic and social needs of its multicultural population, the school had seventeen academic departments and offered over five hundred course offerings ranging from college preparatory to vocational technology.

One of the school's major goals was to ensure that all students were academically and socially prepared to graduate from high school and enter college or the high skilled workforce. As a result, the school offered more than forty support programs and after school activities to ensure students' academic and social success. In addition, Ramsey High School was involved in several extensive reform efforts to improve students' academic achievement.

The school as a whole has struggled to make significant academic progress under the No Child Left Behind legislation and has failed to meet the state's requirements for annual yearly progress (AYP) since 2002. The state's target for reading proficiency was 63%, but roughly 35% of the eleventh grade students achieved reading proficiency on the PSSA during the 2006-07 and 2007-08 academic years. Because of their performance, Ramsey High School and the Ramsey School District were in their second year of corrective action for failing to achieve adequate reading proficiency.

Despite their academic struggle, the school has seen steady gains in students' reading test scores since the inception of this secondary initiative; in fact, every grade (9th-12th) at Ramsey High School has made academic progress on the Pennsylvania System of School Assessment (PSSA) during the past four years. The school as a whole, including administration, teachers, and instructional coaches, have been committed to addressing the academic needs of students as well as the instructional role of teachers. Extensive efforts have been made to address students' academic achievement in reading. As a result of their participation in a school-wide literacy reform, the school has been a work in progress in building a structure of literacy rich classrooms and improving students' literacy achievement.

3.5 PARTICIPANT SELECTION

Since the goal of this study was to examine the integration of literacy instruction in the major disciplines, a purposeful sampling approach (Patton, 1990) was used to identify teachers who emphasized literacy instruction in discipline specific classes. Teacher selection was based on suggestions from the school's literacy coaches of the ninth and tenth grade teachers who

participated in the school’s professional development and who worked with an instructional coach. Teachers who volunteered to participate in the study represented the four major disciplines of math, science, history and English.

In addition to teachers, the school’s literacy leaders were also asked to participate in the study to determine their role in creating a school culture that emphasized literacy across the curriculum. Literacy leaders included the school’s principal and two literacy coaches. Table 3.2 lists those who participated in the study. Participants represented various professional and educational backgrounds.

Table 3.2 Participant Demographics

Teacher	Years of Experience	Degree	Teaching as Second Career
Meera	3	Bachelor +	No
Zack	2	Bachelor + 24	No
Lacey	4	Bachelor +	No
Katherine	5	Bachelor + 24	No
Samonia	6	Bachelor +	Yes
Paul	2	Bachelor +	No
Thomas	7	Masters	Yes
Jane	16	Masters	No
Principal	11	Masters	No
Coach 1 (M)	10	Masters	No
Coach 2 (H)	19	Masters	No

3.6 PAHSCI MODEL

To gain an understanding of a school’s process of implementing a school wide literacy program in a secondary setting, I selected a high school that has been engaged in school wide reform with

a focus on improving literacy instruction across the curriculum. Ramsey High School participated in the Pennsylvania High School Coaching Initiative (PAHSCI) model because of its diverse student population and low academic achievement. PAHSCI was created by the Anneberg Foundation and the Pennsylvania Department of Education to address the literacy needs of adolescents in high need schools by supporting teachers through instructional coaching and intensive professional development.

The PAHSCI model focused on working with teachers across the major disciplines to influence their classroom instruction by establishing literacy rich classrooms that incorporate research-based literacy practices. Instructional coaching was used as the major vehicle in improving teachers' literacy and content knowledge as well as their instructional skills and practices. The goal of PAHSCI was to help teachers help students by strengthening classroom instruction so that students were engaged in active learning that advanced their literacy and critical thinking skills while building content knowledge.

The PAHSCI model has been implemented in 26 schools across the state of Pennsylvania. Schools involved in PAHSCI followed prescribed guidelines including: (a) working with an instructional coach, (b) attending on-going professional development (c) and using Penn Literacy Network's (PLN) Framework that emphasized a set of core literacy strategies in all academic disciplines. These three are described below.

3.6.1 Instructional Coaching

To help teachers adopt research-based instructional practices, literacy coaches worked with teachers as a way to embed professional learning opportunities. Teachers who receive on-going professional support from literacy coaches are more likely to include newly learned instructional

methods, which can lead to enhanced teacher quality and increased student achievement (Joyce and Showers, 2002; Alliance for Excellent Education, 2006). With extended knowledge of the content being taught and the structure of the school in which they work, literacy coaches are able to work with teachers on a one-to-one basis to help them advance their teaching skills and customize their instruction to meet the specific needs of their students.

3.6.2 Professional Development

The PAHSCI design sought to provide administrators, literacy coaches, and teachers with multiple learning opportunities that would allow them to apply their learning to sustain classroom practice. Developing professional learning communities is critical to a school's ability to establish and sustain instructional changes (McLaughlin & Talbert, 2001). Administrators and literacy coaches play important roles in developing, implementing, and strengthening ongoing professional learning opportunities, which serve as a source of teachers' instructional knowledge and professional growth.

3.6.3 Penn Literacy Network Framework (PLN)

To encourage coherent and consistent literacy instruction across the disciplines, teachers need to engage in a shared approach to developing students' literacy skills. PLN's framework is based on four interrelated lenses that provide teachers, literacy coaches, and administrators with a shared language and practice for discussing literacy instruction and student learning. Those four lenses are: (a) meaning-centered for relating new information to existing prior knowledge), (b) social for learning in a collaborative, social context), (c) language based for reading, writing, and

talking for authentic purposes, and (d) human for self-reflecting to increase awareness of one's own unique learning styles. PLN's framework promotes student engagement through research based learning experiences that involve problem solving and critical thinking (RFA, 2007). As a result, students are involved in critical learning experiences that involve transacting with and composing text, extending reading and writing, investigating language, and learning to learn. Figure 1 shows how the PAHSCI model is designed to incorporate multiple components to implement school wide literacy reform. Instructional coaching, professional development, and the Penn Literacy Network were used to integrate discipline specific literacy instruction, promote literacy rich classroom, and improve student achievement.

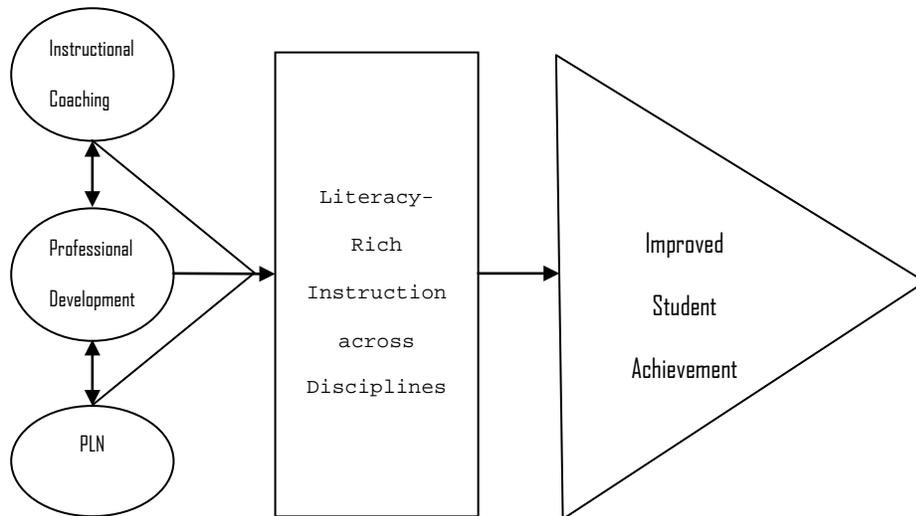


Figure 3.1 PLN Framework

The PAHSCI design guided Ramsey High School's literacy reform. The school in this study sought to improve student achievement by improving literacy instruction.

Through instructional coaching, professional development, and the use of the Penn Literacy Network, Ramsey High School sought to strengthen secondary teachers capacity to integrate discipline specific literacy instruction.

3.7 OVERVIEW OF PROCEDURES

This study sought to document the organizational and instructional processes that occurred within a secondary school to infuse literacy instruction across the curriculum. Teachers instructional practices and their interactions with literacy leadership were the focus of the school's efforts to integrate literacy into discipline specific classrooms.

During the six week study, twenty visits were made to the school for a total of 172 hours. School visits allowed for consistent interaction with ninth and tenth grade teachers, the principal, and two instructional coaches as well as for a thorough understanding of the participants' work.

This in-depth investigation was divided into three phases. Phase I included an introduction of the study to the school's leadership team and the teachers who volunteered to participate in the study. In addition, pertinent documents were collected in order to accurately outline the school's literacy reform implementation. Phase II consisted of teacher and literacy

leaders interviews and phase III consisted of teacher observations and shadowing the literacy leadership team. Although each phase has a distinct purpose, the phases overlapped during the course of the study. Each phase is discussed in depth below.

3.7.1 Phase I

During the initial phase of the study, the school's principal and other literacy leaders including assistant principals and instructional coaches met with the researcher to discuss the purpose of the study and to explain the school's efforts to improve literacy instruction. The literacy leaders also identified teachers from the various disciplines who were willing to participate in the study. During that time, the school's literacy leaders (principal & literacy coaches) were interviewed to determine how they enacted their beliefs and knowledge of the school's literacy framework and discipline specific literacy instruction. In order to further understand the role of literacy leaders, the researcher attended faculty meetings, professional development sessions, and informal meetings to observe faculty interactions.

Pertinent documents including, but not limited to the school's mission statement, strategic plan, professional development focus, PAHSCI framework, and teacher lesson plans were reviewed to develop a complete understanding of the school's approach to literacy reform. This document review was used to supplement primary data collection approaches and to assist in the triangulation of data collected from interviews and observations.

3.7.2 Phase II

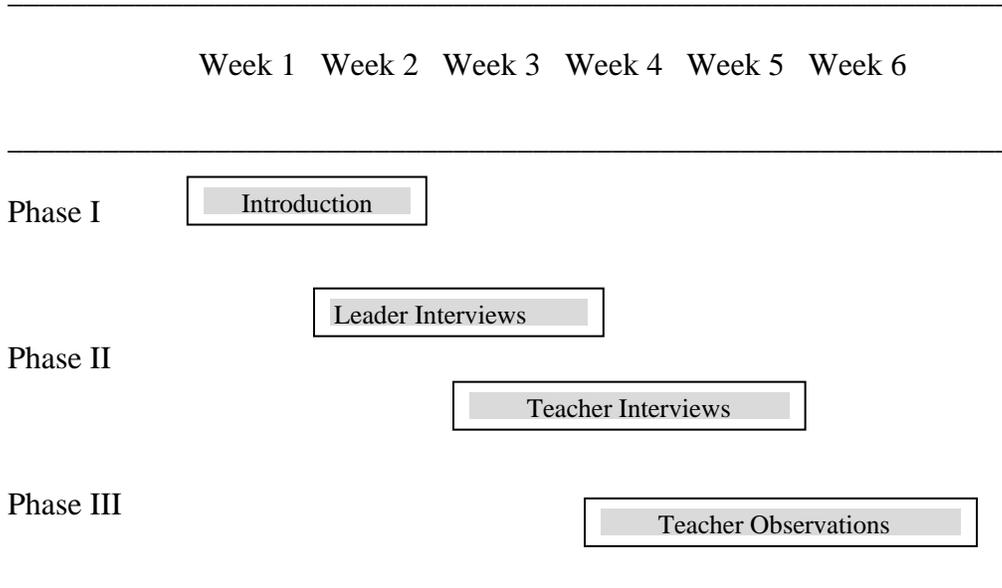
The second phase of the study focused on gathering information about teachers' beliefs, knowledge, and instructional practices. The purpose of the study and data collection methods was discussed with each teacher individually. After teachers gained a full understanding of the study, in-depth teacher interviews were conducted using a semi-structured interview protocol, described in the following section. Teachers were interviewed to examine the congruence between the literacy goals of the school and their stated beliefs and instructional practices.

3.7.3 Phase III

Once the interviews were completed, two consecutive classroom observations per teacher were conducted in order to examine how content area teachers promoted literacy in their classroom and how the school's literacy initiative influenced teachers' integration of discipline specific literacy practices. Consecutive observations also allowed for a thorough understanding of the lessons' instructional focus, facilitation of learning, and strategies used.

Consecutive observations were conducted to observe how teachers introduced and concluded the lesson, supported student learning, and met instructional objectives. Finally, consecutive observations were used to triangulate interview and observation data to match what teachers said they were going to do to what teachers actually implemented during classroom instruction.

Table 3.3 Timeline



3.8 INSTRUMENTS

The major strength of case study data collection is the opportunity to use various sources of evidence (Yin, 1994). There were two primary sources of data collection. First, semi-structured interviews were conducted to gain an in-depth understanding of how teachers, literacy coaches, and the principal promoted literacy across the curriculum. The second source of data collection was classroom observation. Data from classroom observations were used to identify teachers' instructional practices pertaining to literacy.

3.8.1 Interviews

Marshall and Rossman (2006) stated that the primary goal of the interview was to immerse in the natural setting and to “capture the deep meaning of experience in the participants’ own words” (p.55). A semi-structured interview protocol guided the discussion with the principal, literacy coaches, and teachers (see appendix B). The interview protocol was structured to better understand the participants’ knowledge, beliefs, and instructional practices about literacy in their academic discipline.

Teacher interviews were approximately 45 minutes long. The focus was threefold:

(a) professional background information, (b) lesson planning, and (c) leadership support. The background section of the teacher interview protocol was designed to gain information about the teachers’ professional background including years of teaching experience and educational background. The lesson planning section was the primary focus of the teacher interview protocol. During the interview, each teacher was asked to explain, in detail, the following: (a) his/her instructional practices for the observed lessons (b) materials to be used, (c) how he/she planned to facilitate student learning, and (d) what literacy strategies he/she would ask students to use in order to learn content information.

For the leadership and organizational support section of the teacher interview protocol, teachers were queried about their interactions with the school’s literacy leadership. This section of the interview focused specifically on teachers’ work with the literacy coach. Teachers were asked to explain how the literacy coach supported their efforts to integrate literacy instruction. In addition, teachers described their involvement with professional learning opportunities and how that experience has increased their discipline specific literacy knowledge and how their instructional practices have changed as a result.

Individual interviews were also conducted with the school's literacy leadership, including the principal and two literacy coaches. The literacy leadership protocol (see appendix C) consisted of two sections: (a) professional background and (b) instructional and organizational support. The background section of the literacy leadership interview protocol was designed to gain information about the principal and literacy coaches' professional background including years of teaching experience, and educational background.

The leadership and organizational support section was developed to gain information about the school's leadership team and the ways in which they interacted and supported teachers in their implementation of literacy instruction, their interactions with one another, and with teachers. Identifying the school's leadership role in the implementation of the school wide literacy initiative allowed for a thorough understanding of the types of organizational structures that supported teachers' literacy instruction. The interview with the principal focused on his interactions with teachers and how he supported their efforts to promote literacy. During the interview with the literacy coaches, the coaches' work with teachers was the major focus.

3.8.2 Observations

Marshall and Rossman (2006) indicated that questionnaires are limited in that they lack the ability to reveal and understand deeply held beliefs and values and they offer "little value for examining complex social relationships or intricate patterns of interaction" (p.126). Therefore, observations of teachers and literacy leaders were conducted after interviews were completed as a way to validate the accuracy of the participants' responses and to gain a deeper understanding of complex interactions in natural social settings (Marshall & Rossman, 2006).

Observations were also used to explore and describe the instructional repertoire of content area teachers as well as understand the culture of literacy and various literacy expectations in discipline specific classrooms. In addition, observations explored how teachers enact their beliefs and knowledge about literacy instruction in their discipline. In order to systematically track teachers' instructional practices, protocols were developed to guide the observations based on the PASCHI observation model (2007). The PASCHI's observation model was used to observe ninth and tenth grade teachers and students in math and science.

Modifications of the original model were made so that the protocol could be used to observe in ninth and tenth grade classrooms from across the major disciplines (science, math, social studies, and English), to focus primarily on teachers' instructional routines and practices, and to account for the number of literacy focused activities in each classroom. The observation protocol for this study consisted of five categories including: (a) literacy focus (b) facilitation of learning (c) student grouping methods (d) materials used and (e) literacy strategies used by students. The observation protocol for this study is provided in appendix D.

In the literacy focus section, the literacy activities the teacher asked students to perform were coded (e.g. such as reading, writing, listening, or speaking). Facilitation of learning described the teachers' instructional practices and the method teachers employed to present content information. Examples of teachers' facilitation of learning lecture, direct explanation, or guided practice. Grouping methods and materials noted how the teacher employed differentiated instructional routines and resources to support student learning. Literacy strategies included strategies that teachers used to guide students' literacy activities (see appendix D). Teacher observations revealed the ways in which teachers used literacy practices to connect content to

students' prior knowledge, engage students in learning content information, and develop students' literacy skills.

The observation protocol was used to observe each teacher for two consecutive lessons, each 40 minutes. Coding was done for every category every ten minutes for a total of four, ten – minute segments. The observer would observe and then note for each of the categories, which of the specific activities or behaviors were seen. Therefore, during a ten minute segment, a teacher may have had students read and also write; therefore, both would be coded as occurring during that particular segment. The following table is an example of how the literacy focus section of the observation protocol from one teacher might be coded.

Table 3.4. Sample Observation Protocol for one lesson

Time (min.)	10	20	30	40	Total (segments of time)	N = % of time spent on each activity
Literacy Focus						
Reading			X	X	2/4	50%
Writing	X	X	X		3/4	75%

In this example, the teacher had students read and write. Students read during two of the segments, and they wrote during three of the segments. In one of the segments, students had the opportunity to both read and write. Therefore, this teacher would be coded as having students spend 50% of their instructional time reading and 75% of their time writing.

3.8.3 Other Data Sources

The principal and literacy coach were shadowed to observe their interaction with one another and with teachers during faculty meetings, department meetings, and professional development sessions in order to further understand their role as literacy leaders. Field notes were taken during this time and were used as another means of triangulating data. Field notes also provided further support to teacher interviews and classroom observations.

3.8.3.1 Document Review

In order to form a complete understanding of the setting, the group being studied, and the history and context surrounding the literacy reform, critical documents were reviewed and analyzed. The document review was used to triangulate data from interviews and observations and to supplement participants' interviews and observations. Review of documents allowed for a rich portrayal of the values, beliefs, and goals of these participants in a particular setting (Marshall & Rossman, 2006). The following documents were reviewed:

1. School wide mission and vision statements that communicated a commitment to school wide goals for literacy improvement
2. School wide strategic plan that identified a comprehensive effort to improve literacy learning and instruction
3. Discipline specific curriculum and literacy standards that emphasized a coherent literacy focus across the curriculum
4. Professional development records that addressed the need for improving teacher learning.

Document review was used in addition to participants' interviews and observations to gain a more in-depth understanding of what the expectations were for teachers, coaches, and administrators in this literacy initiative and to compare those expectations with the information gleaned from interviews and classroom observations. The primary documents reviewed were the PAHSCI design, Penn Literacy Framework, and teacher lesson plans. In addition, the document review provided background information that revealed how teachers developed and implemented discipline specific literacy instruction.

3.8.3.2 Field Notes

Field notes were used in addition to the other data sources in order to gain a rich description and in-depth understanding of how one high school integrated a comprehensive literacy program into discipline specific classrooms. Field notes consisted of notes kept in a journal about what was seen or heard in various meetings, including comments about students, instruction, and possible questions that might be asked of teachers, coaches, or administrators. Furthermore, field notes were used to highlight important statements and events, to note additional ideas about the school's literacy reform, and to raise questions about the participants' knowledge, beliefs, and instructional practices. By using field notes, the researcher was able to thoroughly document and describe the events of multiple settings within the school including: classroom instruction, teacher interviews, coaching conferences, professional development sessions, and leadership team meetings. Field notes were used on a regular basis throughout the study and allowed the researcher to elaborate further on specific details of the collaboration.

3.9 DATA ANALYSIS

In order to understand participants' knowledge and beliefs about discipline specific literacy instruction, interviews were conducted with eight teachers, two literacy coaches, and the principal. Research asserts that teachers' knowledge and beliefs about literacy instruction within the disciplines influences their instructional decisions and practices (Hall, 2005; Hoffman & Duffy, 2000; Guskey, 2000; Moje, 1996).

In addition to their beliefs, teacher knowledge and decision making is also influenced by school culture. Research suggests that teachers' beliefs and practices can be changed when they are consistently given opportunities to learn theoretical and pedagogical knowledge over an extended amount of time and are exposed to hands on opportunities to build application of knowledge (Gomez & Gomez, 2007; Torgesen, 2007; Biancarosa & Snow, 2006; Nelson, 1998).

The integration of discipline specific literacy instruction becomes a reality in secondary classrooms that exist in a school culture that encourages the development of advanced literacy skills infused with content by providing teachers with ongoing professional development. To establish a culture of literacy in a secondary setting, school leaders must possess the knowledge to support teachers' learning and implementation of literacy instruction in the disciplines (Coburn, 2005; Stein & Nelson, 2003).

This study sought to identify what knowledge and beliefs teachers, coaches, and the principal held about literacy instruction and how literacy leaders supported teachers' efforts to integrate discipline specific literacy instruction.

In qualitative analysis, interviewing is conducted to understand the experience of the participants being studied and the meaning they make of that experience (Marshall & Rossman, 2005; Seidman, 1998). Interviews were conducted with twelve participants. Interviews were

taped and transcribed verbatim in order to gain an accurate depiction and deep meaning of experiences in the participants' own words. Data from the interviews were analyzed and interpreted based on the participants' responses and the researcher's understanding of what was said.

To create meaning from the participants' experiences, data collected from the interviews were analyzed as they were being collected and organized into categories that illustrated the participants' experiences. The created categories were guided by the study's purpose, the knowledge and orientation of the researcher, and meaning of participants' experiences (Schram, 2003; Dana & Silva, 2003).

The initial analysis of data was descriptive in nature and advances to developing categories from recurring themes found within the data. Qualitative analysis involves a complex, recursive process that involves delving into the data to describe and interpret its meaning, which contribute to the findings of the study (Merriam, 2002). Understanding data collected from interviews consisted of: (a) reading each transcript line by line, (b) studying and identifying key phrases that related directly to the beliefs, knowledge, and integration of discipline specific literacy instruction, (c) analyzing the meaning of each significant statement or phrase, and (d) organizing key phrases into categories of major themes.

Categories were systematically created to answer the study's research questions. Data that were relevant to answering the research questions were placed into specific categories or subcategories. Data were placed into one or more categories to accurately reflect how the participants' understood and made meaning of their experience.

This type of qualitative inquiry allowed the researcher to identify major themes and patterns that emerged from the interviews. The meaning and insights from the interview data

were used to create a complete understanding of the participants' experiences and contributed to the findings of the study.

3.10 VALIDITY AND RELIABILITY

This study examined one school's instructional and leadership capacity to foster the integration of discipline specific literacy instruction as part of a comprehensive literacy program at the secondary level. Qualitative research allowed for holistic and meaningful description of the instructional routines and processes of teachers, literacy coaches, and the principal within the real-life context of their work (Merriam, 2002). To ensure the accuracy and credibility of this study, validity and reliability were established through respondent validation and inter-rater reliability.

Since this study focused on the participants' experiences and the meaning they made from their experiences within the real-life context of their work, internal validity was used to verify the credibility of this study's findings and the participants' actual experiences. This study used respondent validation to check internal validity. Respondent validation occurred during the interview process when the researcher provided the participants with a summary of their answers from the interview. All participants participated in the respondent validation. The researcher restated the summarized information and questioned the participants for accuracy. Participants reviewed their answers, offered clarification when necessary, and affirmed that the summaries accurately reflected their views and experiences. Respondent validation allowed for a thorough and accurate understanding of the participants' experiences.

Reliability in qualitative research is the ability to ensure that the data collected makes sense and generates an understanding of what was studied (Patton, 2001). Reliability in this study was supported by multiple sources of data that during analysis, reflected similar responses. The use of multiple sources of data and the consistency of results between them supported and strengthened the validity of the findings of this study.

Inter-rater reliability occurred when the interview data was analyzed by two raters. Teachers, literacy coaches, and the principal's interviews were taped and transcribed. Codes were created based on common themes that emerged from the data. Definitions for codes were established and discussed in order to achieve consensus between the two raters. The researcher and another rater used these codes and definitions to analyze interview data.

The researcher and the other rater read and coded one teacher interview line by line. The raters discussed their coding for the one teacher interview. Once major themes were identified and discussed with the teacher interview, the raters independently read three additional interviews. Both raters coded the two interviews and discussed their work. Coding teacher interviews was used to establish inter-rater reliability. There was 88 percent inter-rater reliability between the two raters. The percentage of reliability was established through dividing the number of agreements between the two raters by the total number of codes (agreements and disagreements). The researcher coded the remaining participant interviews.

Interviewing participants allowed for an in-depth understanding of the knowledge, beliefs, and instructional practices of teachers and the system of support literacy leaders offered to teachers. Theme that emerged from the data was used to answer the research questions for this study. Findings from the data are found in the Conclusion section of this document.

4.0 FINDINGS

This study examined one secondary school's instructional and leadership capacity to foster the implementation of disciplinary based literacy practices. Participants in this study included eight teachers, two literacy coaches, and the school's principal. Each participant volunteered to discuss how his/her literacy knowledge developed, how his/her knowledge influenced instructional decisions, and which literacy practices he/she employed in their discipline.

To detail the factors that influenced teachers' knowledge and instructional practice, data were obtained from several sources including: teacher interviews, literacy leaders' interviews, and teacher observations. Data analysis allowed for a thorough investigation of how subject area teachers developed their literacy knowledge, the specific ways in which they implemented discipline based literacy instruction, and how the principal and literacy coaches supported teachers' instructional efforts. Data analysis occurred throughout the study to identify consistencies between teacher interviews and classroom observations and to identify the similarities and differences among teachers' instructional practices.

4.1 RESEARCH QUESTION #1:

WHAT ARE TEACHERS' KNOWLEDGE AND BELIEFS ABOUT DISCIPLINARYSPECIFIC LITERACY INSTRUCTION?

- a. HOW DO TEACHERS DEFINE THE LITERACY OF THEIR DISCIPLINE?**
- b. WHAT INSTRUCTIONAL PRACTICES DO TEACHERS EMPLOY TO ADDRESS LITERACY LEARNING IN THEIR DISCIPLINE?**

To understand what teachers know about effective literacy instruction and how they integrate literacy into their classes, each teacher was observed for two consecutive classroom observations. In this chapter, descriptive analysis of each teacher is presented to describe teacher beliefs and knowledge about literacy and the way in which each teacher used literacy in instructional practices. Data from teacher interviews and classroom observations were analyzed to identify consistencies between what teachers stated and what was actually observed. For each teacher, interview data relating to teachers' knowledge and beliefs about discipline specific literacy instruction are first discussed. Then observation data relating to teachers instructional practices is discussed.

These descriptive analyses are followed by a summary of findings across teachers that addresses research question 1.

4.2 DESCRIPTIVE ANALYSES OF TEACHERS

4.2.1 Meera – Math Teacher

Meera is third year math teacher who taught Algebra II. Her class consisted of 32 students who were identified as English Language Learners. Meera set high expectations for her students and challenged them to think critically about what they have learned. The focus of learning in this math classroom focused on engaging students in mathematical understanding of radical exponents and notation. This mathematical process includes a cycle of investigation in which students can form mathematical ideas through inquiry, experimentation, and explanation of their mathematical reasoning (Silver, Kilpatrick, & Schlesinger, 2005). Engaging students in these types of practices help to develop their mathematical understanding.

For Meera, it was equally important for students to learn the process of mathematical thinking as well as to learn important mathematical content. As a result, students can develop the process of mathematical thinking and the knowledge needed to address a range of mathematical work.

During the interview, Meera enthusiastically spoke about her work as a math teacher. She believed that her students needed strong reading and writing skills to be successful in her math class; hence, Meera valued literacy instruction and learning and made it a priority in her classroom. She stated that she often instructed students to not only compute math problems but to also explain in writing how they solved the problem. Meera defined math literacy as the ability for students to communicate their numerical and graphical work into written form. She further explained that:

Math is a foreign language that has its own symbols, its own syntax, and its own vocabulary. I focus so much on reading and writing in math because it is so important for students to know how to read numbers, symbols, and graphs and then communicate that into words.

Teaching students how to communicate mathematical computations from numbers to written words was a priority in Meera's classroom. She believed that students needed multiple opportunities to develop math literacy skills in order to be successful math students. By developing advanced literacy skills in math, students were prepared to handle a range of mathematical problems and solutions.

Meera appeared to have a strong command of the math content as well as the practices that emphasize math literacy. Not only was she able to easily articulate what it means to be literate in math, but she also demonstrated her knowledge of math literacy throughout her instruction. During instruction, Meera devoted just as much time to teaching math as she did to emphasizing literacy activities. She understood the rationale for using literacy strategies as a way to help students learn her course content.

Of all the teachers, Meera's instruction served as an exemplar model for discipline specific literacy instruction. She seemed to have developed a thorough understanding of the school's overall goal for the literacy reform and tailored her math instruction to meet those goals. Ultimately, improving students' reading achievement was at the core of the reform. To meet this school-wide goal, students need multiple opportunities to read, write, think, and discuss within the disciplines. Meera facilitated a student-centered classroom in which she incorporated authentic learning activities that allowed students learn math and strengthen their literacy skills.

4.2.1.1 Literacy Focus

Meera's view of math literacy was also evident through her instructional practices. The objective of the math lesson was for students to read word problems, solve numerical equations, and write explanations for a variety of number systems and number relationships. Specifically, students in Meera's class were expected to solve and convert rational exponents into radical notations and to explain their answers in oral and written form. Students' understanding of radical exponents and notations were dependent on their ability to read and write a variety of mathematical equations. Meera spent almost 100% of her instructional time on reading and writing; therefore, the primary literacy focus was reading and writing (see table 4.1).

Meera explained that it was critical for students to understand the concept of radical exponents and notations because there were different ways to write the same answer. Depending on the mathematical problem, students were expected to figure out whether to use radical exponents or radical notations. For example, Meera wrote the following equation on the board: $a^{\frac{m}{n}} = (\sqrt[n]{a})^m$. She stated that $a^{\frac{m}{n}}$ was an example of a radical notation and $(\sqrt[n]{a})^m$ was an example of a radical exponent; yet, both equaled the same answer written in different forms. Meera read and reviewed several examples with students and guided students through writing examples of their own.

In order for students to develop the habits of thinking and understanding for solving radical exponents and notations, Meera devoted nearly all of her class time instructing students to read and write radical equations (see table 4.1). Throughout the lesson, Meera prompted students to read a variety of word problems and determine which method (radical exponent or notations) was the most effective in solving the equation. Once students read the word problems,

they constructed an equation, solved the equation for an answer, and wrote an explanation describing their mathematical reasoning behind their answer.

Table 4.1 Meera’s Observation Summary

		Segment of Time N=(% of time spent on activity)	
		Observe 1	Observe 2
Literacy Focus			
	Reading	3/4 (75%)	4/4 (100%)
	Writing	4/4 (100%)	4/4 (100%)
Facilitation of Learning			
	Direct Explanation	4/4 (100%)	2/4 (50%)
	Discussion	1/4 (25%)	3/4 (75%)
	Guided Practice	1/4 (25%)	1/4 (25%)
Strategies Used			
	Key term	2/4 (50%)	2/4 (50%)
	Read/Think Aloud	1/4 (25%)	1/4 (25%)
	Think/Pair Share	1/4 (25%)	1/4 (25%)
Student Grouping			
	Whole Group	4/4 (100%)	3/4 (75%)
	Pairs	1/4 (25%)	1/4 (25%)
Materials Used			
	Student Notebook	4/4 (100%)	3/4 (75%)
	Handout	4/4 (100%)	3/4 (75%)
	Calculators	4/4(100%)	1/4 (25%)

4.2.1.2 Facilitation of Learning

During classroom observations, Meera managed a fast paced, student-centered classroom in which students participated in several classroom activities within the forty minute class period. Since Meera was introducing new information to her class, she spent a large portion of time (see Table 4.1) offering students direct explanations of radical exponents and notations, which were the key concepts of the lesson.

In mathematics, it is imperative to scaffold student learning so they are able to use their knowledge in purposeful ways, such as learning new information (Zimmerman & Schunk, 1995). During direct explanations, Meera drew on students' prior knowledge to help them connect previously learned content to the new information about radical notation. She focused students' attention to mathematical concepts they were familiar with such as finding and writing square roots within an equation. To assess what students knew, she queried them and asked them to tell her something they knew about square roots. Meera used students' answers as the basis of her explanations for radical exponents and notations.

Once students were able to make connections between their existing knowledge and new knowledge, Meera placed practice problems on the board and engaged students in guided practice. For Meera, guided practice served several purposes. Ultimately, guided practice allowed Meera to model the thinking and mathematical process for solving radical exponents and notations. Through modeling, students were able to observe the mathematical knowledge and routine needed to solve equations by observing their teacher. This type of learning through apprenticeship helps students to develop the ways of thinking within the math discipline by working alongside a proficient mathematician, in this case their teacher Meera.

As part of guided practice, Meera encouraged students to not only share their answer, but to also share their thinking behind the answer. When students shared their thinking, Meera was able to observe the ways in which students' grappled with information. Likewise, discussions of how students thought about and arrived at the answers allowed students to monitor their problem solving process and to self-assess which concepts or information they understood. Through these discussions, students were able to explain their answers and ask questions for clarification.

Student explanations and discussions also allowed Meera to assess student learning and modify instruction.

Since she believed that it was just as important for students to understand and articulate their process of mathematical thinking and reasoning as it was to arrive at the correct answer, Meera engaged students in classroom discussion during both lessons (Table 4.1).

4.2.1.3 Literacy Strategies

To help students navigate and explain the mathematical processes of radical exponents and notations, Meera incorporated literacy strategies such as key term, read-alouds, and think/pair share for students to use in her classroom. Even though each of these literacy strategies has its own distinctive features, Meera often intertwined them and instructed students to use them as they participated in class discussions.

At the beginning of each lesson, Meera placed math problems on the board as a review. During the review, students referred to examples of math problems from handouts and their notebooks and they used read-alouds to review and learn about important vocabulary words. In order to develop a complete understanding of newly introduced vocabulary words, Meera had students read sections of their handouts or notebooks to identify pertinent vocabulary such as square root, radical exponents, and radical notations.

As part of the key term strategy, students were expected to define key terms in their own words and to make as many mathematical associations as possible with that word. Meera explained that it is important for students to understand the relationships between the key terms in order to comprehend the concepts in the current lesson. For example, one student struggled to understand the relationship between square roots and radical exponents. As the student

questioned his peers for help and referred to his notes, he came to an understanding that a radical exponent was the simplified version of a square. After students wrote their key term definitions, Meera encouraged students to choose a partner to discuss their definitions. This strategy was known as a think pair share in which students discussed their understanding of key vocabulary terms. Students had the opportunity to raise questions, problem solve, and refer to their handouts or notebooks to justify their answers.

As students engaged in meaningful discussions, Meera walked around the classroom to monitor student responses. She noticed that many students did not understand the connection between square roots and radical exponents. To help students develop deep connections between prior knowledge of square roots and their new knowledge of radical exponents, Meera placed notes on the board for students to copy in their notebooks. She gave a mini lecture on the concept of radical notation. Once she completed her mini lecture, Meera used a think aloud to model how to complete the process of radical notation. To begin, Meera placed the following equation on the board: $16^{\frac{3}{2}} = (16^{\frac{1}{2}})^3 = (\sqrt{16})^3 = (4)^3 = 64$. As Meera worked through this equation, she thought aloud and asked herself questions such as, what does this mean or how can I simplify this problem. As Meera worked through the problem, students followed her thought process and asked questions when necessary.

After several examples, students engaged in read/think alouds with a partner. Students volunteered to write their radical notations and explanations on the board, and then explained their work to the class. As they gained an increased understanding of radical notation, students engaged in independent work by using a calculator to solve practice problems in their notebooks.

4.2.1.4 Student Grouping and Materials Used

Throughout the observations, Meera spent most of her instructional time on whole group instruction (See Table 4.1). She believed that whole group instruction was the most effective when presenting new information to students. She also explained that students have difficulties staying focused while working in groups. However, Meera did allow for students to work in pairs for think/pair shares and read-alouds. Throughout each lesson, Meera incorporated literacy practices that would help students learn mathematical concepts. She also instructed students to use materials, such as student notebooks and calculators, to help navigate the mathematical process and to justify their solutions.

Meera infused multiple discipline specific literacy practices into her class to develop students' literacy and math skills as well as to support student learning mathematical content. Throughout each lesson, Meera infused literacy practices that were pertinent to understanding math. For her Algebra II class, disciplinary literacy practices included mathematical investigation and reasoning to construct deep connections between concepts (radical exponents and notations) as well as determining and justifying solutions to mathematical equation. Meera emphasized these literacy practices by engaged in lively discussions as she posed questions and worked with students to help guide them through the reasoning and mathematical process of solving radical exponents and notations. Throughout the lessons, students had multiple opportunities to develop their math literacy skills through mathematical inquiry, discussion, and explanation of their ideas. These types of high level tasks allowed students to develop an awareness of their understanding and to compare their mathematical thinking and practice with their peers.

Believing that students must acquire the ability to solve problems and to explain their mathematical work in written form, Meera frequently engaged students in strategies that emphasize reading and writing such as read/think alouds and think/pair shares. Strategies that allowed students to articulate the reasoning behind their thinking was of particular importance in Meera's classroom since the majority of students did not speak English as their first language.

Throughout the lesson, it was common to hear Meera and students communicate in English and Spanish. Meera, who speaks multiple languages, explained that students may know how to compute a problem, but they may have difficulties understanding the language being used in the problem. When necessary, the teacher and students speak in Spanish to ensure that the meaning of what's being taught is not lost in translation. Therefore, Meera provided students with opportunities to compute math problems and to give written and oral explanations of how they solved the problem.

4.2.2 Zack – Math Teacher

Zack is a second year math teacher who taught basic geometry. His class consisted of 29 students. Zack stated that he benefited from professional development because it made him cognizant of the benefits of literacy instruction in math. While he found strategy instruction useful for improving student writing, Zack noted that he is still learning how to infuse literacy into his math class and that he struggled to find time to teach students literacy strategies.

Though he believed that literacy instruction was important, Zack stated that it was difficult for him to find meaningful ways to emphasize literacy activities in his classroom. He explained that he has had limited involvement with the school's professional development activities since he was new to the school. Zack believed that with more professional development

and with more teaching experience, he would become more comfortable with literacy instruction in his math class.

Although Zack acknowledged that he struggled with finding meaningful ways to motivate students to write mathematically, he realized that he needed to place more of a priority on incorporating literacy activities in his geometry class. Zack believed that the strategies he has incorporated have helped his students to formulate written explanations for their answers, a skill that he believes is the foundation of math. Zack stated that in order to be literate in math, students should be able to express their answers in numerical and written form. Zack explained that:

Being literate in math is different than it is anywhere else because it's a whole different realm. Reading a math book is very different than just reading a novel. I would say the explanation of your steps in your problems and word problems is where literacy really comes into effect, especially for the open-ended problems that are on standardized tests and final exams. So being literate in math means that you have to be able to explain how you solved something.

Zack believed that students were not always aware of the differences between literacy in math and other subjects. He encouraged his students to approach math as a different language. To do so, he explained that students needed explicit instruction in how to read and write in math classes. Although Zack struggled to find meaningful ways for students to read and write in math class, he believed that developing proficient math literacy skills were important in his classroom.

Despite his belief about disciplinary literacy, he seemed to have limited understanding and experience with including literacy instruction into his math class. As a new teacher, Zack

was not as familiar with the components of the literacy reform and the various discipline specific literacy strategies.

Although he was able to define math literacy and implement literacy strategies, Zack led a teacher-centered classroom where students had limited opportunities to interact with one another and discuss what they were learning. As prescribed by the PAHSCI framework, literacy strategies were used as a means for students to think, explore, and discuss what they were learning. However, Zack did not always use literacy strategies to enhance student learning. Often times, he instructed students to use literacy strategies as way to cover the curriculum. Compared to other classes that were observed, students in Zack's classroom did not have as many opportunities to think about and discuss what they were learning.

Zack's struggle to find balance between covering content and infusing literacy instruction is common among many high school teachers. As a new teacher, Zack was in the learning process of developing an accurate and thorough understanding of the PAHSCI model, which details the importance of active learning. Likewise, Zack was becoming familiar with those strategies that would best promote math literacy. Thus, Zack was in the initial phase of learning how to create a literacy rich classroom through discipline specific literacy instruction.

4.2.2.1 Literacy Focus

Zack incorporated his beliefs about math literacy into his instructional routines. Since he believed that students should be able to represent their mathematical work in numerical and written form, Zack devoted all of his instructional time to reading and writing (see table 4.2)

Zack's instructional objective was for students to understand the relationship between solving for perfect squares and estimating square roots. Students in Zack's math class were expected to

use their knowledge of perfect squares and square roots to solve for the missing side lengths in right triangles. Zack explained that students would need to develop a firm understanding of simplifying and estimating square roots because they would need that knowledge for future work involving triangles. In order to solve mathematical equations, students were required to read and write a variety of math problems and to solve square roots to their simplest form.

Table 4.2 Zack's Observation Summary

	Segment of Time	
	N=(% of time spent on activity)	
	Observe 1	Observe 2
Literacy Focus		
Reading	4/4 (100%)	3/4 (75%)
Writing	4/4 (100%)	4/4 (100%)
Facilitation of Learning		
Direct Explanation	1/4 (25%)	3/4 (75%)
Discussion	3/4 (75%)	3/4 (75%)
Guided Practice	3/4 (75%)	1/4 (25%)
Strategies Used		
Read/think alouds	3/4 (75%)	2/4 (50%)
Pair/shares	2/4 (50%)	1/4 (25%)
Student Grouping		
Whole Group	4/4 (100%)	3/4 (75%)
Pairs	1/4 (25%)	1/4 (25%)
Materials Used		
Audio-Visual	4 /4 (100%)	4/4 (100%)

To help students develop the habits of thinking and understanding needed to solve square roots, Zack instructed students to solve several practice problems. During this process, students read through several mathematical equations containing square roots. In addition to solving equations, students were required to write a paragraph explaining how they arrived at their answer.

4.2.2.2 Facilitation of Learning

During classroom observations, Zack used several methods to facilitate student learning.

He guided students through direct explanations on estimating and simplifying square roots. Since he was teaching a new concept, Zack began the lesson with a direct explanation of how to simplify or estimate a square root. During direct explanations, Zack drew on students' prior knowledge to help them connect previously learned content to the new information about square roots.

Zack explained that students already knew how to find the square root for perfect squares and they would need that information to estimate and simplify equations with square roots. As he placed notes and math problems on the board, Zack spent most of his instructional time engaging students in discussions about square roots (see table 4.2). With each example, Zack posed questions as to how to solve the problem. For example, Zack wrote the following question on the board: estimate the square root of six. Zack guided students' practice as they worked to estimate the square root. He explained that the square root of six fell between the square root of four and nine. Since the square of four is two and the square of nine is three, then the square root of six must fall between two and three. Zack continued to review the concept of estimating square roots by placing review questions on the board and engaging students in discussions as to how to solve the problem.

4.2.2.3 Strategies Used

For most of the lesson, Zack engaged students in read-think alouds as they used their math text as a resource in finding the correct answers (see table 4.2). Zack conducted a read-think aloud with the class to serve as an example. Once students understood how to estimate square roots, Zack instructed students to use read-think alouds to solve the remainder of the equations.

Once students completed their computations, Zack instructed students to use the pair/share strategy to explain their process of mathematical reasoning. While in pairs, students worked together to solve equations and describe how they arrived at their answer. Zack continued to involve students in discussions to allow them opportunities to ask questions and explain their answers. He guided students through practice problems and monitored their responses as they completed their computations and offered assistance when students needed clarification.

4.2.2.4 Student Grouping and Materials

Zack focused most of his instructional time on whole group instruction (see table 4.2). Since he was introducing new concepts, Zack believed that it was important to focus on covering content. However, Zack allocated some time during each lesson for students to work in pairs to discuss their mathematical process.

Throughout the lessons, Zack gave students a variety of opportunities to use literacy practices that were pertinent to students understanding and doing math. As a result, students used multiple literacy practices (reading, writing, discussing, and exploring) to learn mathematical concepts.

Zack engaged students in strategies that would allow them to articulate what they were thinking and learning. Zack believed that it was important for students to participate in classroom discussions. So he gave many opportunities during each lesson for students to explain their mathematical work in numerical, verbal, and written form.

4.2.3 Samonia – Science Teacher

Samonia is a ninth grade general science teacher who has taught for six years. Her class consisted of 30 students. Prior to teaching, she worked as a chemical engineer and believed that sharing her experiences of real world science in the classroom helped her students to understand the significance of what they were learning. During the interview, Samonia indicated that she has taught at the school since the inception of the school wide literacy initiative. As a result, she has undergone extensive professional development and has developed a broad knowledge of literacy strategies and activities. Samonia shared that most of her students had poor reading and math skills and needed extensive help understanding their science textbook. So, she believed that incorporating literacy strategies was necessary in helping students learn the course content.

Since many of her students struggled with basic literacy, Samonia stated that it was important for her to encourage students to read by establishing a culture of comfort so that students are willing to read aloud during class. She explained that reading aloud in class served a critical role in that it gave her opportunities to show students how to use their textbooks as a resource to find answers. Samonia believed that knowing how to search for the answer formed the basis for being literate in science. She defined science literacy as the ability to research the accuracy of an answer. Samonia explained:

To be literate in science, students should be able to research the answer. Nobody could possibly know everything and there are way too many words for anyone to know all of them off the top of their head. But do you know how to find the answer or where to find the answer. That to me would be literacy in science.

Samonia believed that students needed advanced literacy skills in her science classroom because they would routinely use a variety of reference material to research answers. During classroom

activities, Samonia guided students through activities that would require them to read multiple sources and communicate in writing how those sources supported or verified their work. Thus, students learning how to research the answers were critical literacy skills in Samonia’s classroom.

4.2.3.1 Literacy Focus

To emphasize science literacy, Samonia reinforced reading and writing as the major literacy practices during both days of instruction (see Table 4.3). Samonia’s instructional objective was for students to construct parallel and series circuits and to determine the benefits between the types of circuits. Samonia explained that science literacy involves the ability to engage in scientific inquiry and to apply scientific reasoning to the practice of science through demonstration labs. Thus, Samonia believed that students should not only have opportunities to learn scientific concepts, but also to apply and practice what they have learned.

Table 4.3 Samonia’s Observation Summary

		Segment of Time N=(% of time spent on activity)	
		Observe 1	Observe 2
Literacy Focus			
	Reading	4 /4 (100%)	4 /4 (100%)
	Writing	4 /4 (100%)	4 /4 (100%)
Facilitation of Learning			
	Direct Explanation	2/4 (50%)	1/4 (25%)
	Guided Practice	2/4 (50%)	3/4 (75%)
	Monitor	0	2/4 (20%)
Strategies Used			
	Read/Think Aloud	2 /4 (50%)	4/4 (100%)
	Key Term	4/4 (100%)	4/4 (100%)
	Text Render	1/4 (75%)	0
Student Grouping			
	Pairs	0	4.4 (100%)
	Whole Group	4/4 (100%)	0
Materials Used			
	Lab Worksheet	0	4/4 (100%)

In order for students to successfully complete the science lab, they needed to know the similarities and differences between the two types of circuits. During the first lesson, Samonia and her students read science text that explained how electricity functions differently between parallel and series circuits. The students' ability to complete the electricity lab was dependent upon their understanding the core concepts of parallel and series circuits.

On the second day of instruction, students began the lab. During the lab, students were required to read and follow multiple procedures for constructing parallel and series circuits. Samonia guided students through reading the laboratory procedure and called their attention to the differences between the two circuits.

In addition to reading, Samonia spent an equal amount of time instructing students to write (see Table 4.4). During each step of the lab, Samonia required students to write down what they observed. She prompted students to record specifics such as which circuit produced brighter or dimmer light and to explain the advantages and disadvantages of the two types of circuits.

4.2.3.2 Facilitation of Learning

On the first day of the lesson, Samonia used direct explanations and guided practice to explain the purpose and procedures for the electricity lab. She explained to students that they would be responsible for testing the results for circuit type and drawing conclusions based on the evidence from the lab. Samonia reminded students to refer to their notes and their lab work packet.

Once students began the electricity lab on the second day of the lesson, Samonia focused most of her instructional time for on guided practice and monitoring student progress (see Table

4.4). As students worked in pairs, Samonia guided student practice and monitored their progress in constructing parallel and series circuits. Samonia rotated between the groups of students to observe those who were able to produce a working light bulb. During this process, Samonia prompted students to explain their process constructing a working circuit.

4.2.3.3 **Strategies Used**

Samonia instructed students to use several strategies, including key term, text rendering, and read-think alouds throughout the lesson on electricity. Since the lab consisted of several vocabulary terms, Samonia spent a large portion of time instructing student to use the key term strategy during the both days of instruction (see Table 4.4). During this process, students constructed working definitions of key terms such as power source and conductor and explained how the terms related to one another. Samonia engaged students in discussions as to how each term was pertinent to the lab. For example, Samonia asked students to explain the purpose of a conductor and why it was need for an electrical circuit.

Once students gave their explanations, Samonia directed students to where they could find the answer to the relationship between a conductor and electrical circuit in their text. As Samonia engaged students in a read/think aloud, she explained how to use the text as a resource to find answers. To help navigate the text, Samonia instructed students to text render, a strategy that required students to go back to the text and choose key sentences, phrases, and words to express the main idea or to make critical connections between pertinent information. As part of text rendering, Samonia encouraged students to use text features such as main headings, charts, and tables to identify and understand the main idea of the text.

By engaging in text rendering, students should be able to easily locate key terms and important facts. Samonia emphasized the importance of quickly locating and making connections

among the most important information in the text. Samonia also emphasized that students would need to text render in order to evaluate their key term definitions and to complete the lab assignment.

4.2.3.4 Student Grouping and Materials

Samonia taught the whole group when providing direct explanations. However, students worked in pairs throughout the majority of the second lesson (see Table 4.4). During the lab, Samonia placed students in pairs to construct parallel and series circuits. She believed that students would benefit the most if they had the opportunity to engage in scientific inquiry by discussing their ideas and the reasoning process with one another. This type of learning allowed students to explore the essential elements of the lesson while developing scientific explanation for what they saw and the evidence found during their investigations.

Throughout the lessons, Samonia gave students a variety of opportunities to use literacy practices that are pertinent in the field of science. As a result, students used multiple literacy practices (reading, writing, discussing, and experimenting) to learn science content and to practice science.

Throughout the lessons, Samonia employed literacy strategies to help students make connections between what they read about electricity and how to construct the circuit by leading students through a series of questions and challenging them to use key terms to explain their answer. Samonia emphasized reading and writing by instructing students to refer to the textbooks to write an explanation of the steps they took to find and confirm their answers and to explain what they did in writing. To further help students make critical connections about what they were doing, Samonia consistently engaged students in read/think alouds to help them understand and retain what they learned.

4.2.4 Paul – Science Teacher

Paul is a ninth grade general science teacher who has taught for two years. His class consisted of 31 students. Paul was one of a team of teachers who instructed the same group of students and who shared a common planning period. Paul believed that literacy instruction was an imperative part of his classroom. Paul defined science literacy as the ability to explain how one found the answer. Paul stated:

In science, the big thing is communication. If scientists are doing research, then we need to be able to communicate to others what we did and how we did it so that they can repeat our work and verify what we did. As scientist, we also need to communicate the body of work that already exists and identify where more research is needed. We try to find out what is known and how to go about expanding that body of knowledge in a concise clarity.

Paul indicated that his students tend to respond negatively to the technical language of science. He stated that many of his students are average readers who are intimidated by the multisyllabic words that fill the science textbook. Therefore, Paul believed that addressing students' motivation was as equally important as addressing their literacy needs and covering content.

Paul seemed to have developed an in-depth understanding of science literacy. His instructional practices included a well developed body of science knowledge and an awareness of the literacy practices students needed to develop in order to learn science. He appeared to incorporate literacy strategies to help students develop problem solving skills and navigate the scientific method.

Surprisingly, Paul was the only teacher who used technology during instruction. Recognizing the difficulties students encounter with science texts, Paul made a concerted effort

to use various methods to introduce new material. Paul believed that students responded favorably when he included video clips and examples of science experiments from the Internet. In addition to aiding in student comprehension, Paul also included technology as a way to motivate his students. A major concern for Paul was maintaining student motivation. He devoted an equal amount of attention focusing on content and literacy instruction as he did on finding creative ways to motivate students.

4.2.4.1 Literacy Focus

The objective of Paul's science lesson was for students to demonstrate their understanding of the relationship between the Law of Conservation of Energy to various forms of non-renewable and renewable energy sources. Paul believed that it was important for students to communicate how they researched and explained their scientific answer. He stated:

I try to do more reading than I normally would because in science, kids usually like doing things. I like to pair them up and have them read sections of the textbook to each other. and that way they can hear each other read and help each other out in working through the words and vocabulary. This really helps especially in science because so much of science is so technical. I usually do that and follow that up with questions and discussion.

In order for students to develop a deep understanding of science content, Paul engaged students in literacy practices that emphasized reading, writing, and listening. Paul believed that these literacy practices would help students build an understanding of the conceptual content of the Law of Conservation of Energy as well as to apply what they learn to scientific inquiry and investigation.

Table 4.4 Paul’s Observation Summary

		Segment of Time	
		N=(% of time spent on activity)	
		Observe 1	Observe 2
Literacy Focus			
	Reading	2/4 (50%)	0
	Writing	2/4 (50%)	4/4 (100%)
	Listening	0	4/4 (100%)
Facilitation of Learning			
	Direct Explanation	2/4 (50%)	4/4 (100%)
	Questioning	1/4 (25%)	2/4 (50%)
	Discussion	1/4 (25%)	2/4 (50%)
Strategies Used			
	Key Term	1/4 (25%)	3/4 (75%)
	Note-making	0	3/4 (75%)
	Critical Read	3/4 (75%)	0
Student Grouping			
	Pairs	2/4 (50%)	4/4 (100%)
	Whole Group	2/4 (50%)	
Materials Used			
	Handout	4/4 (100%)	4/4 (100%)
	Audio-Visual	0	4/4 (100%)

Paul began the lesson with two guiding questions for the basis of scientific inquiry: (1) What does the Law of Conservation Energy state? (2) How can energy resources be conserved? Paul instructed students to use their textbooks in addition to two other sources to find evidence to support their answers. Before proceeding, Paul probes students as to how they will go about finding evidence to support their answers. Paul and the students review the importance of including the “how” and “why” in their written explanations. Once students completed their written explanations, Paul instructed students to read and explain how they arrived at their answers. This process allowed students to reflect on their own understanding, compare their work and thought process to their peers, and use critical feedback from others to modify or correct their explanations.

To further deepen students' understanding of the Law of Conservation of Energy, Paul showed several video clips of various types energy sources. Paul spent the majority of his instructional time instructing students to listen for the different types of energy sources and to write an explanation for how the Law of Conservation of Energy applies to each source (see table 4.4). Once students completed and reviewed their answers, they placed their explanations on chart paper and posted them around the room to use as a reference and for students to compare their answers with one another.

4.2.4.2 Facilitation of Learning

To assist students as they grappled with complex ideas, Paul devoted most of his instructional time to direct explanations in both lessons (see table 4.4). During direct explanations, Paul explained the importance of knowing key terms and being able to define important vocabulary in their own words. As Paul explained key concepts, he often prompted students to write summaries of the main idea of the lesson in their own words.

In addition, Paul used direct explanations to explain how science connects to everyday life. He used the example of hydroelectricity to help students extend their knowledge of the Law of Conservation of Energy to the real world. He explained to students that hydroelectricity was a hot topic in science today because it was considered an excellent source of renewable energy. After he explained how hydroelectricity works, Paul instructed students to write two paragraphs explaining how hydroelectricity is the best renewable energy source to replace fossil fuel.

Paul used students' written explanations as the foundation for discussions in his classroom during the second day of the lesson. Paul believed that it was imperative for students to not only articulate their answers, but to also explain the process of reasoning they used to arrive at the answer. During discussions, students explained their answers and verified the

sources they used to find their answers. Class discussions provided students with opportunities to reflect on and communicate their explanations, engage in questioning others about their reasoning process, and explore alternative explanations.

4.2.4.3 Strategies Used

In order to build students' literacy skills and to better learn science content, Paul instructed students to use several literacy strategies including key term, critical reading, and note making.

Understanding key vocabulary words was critical for students understanding the major concepts taught in Paul's science class. Therefore, Paul devoted a significant amount of instructional time emphasizing the key term strategy , especially in the second lesson (see table 4.4). He instructed students to formulate and use their own definitions of key terms in their written explanation of answers and during class discussions.

In addition to the key term strategy, Paul also emphasized note-making and critical reading strategies. The note-making strategy involves students interacting with the text or other course material. Students interact or connect with the text by taking notes and writing questions or comments about the text. Students in Paul's class were instructed to create a double entry journal with key terms on the left and definitions, main ideas, and questions on the right. As they read the science text or viewed a science video clip, students were required to write the vocabulary word that was being discussed and to explain the main idea or their understanding of that word.

As part of the note-making strategy, students were expected to read critically. The critical reading strategy involved students going back to the text to reread and verify their answers. When students wrote their own definitions for key words, they were expected to go back to the text or their notes to validate their answers. This type of strategic reading allowed students to

monitor their understanding of what was being taught and to reinforce their understanding of the main concepts of the lesson.

4.2.4.4 Student Grouping and Materials

Throughout both lessons, students worked in pairs to develop working definitions of vocabulary words and discuss the information they gleaned from the video. To build students' literacy skills and to increase motivation, Paul infused technology into his lessons by using a variety of online video clips in addition to the science text. Sources for online information included science clips from YouTube, the Discovery Channel, and Mr. Wizard, an online program that explains the general science behind ordinary things. Paul believed that students responded favorably to technology based lessons and he made efforts to do so as much as possible. Paul infused multiple discipline specific literacy practices into his class to develop students' literacy and science skills as well as to support students learning science content.

Throughout the lesson, Paul emphasized to his students the importance of being able to find and support their scientific answers. Paul believed that focusing on literacy has enabled students to progress academically in his classroom. He stated that students have become more interested in reading in class and are more willing to engage in personal reading.

4.2.5 Jane – English Teacher

Jane is a veteran teacher who has taught for sixteen years. Jane's classroom consisted of 34 students. She has taught ninth grade for fifteen years and has been at Ramsey High School since the beginning of the literacy initiative. As a result, Jane has participated in numerous professional development sessions on discipline specific literacy instruction. She stated that she

has working knowledge of literacy instruction and has used many of the strategies she learned at professional development sessions.

Jane described her students as proficient readers who are intrinsically motivated to learn and who enjoy reading a variety of literature genres. Although her students are proficient readers, Jane believed that teaching students how to use strategies was imperative to their learning in her classroom. Jane stated:

By reinforcing literacy in my classroom through strategy usage, it's encouraging children to take ownership of what they are doing. It puts the ball back in their hands. So that they are not just empty vessels with the idea that I'm going to lecture, and they are going to take notes. That doesn't happen too much anymore. They understand that they have to play an active role. Teaching students how to use literacy strategies has been a plus. They are used to sitting in a circle to discuss what they have read and the teacher becomes a facilitator. It's their thinking, the students' thinking, that got things going. And I think that's a plus.

Jane further explained that in order to be literate in English, students have to develop the ability to make critical connections in texts. Jane stated:

Being able to recall basic facts of a novel, or to compare characters, or to define key terms is the most basic understanding. For students to be literate in my literature class, they are able to apply what they have learned about the characters or the time period of the novel being studied in order to analyze and interpret what they have read and to make connections between other pieces of literature.

In an effort to create opportunities for students to make critical connections, Jane structured her class to allow students the freedom to engage in collaborative work that includes oral and written

exchanges of ideas. Through these collaborations, students develop the interpretive and analytical skills needed to read and understand a range of genres that have varied language, style, and structure (Applebee et al., 2003, Atwell, N, 1998).

Jane’s English classroom embodied the primary goal of disciplinary literacy learning. She created a classroom culture where students freely engaged with one another in reading, discussing, and challenging ideas to what they read. Jane served as a facilitator as students used various literacy practices to analyze literature.

4.2.5.1 Literacy Focus

Jane’s instructional objective was for students to make critical connections in the novel *Jane Eyre* to the culture and time period in which the novel was written. Therefore, the major literacy focus in Jane’s English class were reading and writing (see table 4.5).

Table 4.5 Jane’s Observation Summary

	Segment of Time N=(% of time spent on activity)	
	Observe 1	Observe 2
Literacy Focus		
Reading	3/4 (75%)	3/4 (75%)
Writing	3/4 (75%)	1/4 (25%)
Viewing	2/4 (50%)	0
Facilitation of Learning		
Discussion	3/4 (75%)	2/4 (50%)
Questioning	2/4 (50%)	3/4 (75%)
Strategies Used		
Read/Think Aloud	4/4 (100%)	4/4 (100%)
Critical Read	3/4 (75%)	3/4 (75%)
Pair/Share	2/4 (50%)	2/4 (50%)
Student Grouping		
Whole Group	2/4 (50%)	4/4 (100%)
Pairs	2/4 (50%)	0
Materials Used		
Audio-Visual	2/4 (50%)	

Before reading sections of the novel, Jane provided students with guiding questions to help them develop a deep understanding for what they were reading. She explained to students that the questions should help them focus their thinking to connect their knowledge of the Victorian Era to that of the importance of events and characters in the novel. The guiding questions consisted of information that would help students understand and interpret literature through character development and analysis throughout the novel. The guiding questions were: (1) how does Jane (main character) exemplify the universal theme of searching for love in the sense of belonging and being valued? (2) Are Jane and Blanche's experiences of searching for love similar or different? (3) What elements of mystery and suspense are apparent and how do they reflect the culture of the Victorian period? Jane believed that these guiding questions would aid students in activating their prior knowledge they bring to the novel. It would also help students to expand their knowledge and thinking of the text.

Once Jane reviewed the guiding questions with the class, she instructed students to read certain sections of the novel in order to answer the questions. As students read, they wrote their answers to each question. Jane encouraged students to use specific examples and quotes from the novel to support their answers.

Jane also dedicated a portion of her literacy focus to viewing video clips from the movie, *Jane Eyre*. While watching the video, Jane instructed students to write down the Gothic features represented in the movie and to make comparisons of the Gothic representation in the movie to the Gothic representations in the book. Throughout the viewing, Jane instructed students to pay attention to the subtle representation of Gothic elements such as the buildings architecture and the changes in weather.

4.2.5.2 Facilitation of Learning

Since she believed that students should be able to apply their knowledge of literary elements to any novel, Jane spent all of her instructional time engaging students in questioning and discussion activities during both lessons (see table 4.5). In addition to helping students understand what they read, Jane used the guiding questions as the basis for a class discussion.

During classroom observations, Jane guided students through a series of discussions as the class reviewed the novel *Jane Eyre*. As students discussed their answers to the guiding questions, Jane encouraged them to use evidence from the novel or movie to support their answers. To help students develop thorough responses, Jane often prompted students to give more complete answers. For example, one student gave a summary of events in an attempt to convey how a suspenseful scene at Jane's wedding reflected the culture in the Victorian Period.

Jane explained that the student did not make a connection between the significance of her marriage and her social standing. Jane probed by first asking the student to move beyond basic recall and give more details in his answer. Jane then asked more specific questions such as why is Jane's marriage important to her social class and status. In order to develop a more thorough response, the student had to understand and articulate the importance of the strict social hierarchy that was prominent during the Victorian Era. Through discussion and questioning, Jane believed that students could make those critical connections within the novel and better understand what they read.

4.2.5.3 Strategies Used

Believing that students benefit the most from classroom activities that allow them to discuss their analysis of various works, Jane spent all of her time instructing students to use strategies such as read-think alouds and critical reading (see table 4.5). Jane explained that being able to make

critical connections within and between texts is critical to understanding literature; however, students in Jane's class sometimes experience difficulties with making connections within and between texts. Jane shared:

I think students miss critical connections within a text because they don't automatically make those connections like we do. When I read the term faculties, I know it could mean a number of things. I know it could mean my wit, my intellect. Students don't know that, so sometimes they miss the connotations of the words either because students have not read enough or because they have not experienced those things.

To help student build critical connections, Jane structured students' learning by giving them opportunities to engage in read-think alouds before, during, and after class reading assignments. Jane used read-think alouds at the beginning of the lesson to assess what students knew about a topic and to activate students' prior knowledge. As students participated in class reading assignments, Jane engaged students in read/think alouds to review important concepts and key terms as well as to address any confusion with the text. Once completing the reading assignment, Jane used read-think alouds to help students expand their knowledge and thinking as to how the concepts presented in the novel connect to other literary works and real world experiences.

In addition to read-think alouds, Jane instructed students to use a critical reading strategy, a strategy that requires students to re-read the text to support their answers. During class discussion, Jane prompted students to use their text in order to support their responses by finding specific examples from the novel. Students were allowed to use sticky notes and highlighters to annotate sections of the novel that supported their responses. As students responded, they often directed each other to the sections of the text they were using to support their answers.

During the first lesson, Jane allowed students some time to work in pairs to discuss their answers. Jane used think/pair shares to allow students to conduct a more in-depth analysis of the novel. While students engaged in the think/pair share activity, Jane would rotate between groups and offer guidance when necessary. Students reconvened as a whole group to give a summary of what they discussed during the pair share.

4.2.5.4 Student Grouping and Materials Used

Throughout the lesson, Jane gave students multiple opportunities to discuss their answers primarily in a whole group format (see table 4.5). Jane explained that her students are more prepared to critically analyze and evaluate a novel or movie when they are involved in whole group discussions. As a result, students are able to hear what their peers are thinking and evaluate their own thinking process and responses to others. Jane also gave students an opportunity to work in pairs to discuss their written explanations.

Throughout each lesson, Jane incorporated literacy practices that would help students learn how to analyze literature. She also instructed students to use the novel to support their oral and written responses. Jane infused multiple discipline specific literacy practices into her class to develop students' literacy skills as well as to support student learning content information.

As students worked to formulate and articulate their answers, Jane monitored students' discussions and offered guidance when necessary. As students engaged in think/pair shares and read-think alouds, Jane encouraged students' to read critically by using specific information from the text to support their answers. Throughout the lesson, Jane stressed the importance of students being able to apply literacy strategies so that they can articulate their answers.

4.2.6 Thomas – English Teacher

Thomas is a seventh year English teacher who taught ninth grade. His class consisted of 30 students. Thomas described students in his classes as a mixture of academic abilities. He explained that the lower level students struggled and upper level students excelled. Thomas believed that his professional development experiences have helped him to address the various literacy needs of his students. He viewed what he learned in professional development as best practices in literacy instruction that were practical for everyday classroom use. He also stated that his professional development experiences allowed him to collaborate with teachers to plan lessons and discuss effective instructional practices.

During the interview, Thomas spoke about the importance of literacy learning in his classroom. He believed that students should have multiple opportunities to engage in active reading and to think critically about what they are reading. Thomas defined literacy as the ability for students to deconstruct what they read. He stated:

In order to be literate in my class, students must be able to communicate knowledge. Literacy is understanding what is in front of them. Understanding what's the purpose of what you read. That is how to inference or how to read something and relate that back to your life or to apply what you are reading to other things you have read.

Thomas believed that it was important for students to learn how to comprehend what they were reading by making critical connections between various works of literature. Thomas' knowledge and beliefs about literacy were evident during instruction. He facilitated a student-centered classroom where students read aloud and discussed their thoughts and understanding of the text.

Thomas appeared to be knowledgeable of the English content and rather comfortable in using literacy strategies in his classroom. He easily articulated his rationale for using read/think

alouds and critical reading strategies and explained the need for students learn how to use literacy strategies independently in all of their classes, a skill that Thomas believed was the very essence of the school’s literacy reform. He seemed to have developed a thorough understanding of the expectations and the intended outcomes of the school-wide literacy reform. As a result, Thomas was able to create and maintain a literacy rich classroom where students were developing the necessary literacy skills make critical connections between texts.

4.2.6.1 Literacy Focus

To help students develop active reading, Thomas devoted all of his instructional time to reading and writing (see table 4.6). The goal of Thomas’ lesson was for students to analyze the epic poem, The Odyssey, and to make critical connections between the major events in the novel and the characters who were involved. The overarching goal for the unit was for students to create a travel brochure based on the many places Odysseus visited during his travels. Thus, the literacy focus of his instruction was reading and writing (see table 4.6). Thomas explained that The Odyssey was a challenging read for his students because of its length, intricate plot, and difficult language and sentence structure.

Table 4.6 Thomas’s Observation Summary

	Segment of Time N=(% of time spent on activity)	
	Observe 1	Observe 2
Literacy Focus		
Reading	4/4 (100%)	4/4 (100%)
Writing	3/4 (75%)	3/4 (75%)
Facilitation of Learning		
Discussion	2/4 (50%)	3/4 (75%)
Guided Practice	3/4 (100%)	1/4 (25%)
Questioning	3/4 (75%)	1/4 (25%)
Strategies Taught		

	Read/Think Aloud	4/4 (100%)	4/4 (100%)
	Critical Read	3/4 (100%)	0
Student Grouping			
	Whole Group	2/4 (50%)	2/4 (50%)
	Small Group	4/4 (100%)	2/4 (50%)
Materials Used			
	Textbook	4/4 (100%)	4/4 (100%)
	Handout	3/4 (75%)	2/4 (50%)

Throughout the lesson, Thomas instructed students to use their text to identify the major locations Odysseus visited. Once students identified the several places, they were expected to write a detailed summary of the events that occurred at each location, the characters involved, and how the events at each location influenced the outcome of Odysseus’s travel.

4.2.6.2 Facilitation of Learning

To help students navigate the difficult text, Thomas spent most of his instructional time on discussions, guided practice, and questioning (see table 4.6). At the beginning of the lesson, Thomas instructed students to think about all of the places Odysseus visited throughout his journey. As students discussed the various locations, Thomas listed the places on the board. Once students generated a comprehensive list, Thomas explained to students that they would have to write a detailed summary for each location.

Thomas guided students through several examples as to how to summarize the events that occurred at each location. Thomas instructed students to use the following guiding questions needed to write a detailed summary: (1) What is the location? (2) Which characters visited the location? (3) Why did they visit? (4) What was the outcome of the visit? After completing several examples, Thomas divided the class into six small groups. Students were instructed to use the text to write everything they knew about each location on chart paper posted around the room. Each group had a different color marker so that they could track their responses. While the

groups wrote their summaries, Thomas rotated from group to group to monitor students' responses.

4.2.6.3 Strategies Taught

Thomas focused his instructional time incorporating the read-think aloud and critical reading literacy strategies (see table 4.6). As a review, Thomas instructed students to use the critical reading strategy to identify the many locations of Odysseus' journey. Students used their text to reread and note specific sections of the text that discussed the important places in the text.

Once students completed the critical reading strategy, Thomas engaged students in a read/think aloud. Thomas reviewed the story by questioning students about the major events of the story. Thomas encouraged his students to discuss the key events in the novel and explain its relevance to other events of the story. Throughout the lesson, Thomas reminded students to make critical connections between the events at each location and how they related to one another. Thomas explained to students that they would use information from class discussions and activities to complete their travel brochures.

4.2.6.4 Student Grouping and Materials Used

Thomas focused most of his instructional time on whole and small group instruction (see table 4.6). During whole group activities, Thomas created opportunities for students to think critically about what they read and to articulate their responses in writing. Whole group discussions allowed students to evaluate the ideas expressed by other students and to compare those responses with their own. During small group activities, students engaged in group discussions that allowed them to express their ideas and expand their understanding of the novel. Thomas gave students a variety of opportunities to use literacy practices that were pertinent to students

understanding literature. As a result, students used multiple literacy practices such as reading, writing, and speaking to analyze literature.

Throughout the lessons, Thomas engaged students in discussions as he posed questions and worked with students to help guide them through the process of thinking critically about what they read. As students worked in small groups to formulate and articulate their answers, Thomas monitored students' discussions and offered guidance when necessary. As students engaged in read-think alouds, Thomas encouraged students to read critically by using specific information from the text to support their answers.

4.2.7 Lacey - History Teacher

Lacey is a tenth grade World History teacher. She has been teaching for four years, but this year was her first year teaching at Ramsey High School. Her class consisted of 30 students. Lacey described her students as hard working students who struggle academically because they are dealing with extenuating circumstances such as excessive absenteeism and multiple class failures. Despite students' difficulties, Lacey believed that students were capable of being successful in her classroom.

As a new teacher in the school, Lacey stated that she was still in the process of understanding the school's literacy initiative. Lacey believed that the professional development she received has contributed to an awareness of the importance of teaching literacy in her history class. As a result, Lacey has made more of an effort to infuse literacy into her classes; however, she admitted that she still struggles to apply what she has learned about literacy into her class. Lacey stated:

I have tried to incorporate literacy at some level, but not on a regular basis. I think I probably promote literacy more than I realize. It's hard for me to recognize it. I have done more with promoting writing in my class because my students do not like to write and they are reluctant to do so. In general, I would like to promote literacy more but it's hard since I have so many kids in my room who have different reading levels.

As a new teacher, Lacey was not fully aware of the school's efforts to implement a school-wide literacy reform. Her lack of awareness was evident as she struggled to articulate a definition for historical literacy and to find effective and meaningful ways to include literacy instructions.

Although Lacey grappled with including literacy instruction, she strived to improve her instructional repertoire. Lacey believed that implementing literacy instruction aided students in learning the course content. She explained that critical thinking is the most imperative skill for students. She stated:

Students need to have solid critical thinking skills. They need to think critically to understand basic concepts, learn vocabulary, and then make the connections to how all the information relates to one another. I know my students really struggle with critical thinking. They will get the basic facts, but it stops there. They have difficulties making connections between current and World History or even understanding how one event affected another event in a different time period or different part of the world.

Lacey believed that student needed to develop critical thinking skills in order to be successful in her class. Through oral readings and class discussions, Lacey sought to help students make critical connections between important events and historical documents throughout history. By making critical connections, students were able to think critically and understand how different

sources of information related to one another. Likewise, Lacey was in the beginning phases of learning how to incorporate important literacy practices in her history classroom instruction.

4.2.7.1 Literacy Focus

To help students learn how to make connections, Lacey’s focused most of her instruction on reading (see table 4.7). Lacey’s instructional objective was for students to compare and contrast the details of the Treaty of Versailles to Woodrow Wilson’s Fourteen Points. During her lesson on the Treaty of Versailles, Lacey engaged students in several oral readings. Lacey used primary sources and secondary sources to help students develop an understanding of the historical background that influenced the peace conference after World War I. She used guiding questions to help students process the information they were reading. While Lacey and her students took turns reading, Lacey encouraged students to read critically by going back to the text to support their answers. She guided students through the readings by pausing after several sentences to pose a question.

Table 4.7 Lacey’s Observation Summary

	Segment of Time N=(% of time spent on activity)	
	Observe 1	Observe 2
Literacy Focus		
Reading	4/4 (100%)	4/4 (100%)
Writing	0	2/4 (50%)
Facilitation of Learning		
Direct Explanation	3/4 (75%)	2/4 (50%)
Discussion	4/4 (100%)	2/4 (50%)
Student Grouping		
Whole Group	3/4 (75%)	4/4 (100%)
Small Group	3/4 (75%)	0
Strategies Used		

Read/Think Aloud	4/4 (100%)	3/4 (75%)
Critical Read	2/4 (50%)	2/4 (50%)
Materials Used		
Handout	4/4 (100%)	4/4 (100%)

4.2.7.2 Facilitation of Learning

Lacey devoted most of her instructional time to direct explanation and discussion (see table 4.6). She explained that most topics covered in her class entailed complex ideas and associations that require a well developed understanding of multiple sources of historical information. Thus, she believed that it was necessary to engage students in direct explanations of key concepts. For example, Lacey began the class by identifying the individuals who made major political and cultural contributions during World War I.

Throughout her direct explanations, Lacey engaged students in discussions about the events leading up to the peace conference. As she questioned students, Lacey prompted them to explain their answers aloud. Once students became comfortable with the activity, Lacey's students engaged in discussion in which students posed questions to one another and offered explanations for their answers. If students struggled with an answer or the discussion went off topic, Lacey would redirect the class and guide her students through the thinking process. If necessary, Lacey would provide a direct explanation to clarify students' answers.

4.2.7.3 Strategies Used

Lacey focused her instructional time incorporating the read/think aloud and critical reading literacy strategies (see table 4.7). Lacey instructed students to use the critical reading strategy to identify the key differences between the Treaty of Versailles and Wilson's Fourteen Points

agreement. Students used copied excerpts of the two historical documents to reread and note specific sections of the text that discussed major differences.

Once students completed the critical reading strategy, Lacey provided students with guiding questions to discuss for the read-think aloud activity. She explained that many of her students were struggling readers who needed guidance in thinking critically about how various historical events relate to one another. Many of her students had difficulties understanding that the Treaty of Versailles and Wilson's Fourteen Points agreement were opposing documents with different solutions to handling war reparations for countries involved in World War I. Lacey used guiding questions to focus students' attention on specific information that was pertinent to their understanding. Lacey instructed students to answer the following guiding questions (1) What are war reparations? (2) What is their purpose? (3) Why would victorious countries want reparations imposed on their enemies? (4) Do you agree with imposing reparations on defeated countries?

Using students' responses to the guiding questions as the basis for whole group discussions, Lacey engaged students in a read-think aloud to help connect the events of World War I that led to war reparations. During class discussions, Lacey prompted students to use details and examples from the text to support their answers. Lacey encouraged her students to discuss the key events from the war. Throughout the lesson, Lacey guided students in making critical connections between the events of War World I and the creation of the Treaty of Versailles.

4.2.7.4 Student Grouping and Materials

Lacey focused most of her instructional time on whole and small group instruction. However, she only focused on whole group instruction during the second day of the lesson (see table 4.7).

During whole group activities, Lacey created opportunities for students to think critically about what they read and to articulate their responses in writing. Whole group discussions allowed students to grapple with complex ideas and concepts as well as to contemplate the ideas expressed by other students.

During small group activities, students engaged in writing activities that summarized what they read and discussed as a whole group. Lacey gave students a variety of opportunities to use literacy practices that were pertinent to students understanding the historical events that led to the creation of the Treaty of Versailles. As a result, students used multiple literacy practices such as reading, writing, and speaking to analyze historical documents.

Throughout each lesson, Lacey was conscious of the literacy needs of her students. She knew that her students had difficulties moving beyond giving basic facts to answer questions to developing an in-depth understanding of the rationale behind the answer. Lacey believed that engaging students in discussions would better help them build an understanding of the complex facts concerning the Treaty of Versailles. Through her discussion based classroom, Lacey was able to enhance students' literacy skills by engaging them in activities that emphasized reading and critical thinking.

4.2.8 Katherine – History Teacher

Katherine is a ninth grade teacher who has taught for five years. Her class consisted of 28 students. Katherine stated that she has benefited a great deal from professional development in that it has given her a wide range of strategies to use in her class. She believed that incorporating literacy instruction has enabled her to help students deconstruct what they read and to guide students in comprehending what they have read. Katherine defined literacy as:

The ability to identify primary sources and to understand how historical documents are relevant and how they were influenced by other aspects and events in that time period. It is very difficult for my students to understand how one event affects another and that there are things going on at the same time throughout the world that influence each other. For students to understand these historical connections, they have to be able to read for understanding to come to an answer.

Like many of the other teachers, Katherine seemed to have a command of the discipline she taught and the literacy practices pertinent to that discipline. As a result, she provided students with numerous opportunities to collaborate about what they read and learned.

One unique aspect of Katherine's instruction was that she was the only teacher to use all four lenses of learning in each of her lessons. She seemed to create authentic learning experiences that allowed students to relate new and existing information, discuss what they learned, and connect what they learned to their personal lives. Katherine promoted her definition of historical literacy by emphasizing the four lenses of learning. As a result, she incorporated learning opportunities to support students' problem solving and critical thinking skills.

4.2.8.1 Literacy Focus

The primary literacy focus of Katherine's instruction was reading and writing (see table 4.8). Katherine's instructional objective was for students to explore exhibits on the history of families and to discover different pieces of historical knowledge of families past and present. To begin the lesson, Katherine instructed students to read an article about the history of families in America. Katherine explained to students that it was important for historians to study the construction of families because it reflected the social and cultural norms of society. During the reading activity, Katherine reviewed key vocabulary words that were critical for students'

understanding. The important vocabulary words discussed were terms referring to the various types of families including but not limited to nuclear, extended, and blended families.

Table 4.8 Katherine’s Observation Summary

		Segment of Time	
		N=(% of time spent on activity)	
		Observe 1	Observe 2
Literacy Focus			
	Reading	2/4 (50%)	4/4 (100%)
	Writing	3/4 (75%)	4/4 (100%)
Facilitation of Learning			
	Direct Explanation	2/4 (50%)	2/4 (50%)
	Discussion	2/4 (50%)	2/4 (50%)
Student Grouping			
	Pairs	0	4/4 (100%)
	Whole Group	4/4 (100%)	0
Strategies Taught			
	Gallery Walk	0	4/4 (100%)
	Key Term	3/4 (75%)	0
	Read/Think Aloud	2/4 (50%)	2/4 (50%)
Materials Used			
	Handout	4/4 (100%)	2/4 (50%)
	Audio-Visual	0	4/4 (100%)

After reviewing the history of families, Katherine gave directions on completing a gallery walk. To help students distinguish between the various types of families, Katherine engaged students in an activity that would allow them to identify the major differences in family structures. Katherine posted several pictures of different families around the room. Students were instructed to rotate between several stations throughout the room and write detailed descriptions for each picture.

Each station had a visual representation of different types of families including nuclear, extended, and blended families. As students visited each exhibit, they were instructed to answer guiding questions that required them to analyze various aspects of families, such as their

function, to make comparisons between the different types of families, and to explain their personal views about present-day families in relation to the family structures they have studied.

4.2.8.2 Facilitation of Learning

Katherine spent her instructional time on direct explanations and class discussions (see table 4.8). During direct explanations, Katherine explained to students the differences in the structures of families throughout the various time periods of American history. She described and compared several types of families from American Pioneer families to post World War II families. In addition to explaining the various kinds of families, Katherine discussed the evolving roles of men and women within the family throughout history.

Once students reviewed the history of families with the class, Katherine instructed students to visit exhibits or pictures of different family structures posted around the room. While students moved from station to station, Katherine engaged in discussions with the class. She prompted students to think about how the role and structure of the family unit has changed over time. As Katherine questioned students about the exhibits, she encouraged students to reread the description of the exhibit and to think about what the question was asking. Katherine directly explained key concepts to help students in their attempts to explain how they arrived at their answers.

4.2.8.3 Strategies Taught

Katherine believed that students needed exposure to instructional activities that would strengthen their advanced literacy skills. To help students develop a deep understanding of the historical evolution of families, Katherine included a gallery walk, key term search, and read-think alouds as the primary literacy strategies into her lessons (see table 4.8).

In order for students to complete the gallery walk, they would need to distinguish the major differences between the various types of families. To help students deepen their understanding, Katherine instructed students to use the key term strategy. By using the key term strategy, students have to construct their own definitions of key vocabulary terms and provide examples that support their definitions.

Once students completed their definitions, Katherine instructed students to use their key term definitions to complete the gallery walk. A gallery walk is a literacy strategy that requires active participation from students. During a gallery walk, students mimiced an experience at a museum where they would explore various art/pictures. Katherine explained to students that they should act like they were in a museum. Students were expected to examine each exhibit and answer questions about each picture.

In addition to viewing and answering questions about the exhibits, Katherine encouraged students to discuss their opinions of the pictures and their written responses. Throughout the gallery walk, students engaged in read-think alouds. This strategy allowed students to examine the various exhibits, contemplate their answers to the guiding questions, and share their personal thoughts and feelings about the exhibit.

4.2.8.4 Student Grouping and Materials Used

In the first lesson, Katherine worked with the whole class, but in the second lesson the students worked in pairs (see table 4.8). During whole group activities, Katherine created opportunities for students to think critically about what constitutes a family and how the family structure has changed throughout history. Whole group discussions allowed students to examine the changing roles of men and women within the family unit throughout history. During the gallery walk, students worked in small groups and examined visual representations of the various types of

families and wrote written summaries about their gallery experiences. Katherine gave students a variety of opportunities to use literacy practices that were pertinent to students understanding the construction of families throughout American history. As a result, students used multiple literacy practices such as reading, writing, viewing and speaking.

Throughout the lessons, students engaged in dialogue within their group and between other groups as they answered guided questions. Katherine explained that she often used gallery walks for several reasons. She stated that gallery walks allowed her to cover a great deal of content in a creative manner. Katherine indicated that students enjoyed moving around the room to explore the various exhibits. She noted that students were more inclined to participate in class when active learning occurred. The use of gallery walks also forced students to use higher order thinking skills to make historical connections between the evolution of families throughout history.

4.3 FINDINGS ACROSS TEACHERS

The purpose of this study was to examine how one high school implemented a school wide literacy program. Studying the beliefs, knowledge, and practices of content specific teachers was critical in understanding how their experiences shaped their instructional practices. This study took place at the end of the school year; so, teachers had been exposed to various professional development activities and instructional coaching that focused on integrating discipline specific literacy instruction. Teachers were expected to infuse literacy into the discipline they taught. In addition, teachers had an established routine or set of specific practices that emphasized literacy in their classrooms.

Classroom observations supported the notion that the explicit school wide goal was to promote discipline specific literacy instruction. Interviewing teachers offered insight into how teachers developed their beliefs and knowledge of literacy instruction as well as which factors influenced their instructional practices. Throughout the study, teachers discussed important pieces of information about their instructional experiences and their experiences with school leadership. I sought to identify common characteristics that teachers appeared to share. These collective, core components of teachers' experiences formed the findings of this study. The common characteristics identified among teachers included teacher practice, teacher beliefs, teacher learning, and teacher collaboration. These overarching themes also functioned as the main categories for the coding scheme for teacher interviews.

4.3.1 Teacher Practices

Throughout the study, teachers explicitly taught students how to use literacy strategies to improve discipline specific learning. To help students develop an in-depth understanding of what they were learning, teachers explicitly taught students how to use literacy strategies to improve discipline specific learning. Although there were numerous strategies to choose from, teachers used a core set of strategies, such as key term search, read-think alouds, critical reading, and pair/shares.

The major difference with the use of these strategies occurred when teachers implemented the strategies to support discipline specific literacy practices. Each teacher who participated in this study expressed specific beliefs about what it means to be literate in a particular discipline and which literacy practices are the most important for that specific discipline. For example, English teachers commonly used read-think alouds as a means for

students to discuss their knowledge of the text, to analyze characters' motives, and to make connections between various themes within the text. Science teachers tended to use read-think alouds to build prior knowledge, to learn and review specialized vocabulary, and to engage in scientific inquiry and make scientific predictions. For teachers, their decision about how to use specific literacy strategies were based on their beliefs about what it means to be literate in the discipline they taught.

In addition to sharing a core set of strategies, teachers employed similar instructional practices to facilitate student learning including discussion, questioning, and guided practice. Teachers' facilitation of learning also reflected their professional learning. Classroom instruction aligned with the research-based framework of PLN in which strategy instruction and learning were infused into classrooms to promote student engagement, problem-solving, and critical thinking. Figure 2 represents how the critical lenses of the PLN framework form the foundation of literacy rich classrooms across the disciplines. By creating literacy classrooms across the disciplines, students were consistently exposed to a variety of instructional practices that support their literacy learning throughout the day. As a result, students not only learn content, but they used the habits and skills of a good reader such as making predictions, asking questions, summarizing, monitoring understanding, and relating new information to previously learned content (Lee & Spratley, 2010; Lee, 2007, Allington, 2005).

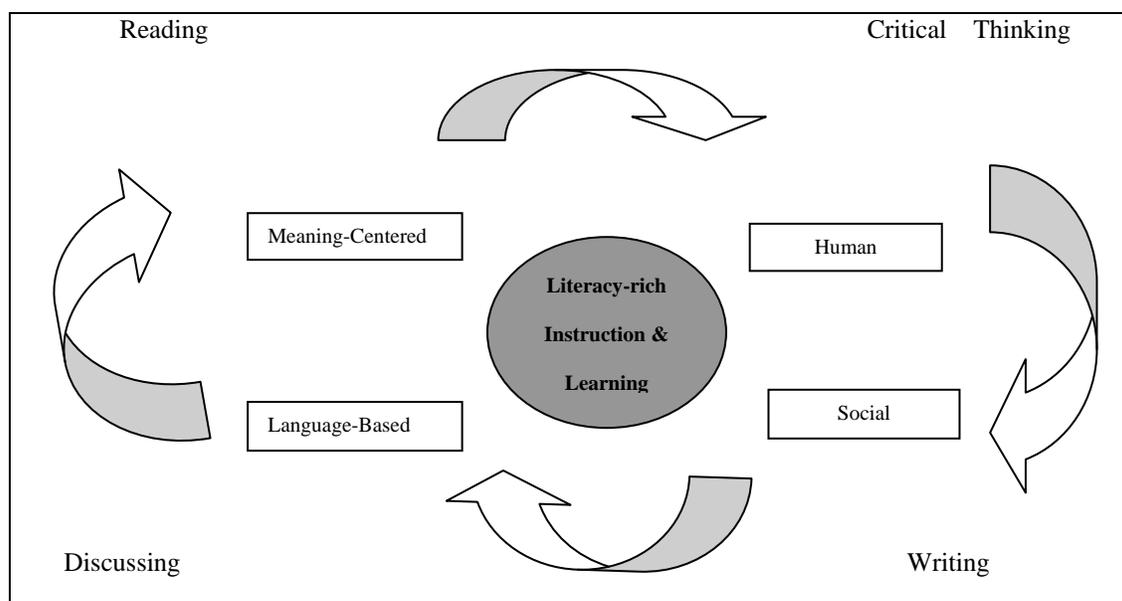


Figure 4.1 Literacy Rich Classrooms

All teachers adhered to the framework and their instruction provided evidence of literacy-rich classrooms that emphasized the importance of having students read, write, think, and discuss as way to actively engage students and deepen their learning. This type of instruction allowed students to develop routines that were necessary to learn pertinent literacy practices specific to each discipline (Lee & Spratley, 2010; Cunningham & Allington, 2003).

Teachers taught students instructional routines using core literacy strategies such read/think alouds, key term, pair/shares, and critical reading strategies. By building instructional routines through core strategy instruction, teachers were able to provide a classroom structure in which students internalized classroom routines and understood the how and why of using various strategies within the discipline. This type of learning is the result of teachers creating a literacy rich classroom structure that promotes an array of literacy competencies including, but not

limited to reading a range of challenging material and making meaning from it, thinking critically about content information, and engaging in discipline specific inquiry. Through literacy rich classrooms and instruction, students build knowledge of content and how that content relates to other disciplines, themselves, and the world in which they live.

4.3.2 Teacher Beliefs

Critical to their instructional decisions are the beliefs teachers hold about what students should and how they should learn. Secondary teachers' beliefs about literacy instruction are situated within their knowledge about teaching and learning in a specific discipline. Depending on teachers' beliefs, discipline specific literacy instruction may or may not be a relevant component of secondary classrooms.

The teachers in this study held similar beliefs about discipline specific literacy instruction in that they assumed responsibility for the literacy skills of their students. Teacher beliefs about literacy instruction were evident in their instructional planning and practices. Teachers expressed the need to develop students' literacy skills in order to learn content specific information. To do so, teachers emphasized discipline specific literacy practices and strategies equally as much as they emphasized course content. Teachers believed that improving students' literacy skills would ultimately improve students' content knowledge. Teachers were able to enhance content learning by teaching students how to use literacy strategies to read complex material, think critically and understand discipline specific information.

Research asserts that secondary teachers often struggle with finding time to devote to literacy and content instruction. Traditionally, secondary teachers would favor teaching content over literacy in order to meet the demands of a standards based curriculum and standardized

testing by which students are assessed. However, teachers in this study believed that students would benefit more and better learn discipline specific information when they have opportunities to develop advanced literacy skills.

Although they held similar beliefs about the importance of discipline specific literacy instruction, teachers' definitions of literacy were different and were situated within the discipline they taught. Each teacher was aware of the literacy skills and practices that were pertinent in their field. Likewise, teachers believed that students should learn how to orient themselves as if they were members of that discipline. Teachers encouraged students to read, think, and write as if they were mathematicians, scientists or historians.

For instance, Meera defined math literacy as the ability to read numbers, symbols, and graphs and to communicate that into words. She enacted her belief of math literacy by providing students with multiple opportunities to compute, solve, and write explanations for mathematical problems. Zack also believed that students should be able to explain how they solved mathematical problems. Zack's belief about literacy instruction was evident in his instructional practice because he provided students with numerous opportunities to write and discuss their answers.

Thomas, an English teacher, defined literacy as the ability to understand what one reads and to apply that knowledge to other reading material and life experiences. As a result, Thomas engaged students in activities that allowed students to question and discuss the ideas expressed in complex texts. Jane, the other English teacher, believed that students should be able to read and analyze various works of literature. In order to do so, she believed that students had to make critical connections within and between texts. Jane enacted her beliefs about literacy by providing students with opportunities to read critically and discuss what they read.

In their classrooms, teachers implemented literacy practices that supported their beliefs and that were specific to their discipline. However, the origins of their beliefs were different. Teacher beliefs were also influenced by their educational background and professional experiences. Many of the novice teachers easily adapted to the school's literacy reform since their undergraduate education emphasized literacy instruction in the disciplines.

4.3.2.1 **Changing Beliefs**

Of the eight teachers who participated in the study, three were considered to be more experienced since they had been in the profession for more than five years. Of those three experienced teachers, teaching was a second career for Samonia and Thomas. Although they knew that literacy was important to student learning, the 3 more experienced teachers did not necessarily believe that they were responsible for literacy instruction in their secondary classrooms. When they began to teach, they believed at that time that covering content was the most important instructional practice.

The more experienced teachers were also the only teachers in the study who participated in the school's literacy reform from its inception; thus, these teachers have participated in the most professional development opportunities. When the reform began, the experienced teachers were unfamiliar with the concept of discipline specific literacy instruction and they did not initially buy into the idea of teaching literacy along with content information. The experienced teachers ascribed to traditional secondary instruction and followed the transmission model of teaching in an attempt to only promote content learning and to cover large amounts of information. Teachers believed that secondary classrooms were teacher-centered and instruction focused on giving students large amounts of information.

When the school's literacy reform entailed new knowledge and a new way of teaching, experienced teachers were faced with conflicting beliefs about what students should learn and how they should learn. When teachers are presented with new knowledge, they undergo a process in which they decide if that new knowledge aligns with their beliefs (Parajes, 1992; Moore et. al., 1983). As a result of the school reform, the teachers with the most experience were challenged with changing their beliefs and adapting their instructional practices.

Although the experienced teachers grappled with the idea of infusing literacy instruction into the discipline they taught, with time and intensive professional development, they developed an awareness of why discipline specific literacy instruction was important. Teachers also formed an understanding of how literacy instruction supported content learning. Jane, an English teacher of seventeen years expressed how her beliefs evolved over time as a result of the school's literacy reform. She stated:

I really was not happy when I first participated in the school's professional development. I was forced to go. I didn't want to do it and I was very resistant. But I turned out to be one of its top promoters. I learned to embrace the change. I used the instructional techniques they taught us to integrate literacy and I like the change.

Like Jane, the other experienced teachers eventually developed the knowledge needed to integrate literacy instruction into the disciplines and they accepted their role of integrating literacy instruction in the disciplines.

The remaining five teachers were considered novice teachers since they taught for 4 or less years. These teachers had very different beliefs about literacy instruction in the disciplines than their more experienced colleagues. For most of them, discipline specific literacy instruction was not a new concept. Literacy infusion in the disciplines was a natural orientation to their

instruction that began during their teacher preparation at the university level. Novice teachers believed that secondary literacy instruction was necessary because they were taught that it was an important aspect of the subject they taught. Lacey, a social studies teacher of four years, explained her beliefs about literacy instruction:

I know that some of the older teachers have had a difficult time. But none of this is new. I learned how to add literacy instruction and strategies into my classes when I was in college and I know how important it is.

Lacey's viewpoint was shared by other novice teachers who viewed the school's literacy reform as a natural progression in meeting the needs of students and improving their academic achievement.

4.3.2.2 Beliefs about the Value of Literacy

Teachers also believed that students needed to develop advanced literacy skills in order to be successful in and out of school. Teachers' emphasized the value of literacy in one's life experiences apart from the schooling process. Recognizing that 21st century literacy skills are required for advanced learning in the workforce and for overall success in society, teachers were compelled to emphasize the value of literacy in students' everyday lives.

Teachers at Ramsey High School acknowledged the many social and cultural challenges that face the majority of students at the school. In addition to academics, students dealt with debilitating circumstances such as language barriers, unstable family structures, high teen pregnancy, absenteeism, and high poverty rates. Despite the debilitating challenges faced by their students, teachers believed that they were responsible for students' academic, social, and personal growth.

To meet the diverse needs of students, teachers believed that it was important for students to understand and know how to access and use distinct bodies of knowledge in order to act as a competent member of the mainstream society. For these teachers, the importance of literacy instruction went beyond mere academics. Literacy instruction very much functioned as a means to educate underserved and underrepresented students on how to survive and succeed in an changing environment that does not reflect their culture or life experiences (Leonardo, 2004; Delpit, 1995). Thus, teachers embraced social and cultural identities students brought to their classrooms and used literacy instruction to promote academic, social, and cultural growth.

4.3.3 Teacher Learning

Changing teachers' beliefs and instructional practices requires a concerted effort that focuses on providing teachers with hands-on opportunities to learn the theoretical rationale of research based literacy strategies and to apply the most effective instructional practices (Correnti, 2007; Gomez & Gomez, 2007;). Effective professional development allows teachers to learn content as well as interact and communicate with one another about what they learned and how it applies to their individual classroom. As part of the literacy based school reform, intensive professional development sessions were designed as a lever for changing teacher practice and for supporting instructional improvement.

To improve instruction, Ramsey High School instituted school-wide professional development in order to increase teachers' knowledge and practice of discipline specific literacy learning and instruction. Professional learning communities specific to the discipline they taught were created to address those literacy practices most pertinent to each discipline. Content specific professional development focused on providing teachers with consistent and ongoing

opportunities to extend their knowledge of literacy instruction in addition to their content and pedagogical knowledge (Correnti, 2007; McLaughlin & Talbert, 2001).

Since professional development activities were divided by subject matter, each discipline formed a professional learning community that was led by an instructional coach who possessed content expertise. Teachers were required to attend content specific professional development, which occurred once or twice a month.

Teachers credited their knowledge and practice of discipline specific literacy instruction to their professional learning experiences that occurred throughout the year. The professional learning of teachers was evident in their instructional lesson planning and practices. Throughout classroom observations, teachers consistently used the components of PLN which included instructional practices that allowed students to think critically and use core set literacy strategies

Teachers were developing a deep understanding of what it means to engage students in discipline specific literacy practices that allowed students to function as junior members of the field. During professional learning activities, teachers collaborated with instructional coaches and other content teachers in order to learn how to create literacy rich environments, to build a curriculum that promotes discipline specific literacy practices, and to maintain student-centered classrooms that support active engagement. Teachers regularly encountered opportunities to learn how to use specific literacy strategies in their discipline through demonstration lessons initially led by the instructional coach. As time progressed, teachers offered examples of their own literacy based classroom instruction.

As a result, teachers were able to discuss, explore, and examine effective methods of integrating literacy instruction along with content learning. This type of learning created an environment for teachers that allowed them to apply what they learned through professional

development and to transform their instructional practices. The professional learning communities functioned as a support system to teachers that would play a critical role in sustaining instructional changes. Although all teachers participated in professional development activities there were variations in their understanding and implementation of disciplinary literacy instruction. Teachers who were involved in professional learning activities for more than a year seemed to have developed a more thorough understanding of the PAHSCI framework, the school-wide literacy goals, and literacy instruction in the discipline they taught. Nonetheless, all teachers were in the process of developing disciplinary specific literacy knowledge and effective instructional practices

Teacher learning was a critical component of the school's literacy reform. In order for student achievement to improve, teachers' instructional practices had to improve. Since their involvement in the literacy reform, and more specifically their participation in extensive professional development, teachers have gained a critical consciousness into their instructional role of meeting the literacy needs of students within the disciplines. Teachers gained insight as to the need to address and include literacy instruction in their classrooms.

As part of their critical consciousness, teachers were becoming more aware of their literacy knowledge and instructional practices; thus, teachers learned how to adapt their instructional practices. While working closely with the schools administration and literacy coaches, teachers' literacy instruction within the disciplines was a work in progress with the goal of increasing student achievement by improving instruction. As a result, teachers were beginning the process of becoming experts in discipline specific literacy instruction.

4.3.3.1 Teacher Collaboration

In addition to professional development opportunities, teachers involved in the study also stressed the importance of teacher collaboration as a key factor that supported their ability to infuse discipline specific literacy instruction. Participating in professional learning communities not only allowed teachers to develop the appropriate theoretical and pedagogical knowledge that supports discipline specific learning and instruction, but also provided teachers with opportunities to delve into conversations about how literacy instruction supports content learning in their classrooms. This type of collaboration is defined as high depth interactions in which teachers engage in conversations focused on developing instructional approaches that identify how teachers infuse literacy instruction to help students develop advanced literacy skills and learn content (Coburn & Russell, 2008).

Teachers identified opportunities to collaborate with an instructional coach and other teachers who teach the same subject as an essential part of their extended professional learning and instructional practices. Through consistent collaboration, teachers engaged in and exchanged critical reflections that examined their knowledge, decision-making, and instructional practices. Teacher collaboration also provided for problem-solving opportunities and further considerations for the ways in which teachers could effectively integrate literacy into the disciplines.

4.4 SUMMARY

In all, each teacher believed that literacy instruction was important to their discipline. Teachers' beliefs about instruction, their years of teaching experience, and their prior work directly

influenced their perceptions about how students learn and how they make instructional decisions. The core beliefs of teachers transferred into their instructional practices and teachers, therefore, sought to build students' literacy skills while building students content knowledge. Teachers enacted their beliefs by infusing literacy instruction into their discipline and across the curriculum.

Professional development was a key factor in the continuity and success of teachers' literacy instruction across the disciplines. Through professional development, teachers established an awareness of the importance of discipline specific literacy instruction and developed knowledge of effective, research-based literacy instruction in the disciplines. Increased teacher collaboration and the use of a common language was also a result of professional development. There was a common language across teachers, literacy coaches, and students in regards to literacy strategies.

As a result of their professional learning, teachers were able to define the literacy of their discipline. Thus, teachers were cognizant of the literacy practices pertinent to their discipline. Teacher definitions reflected their knowledge of and beliefs about discipline specific literacy instruction and. Within their definitions, teachers emphasized that students must be able to articulate what they actually knew. In essence, it was not only about arriving at the right answer, but the process as well.

4.5 RESEARCH QUESTIONS #2

HOW DO THE SCHOOL'S LITERACY LEADERS SUPPORT TEACHERS' EFFORT TO INTEGRATE DISCIPLINE SPECIFIC LITERACY INSTRUCTION?

- a. HOW DO THE PRINCIPAL AND LITERACY COACHES' KNOWLEDGE AND BELIEFS ABOUT LITERACY INSTRUCTION INFLUENCE THEIR DECISION MAKING?**
- b. WHAT ARE THE PRINCIPAL AND LITERACY COACHES' ROLE IN DEVELOPING TEACHERS' INSTRUCTIONAL PRACTICES THAT PROMOTE DISCIPLINE SPECIFIC LITERACY INSTRUCTION?**

As part of the school's literacy reform, the principal and literacy coaches played an active role in supporting teachers' efforts to include literacy instruction in their respective disciplines.

The principal and the literacy coaches have in-depth knowledge of the culture and structure of the school. They all have worked at Ramsey High School for their entire professional career. The principal taught social studies for seven years before serving as principal for four years, for a total of eleven years at the school. One literacy coach taught social studies for six years before working as a literacy coach for the past four years, for a total of ten years. The other literacy coach taught math for fifteen years before serving as a literacy coach for the past four years, for a total of nineteen years.

In addition to their content knowledge and in-depth understanding of the school culture, the literacy coaches developed extensive knowledge of the school-wide literacy initiative. Both coaches attended professional development and training on the PAHSCI design and implementation in order to serve as literacy instructional leaders. The literacy coaches'

knowledge of and beliefs about discipline specific literacy instruction are discussed in detail in the following section.

Interview data from the principal and literacy coaches were used to analyze how the school's literacy leaders constructed a plan to integrate discipline specific literacy instruction as part of a comprehensive literacy program. The principal and literacy coaches identified three major areas of concentration in supporting teachers' efforts to infuse literacy instruction into the disciplines. Those three areas are: instructional leadership, professional development, and instructional coaching. Each area is explained in detail below.

4.6 INSTRUCTIONAL LEADERSHIP

In order to successfully implement a literacy based school reform, school leaders must build the capacity to implement discipline specific literacy by organizing a plan that relates the need for systematic instructional change to the needs of the school's existing organization and instructional practices (McChonachie & Apodaca, 2010). School leadership becomes the guiding coalition that builds the vision and organizational structures for teachers to develop the habits of practice that lead to instructional changes in teaching and learning. This includes providing opportunities for professional learning and in-depth collaboration with other teacher and instructional coaches.

The school's principal believed that a school-wide literacy initiative would aid in addressing many of the challenges that impact student achievement. He explained:

Our progress is different than other schools. We have a large Latino population and many students have a low SES status. We have not seen the progress in the test scores that we

would like and we struggle to make AYP. It's not because we're not working on it. It's just been a long process. We have a large school with many issues that need attention. We have problems with high turnover of teachers and literacy coaches. High turnover makes it difficult to keep teachers trained on effective literacy instruction and the PLN strategies. So our biggest challenge is to deal with all the problems and attempt to take these kids as far as possible.

Given the challenging school environment, the principal believed that improving students' academic achievement and teacher instruction depended on the guidance and support of the school's instructional leadership, particularly the literacy coaches. He agreed with the philosophy and structure of the PAHSCI design and believed that the school would greatly benefit from participating in a school-wide literacy reform.

The principal explained that the school's leadership, including the assistant and vice principals, was compelled to develop a deeper knowledge as to what type of support teachers needed to increase student achievement. He agreed that teachers needed a structured framework to follow in order to improve their instruction and the PAHSCI model met the school's need. The principal was committed to guiding the development and implementation of the literacy initiative. The school's leadership team was instrumental in guiding the school's literacy initiative by providing opportunities for professional development and utilizing instructional coaching to improve teachers' literacy instruction.

To understand the kind of support teachers needed, the principal depended on the coaches to function as a liaison between him and the teachers. The literacy coaches believed that their major responsibility was to work directly with teachers to build their literacy knowledge and instructional practices. One coach explained:

The principal works with [the coaches] so that we can work with teachers. We (the coaches) focus on building relationships with teachers so they can make the connection between their teaching and the school's overall literacy goal.

The coaches continued to explain that their role was to ensure that a high level of coherence remained throughout the school-wide initiative. A major goal for coaches was to maintain contact with teachers as a whole during professional development sessions and with teachers individually within their classrooms. One coach stated:

My role as a coach is to have multiple contacts with teachers to make sure they have a firm understanding of how to emphasize literacy and ultimately improve their instruction. That means that I am responsible to follow up with teachers as much as I can. I collaborate with teachers all the time—during PD [professional development], in the hallways, in their classrooms. The literacy coaches, therefore, served as instructional leaders for teachers by ensuring the classroom instruction aligns with the goals of the literacy initiative.

4.7 PROFESSIONAL DEVELOPMENT

Teachers who are exposed to professional learning that engage in deep conversations about what and how students learn and who experience the types of learning that should occur in classrooms are more likely to change their instructional practices (Mclaughlin & Talbert, 2001; Correnti, 2007). Professional, contextualized learning that allows teachers to work with literacy tools specific to the discipline they teach and fosters ongoing opportunities to examine instructional practices help to develop an understanding of how reading to learn tools support content learning

and ultimately leads to improved instruction (McConachie & Apodaca, 2010; Correnti, 2007; Gomez & Gomez, 2007).

The principal believed that in order to improve students' literacy achievement, teacher instruction needed to improve. The school's principal and the literacy coaches worked closely with one another to develop meaningful professional learning opportunities for teachers.

In order to develop teachers' literacy knowledge and instructional practices, both the principal and coaches attended extensive professional development to learn how to effectively implement the literacy initiative and how to facilitate school-based learning opportunities for teachers. The principal and literacy coaches attended two summer trainings and 3 centralized professional development sessions during the first two years of the literacy initiative followed by two training sessions per year for the final two years of the initiative.

Professional development sessions for administrators and literacy coaches were designed to provide districts participating in the PAHSCI model with the support to establish and sustain the structure, leadership, and knowledge needed to implement a school-wide literacy initiative (RFA, 2007). Professional development sessions for administrators and literacy coaches were facilitated through a professional development program consisting of several partnerships that worked with PAHSCI. Once training in creating the conditions for a school-wide literacy reform was complete, the literacy leadership team designed and implemented school based professional development courses for teachers across the curriculum.

The principal indicated that his primary role as an instructional leader was to promote school-wide literacy instruction by providing teachers with meaningful professional development that would improve their knowledge, skills, and instructional practices. He continued to explain that he was responsible for teachers receiving the necessary instructional

support in their efforts to emphasize literacy. To consistently monitor teachers' needs and professional growth, the principal relied on the literacy coaches to share the responsibility of developing and promoting literacy focused professional development. He stated:

The most important meeting in the school is between the principal and literacy coaches. I meet with the coaches twice a month to talk and plan for professional development. We are the ones who get things done. We are the ones who are the most knowledgeable. We do a lot of planning and collaboration to provide as much support and professional development to teachers as we possibly can. Coaches work with the school's professional development implementation and facilitation.

The principal and the literacy coaches created professional learning communities that allowed teachers to develop an understanding of the importance of literacy instruction across the disciplines and to learn discipline specific literacy strategies. Each literacy coach facilitated a professional learning group of teachers once a month. Facilitation teams were divided according to the discipline the teacher taught.

While the facilitation teams covered the same topics, professional development sessions were tailored to address the specific literacy demands of each discipline. For example, one literacy coach would facilitate professional development for a group of math teachers and focus on the literacy strategies pertinent for teaching math. The coach would continue to work with the same group of teachers in their individual classrooms to build on what the teachers learned during professional development. The following table gives an overview of the professional development activities for the 2008-2009 school year.

Table 4.9 Professional Development Activities

Month	Topic	Literacy Focus
September	Instructional Expectations	Literacy Standards/Strategy Instruction
November	Learning Targets	Literacy Standards
November	Rubrics	Writing Assessments
December	Formative Assessments	Strategy Instruction
January	Data Driven Instruction	Reading 4Sights
February	Differentiated Instruction	Strategy Instruction
March	PSSA Test Preparation	PSSA Writing

The coaches believed that professional development was the most important aspect of the school’s literacy initiative. One coach indicated that teachers have grown professionally as result of the school’s effort to improve teachers’ professional learning opportunities. The coach explained:

The most improved and I guess the most rewarding thing about our efforts [to improve literacy instruction] has been in the area of PD. I’m proud of our PD. I really am. We as coaches take pride in the PD we give. The whole climate of the school has changed because of professional development. It was non-existent. Now teachers expect it...and they want to learn how to better their instruction.

The other coach agreed that professional development had proved to be beneficial for improving teachers’ instructional practice. The coach believed that professional development attributed to the change in teachers’ beliefs about literacy instruction in the discipline and established a common language among faculty.

4.8 INSTRUCTIONAL COACHING

To help teachers transfer their professional learning into instructional practice, the school employed literacy coaches to enhance the teaching of literacy across subject areas. Literacy coaches worked closely with the principal in the development and implementation of the school's literacy initiative. The principal discussed the vital role of the literacy coaches in regards to the success of the school- wide literacy initiative. The principal stated:

The role of the coaches is imperative to the school's improvement plan, and I would have a difficult time doing my job if the coaches were not involved. They are the ones who are directly involved in improving teaching. I depend on the coaches to monitor and teach teachers how to use specific strategies in their content. The coaches had to teach administrators too and help administration to really understand effective literacy instruction. They [literacy coaches] helped to shape our school's goal of improving students' literacy achievement.

The work of literacy coaches was invaluable in creating a culture of literacy throughout the school in which teachers accepted ownership of meeting the literacy need of their students. The principal explained:

Their [the literacy coaches] efforts have changed the culture of the school. We all use the same language. I see teachers using literacy strategies they learned through professional development. Lesson planning has improved—teachers' lessons have an emphasis on literacy instruction. I find that there has been a change in teacher instruction—a positive change. I don't think we would have been successful without them.

The principal believed that the coaches have established positive and collaborative relationships with teachers. As a result, there has been a high rate of teacher buy-in in which teachers were

comfortable in seeking the help and guidance of the coach when the teacher needed additional support.

The school's principal and other administrators encouraged teachers to continue their professional learning and growth by working with a literacy coach on an one-on-one basis. In addition to planning and providing monthly professional development to content based facilitation teams, literacy coaches worked with teachers in their classrooms.

Coaches also viewed their primary role as working with teachers to help them develop and adopt effective literacy instruction. However, the work of coach varied depending on the need of the teachers. Coaches worked with teachers who embodied various teaching and professional learning experiences. Therefore, coaches assumed various roles and offered different levels of support depending on the teacher (see table 4.9).

For example, one literacy coach conducted a full coaching cycle with Zack, one math teacher that was observed during the study. The coach explained that the teacher was new to the profession and sought additional help from the coach. The teacher commented on his work with the coach and explained that the coach not only worked with him to infuse literacy instruction into his math class, but also assisted him in establishing a day to day teaching routine. Zack, the math teacher, explained:

Working with the coach has really helped me to basically get used to teaching. She is like a mentor to me. She comes in once a month to observe my teaching...then we sit down and talk about the lesson. If I need help or anything, I go to her [the coach].

For this math teacher, the literacy coach served as classroom supporter who worked closely with the teacher to plan the lesson, observe instruction and student engagement, and to

offer feedback about instruction. This coach indicated that her role and the type of work she does depends on the needs of the teacher. The literacy coach explained:

I have many roles as a coach. I work with student data, I provided resources, I co-teach when needed. Regardless of what I do, I see myself as an advocate for the teacher. Whatever a teacher needs instructionally, it's my job to make sure they [teachers] have access to it.

Table 4.10 summarizes the various roles of coaching as identified by the instructional coaches in this study. Through instructional coaching, teachers received various types of support in order to effectively implement literacy instruction into the discipline they taught. Instructional coaches offered teachers various types of support depending on the teachers' need.

Table 4.10 Roles of coaching

Coaching Role	Description
Resource Provider	Assists teachers with materials, tools, and information to support classroom instruction
Instructional Specialist	Collaborates with teachers in designing instruction to meet the needs of all students
Classroom Supporter	Engages in co-planning, co-teaching, and providing feedback about instructions
School Leader	Assists and serves on leadership team to develop and accomplish school wide goals
Data Coach	Helps teachers connect research to practice to improve teacher learning and improve practice

The other literacy coach also discussed her various roles. While she conducted a full coaching cycle with many of the teachers, the coach indicated that there were several teachers who came to her as a springboard for ideas or to locate resources. Samonia, an experienced science teacher observed in this study, consulted with this coach to brainstorm ideas for her lesson on electricity. Samonia indicated that she wanted to try some new literacy activities to

prepare students for the science lab. The teacher decided to talk with the coach to gain new ideas.

Samonia explained:

Bouncing ideas off the coach really helps me to keep my teaching fresh. I mean anytime I need anything, she [the literacy coach] is right there to help me. When I talk to her about what I want to do for my lessons, she will give me some ideas or model a few strategies to use in my class. It's really nice to work with her because I feel like my bag of tricks just went from six to sixteen.

The coach who worked with Samonia stated that her relationship with this teacher was strictly collaborative and did not involve participation in a coaching cycle. The coach indicated that her role as an instructional specialist with this teacher was equally important as her role as a classroom supporter with another teacher.

Both literacy coaches agreed that their work as literacy coaches has influenced teacher instruction. Teachers also indicated the advantages of working with a literacy coach and its impact on their instruction. As a result of literacy coaching, teachers are cognizant of the literacy skills students need to be successful in their classroom. Teachers, therefore, design lessons that allow students to build on their literacy skills.

4.9 CHALLENGES

The integration of literacy instruction into the disciplines has remained a well explored topic in research. Discipline specific literacy instruction at the secondary level involves a complex process that includes critical changes at the instructional, leadership, and organization levels. However, challenges such overcrowded curriculum, time constraints, and organizational

obstacles plague schools' efforts to infuse comprehensive literacy instruction (O'Brien, Stewart, & Moje, 1995). The school in this study was successful in implementing a school- wide literacy reform; however, some challenges influenced the progress of the reform. Throughout the study, participants identified challenges that impacted their work: lack of data-driven instruction, time constraints, and tensions between leadership roles.

4.9.1 Data Driven Instruction

The principal and literacy coaches agreed that the literacy initiative was successful in building a culture of literacy in which the majority of teachers infused literacy instruction into the disciplines. However, the school had not seen substantial gains in student achievement. The principal attributed lack of student achievement to the quality of teacher instruction. He explained:

We have seen improvement in classroom instruction. There has been teacher buy-in as far as participating in professional development and literacy instruction. The teachers are doing what they are told to do and what they need to do. But the quality is not there. Quality instruction is essential in seeing major changes in student achievement. Teachers need to know the rationale behind what they are doing and they need to know how to communicate that to students.

To address teachers' instructional quality, the principal believed major efforts should focus on using student data to drive instruction to guide teacher decision making. By using student data to guide instruction, the principal noted that the school would know how to better monitor student achievement and make effective instructional decisions.

4.9.2 Time/Scheduling Constraints

The literacy coaches also agreed that more focus needed to be placed on data driven instruction in order to improve teacher instruction. However, coaches disclosed concerns about finding time to analyze data in addition to their current work with teachers. Coaches indicated that it was difficult to find the time to collaborate with teachers in meaningful ways.

One coach stated:

Teachers don't know how to use assessment [data] to drive their instruction and that's a huge problem. Teachers have access to that information. But they don't know how to use it and it's not promoted for them to use. It is difficult to find the time. There are a lot of teachers in this school. We don't always have enough time to work with teachers to have a lasting impact on their instruction. It's kind of tough to work with teachers in their classrooms because of the large number of teachers and the short length of class periods.

Coaches believed that the multifaceted nature of their job in addition to time constraints of the school's schedule were major factors that hampered their work of impacting teacher instruction.

Opportunities to deeply engage in critical conversations about the ways in which teachers make instructional decisions are important to changing instructional practices (McLaughlin & Talbert, 2007; Coburn & Russell, 2008), Teachers relied on their collaboration with their colleagues and their work with the literacy coach as a major component of professional learning. However, teachers believed that the literacy coaches were overextended. Teachers viewed the multiple roles of the instructional coaches as a major factor that contributed to the lack of time in teacher-coach collaboration.

4.9.3 Tension in leadership Roles

Throughout the interviews, the literacy coaches commented on their work and the multiple roles they play in supporting teachers' efforts to infuse literacy instruction across the disciplines. The coaches indicated that they often functioned as quasi-administrators. Although they met with the principal on a consistent basis to discuss classroom instruction and plan professional development, the literacy coaches did not understand their role as part of the school's leadership team. One coach explained:

[As coaches,] we are in a unique position. Teachers don't see us as teachers and we are not administrators. But we are used as administrators when it suits a particular purpose, like managing standardized testing.

The coaches stated that the lack of understanding about their roles interfered with their work with teachers and with the ultimate goal of the literacy initiative, which is to improve student achievement by way of improving classroom instruction. As prescribed by the PAHSCI framework, instructional coaches' primary responsibility was to work with teachers and serve as a content specialist. However both coaches expressed concern in the ways which they worked.

Both coaches stated that more time and attention was needed for them to work with teachers. Often times, coaches were not able to work with teachers because they were responsible for other duties including, but limited to standardized test managers who oversee test administration and school leaders who deal with instructional concerns. Coaches attribute their multiple roles as a major factor for not being able to concentrate more on working with teachers.

4.10 FINDINGS ACROSS LITERACY LEADERS

The school principal and instructional coaches played an active role in developing teachers' literacy knowledge and strategy instruction. Both indicated that their primary role was to support teachers' efforts to implement disciplinary literacy instruction through systematic professional development and instructional coaching. The literacy leaders believed that in order to improve student achievement, there had to first be a focused effort on improving the quality of teacher instruction. To enhance literacy instruction, the school's leadership implemented opportunities for teachers to attend professional development and to receive instructional coaching on a regular basis.

The instructional leadership of the principal and instructional coaches attributed to the change in the culture of the school. Both stated that teachers understood the need for effective instruction, bought into the idea of literacy instruction in the disciplines, and took ownership for meeting the literacy needs of their students. Through professional learning opportunities, the principal and literacy coaches guided teachers in developing and infusing common language of literacy terms that were evident in teachers' lesson planning, teacher/coach collaboration, and classroom instruction.

Teachers, coaches, and the principal worked towards the common goal of addressing and improving literacy across the curriculum as a way to improve student achievement. Although the school struggles to make substantial gains in student achievement, the principal and literacy coaches believed that teacher instruction has improved and has contributed to the growth of students' literacy achievement. Acknowledging the need for improved instruction, the principal and literacy coaches committed to building teachers' understanding of effective literacy

instruction through continued professional development so that teachers have opportunities to develop effective instruction.

5.0 CONCLUSIONS

5.1 INTRODUCTION

This chapter discusses the summary of findings and conclusions drawn from this study. Discussions involving interrelated topics such as teacher collaboration, administrative leadership, and professional development relating to discipline specific literacy instruction are discussed. Limitations of the study and recommendations for future research are also provided.

5.2 INTERPRETATIONS AND CONCLUSIONS

There is a considerable body of knowledge that addresses the pervasive problem of adolescent literacy and the literacy requirements that are necessary to meet the reading demands in the disciplines as well as in the workforce. That is, what advanced literacy skills students need to develop and what they need to know in order lead productive and successful lives both in and out of school. High schools are faced with the challenge of focusing on the collaborative process among teachers, administrators, and instructional coaches in order to expand literacy instruction to secondary grade levels and more specifically to tailor that instruction to promote discipline specific literacy practices.

While much of the current research in discipline specific literacy instruction focuses solely on teacher practice or professional development for teachers, this study is unique in that multiple perspectives were examined to understand how discipline specific literacy instruction was implemented across grade levels and across disciplines. By examining multiple factors, insights of how factors such as professional development and instructional leadership influenced the relationship between teacher beliefs, knowledge, and instructional routines were gained.

This study sought to explore teachers' knowledge and beliefs about literacy specific instruction and the ways the school's leadership supported teachers' efforts to integrate literacy instruction in various disciplines. Teachers, instructional coaches, and the school's principal were interviewed and observed in order to examine the process of how discipline specific literacy instruction and learning became the foundation of a school's improvement agenda.

The findings from this study indicated that the implementation of a specific literacy initiative does lead to changes in teachers' beliefs, knowledge, and practice. Observation and interview data indicated that teachers had developed an awareness of the importance of discipline specific literacy instruction, and also assumed instructional responsibility for meeting the literacy needs of their students. Teachers' knowledge of and beliefs toward literacy instruction were guided by their respective disciplines. Teachers were changing their instructional practices based on their knowledge of effective literacy instruction to enhance students' content knowledge by infusing discipline specific literacy instruction.

Teachers also believed that school leadership and support were necessary in their efforts to develop effective instructional skills for disciplinary literacy. Thus, the principal and literacy coaches played a vital role in helping teachers successfully implement discipline specific literacy

instruction. They were responsible for building a culture of literacy by providing teachers with on-going professional development and instructional support through literacy coaching.

Professional development was paramount to the development of teachers' instructional knowledge and practices and ultimately their ability to include literacy within the context of their discipline. Through intense professional development, teachers were able to articulate in varying degrees their definitions of literacy instruction. They were also able to use literacy strategies and approaches that were specific to the discipline they taught and the design of the initiative being implemented.

5.3 DISCUSSION

A great deal of focus in educational research has revolved around improving students' academic performance and teacher instruction, particularly within the field of literacy. With performance-based accountability driving educational policies and reform, schools have functioned under a canopy of changes in academic standards, curriculum, pedagogy, and school organization. Research asserts that critical changes in teacher instructional practices can produce improvement in student achievement (Sherer et al., 2009; Correnti, 2007; Elmore, 2004; Leithwood et al., 2004).

In order to improve student academic performance by improving teacher instruction, schools must be able to specifically identify the practices that will lead to sustained instructional changes. If students are to acquire literacy skills that allow them to learn academic and occupational related information, to think critically across disciplines, and to function and communicate within multiple, diverse communities, then schools must align their agenda to

foster the kind of teaching and learning that produces competent citizens for literacy rich 21st century.

Conley (2008) asserts that secondary school improvement is the result of a integrated and coherent effort that explicitly articulate how students think, act, and learn as a result of completing the school's program of instruction. Therefore, high schools' must focus their literacy reform efforts on developing an academic program that connects with the expected level of knowledge and skill needed to succeed in college and the workforce. The ultimate goal of secondary literacy initiatives is to prepare students for a changing society in which reading to learn a range of information in varied contexts will become critical to one's success.

The successful integration of literacy instruction at the secondary level involves collaborative efforts among teachers, administrators, and other literacy leaders within a school that provides professional learning opportunities that lead to in-depth and sustained changes in classroom practices. This process of change requires the influence of an instructional leader or leaders who build teachers' capacity by providing the instructional and structural support (e.g. common planning time, block scheduling, peer observations) that allows sufficient time for teachers to engage in opportunities to learn and to increase their content knowledge that would result in literacy instruction throughout the day and across the disciplines.

For a secondary literacy reform to succeed, there must be a strong foundation of strategic leadership that organizes and guides the systematic practice of discipline specific literacy instruction and builds the capacity to sustain instructional changes (McConachie & Apodaca, 2010). For example, several dimensions of the Ramsey High School's literacy initiative were critical to its success: (a) well defined literacy goals and objectives; (b) school-wide nature of the initiative; (c) support of instructional leadership for teachers and their professional learning,

and (d) PLN framework, which specifies the use of a variety of literacy strategies that emphasize the meaning centered, social, language based, and human aspects of literacy learning.

The instructional leaders of a school must organize a school so that everyone develops an understanding and implements the practice of discipline specific literacy instruction, engages in discipline specific professional development, and receives the appropriate supports to sustain effective literacy instruction. Through strategic leadership, teachers and literacy leaders worked towards the same goal of improving students' literacy skills. The school's literacy reform was dependent on the rich interactions among teachers, instructional coaches, and the school's principal that helped to create and implement a school improvement plan to advance the knowledge base, skill, and instructional routines of teachers.

The PAHSCHI model was a school wide endeavor for a large, urban high school. Secondary schools and their focus on disciplinary literacy require sustained and unique approaches to how teachers are supported in their effort to teach students to learn the content of their subjects as well as develop advanced literacy skills. Instructional coaches were an important source of support for teachers by providing professional development, instructional feedback and discipline specific resources.

The literacy leadership team in this study believed in setting a priority for improving school wide instruction and learning. They focused on improving student achievement by improving teacher instruction. To support teachers' capacity to infuse discipline specific literacy instruction, literacy leaders provided on-going, job embedded professional development and instructional coaching. Professional development opportunities contributed to the professional growth of teachers by influencing how teachers learn and think about their instructional practices. As a result, professional development and instructional coaching fostered shared

beliefs about instruction that led to teachers adopting newly learned instructional practices. Likewise, teachers provided students with opportunities to deeply engage in literacy activities to support discipline specific learning.

In school leadership and school reform research, there is a consensus about the ways to increase student learning and student performance. When the knowledge and skill of teachers is increased, improvements in student learning and achievement occurs (Elmore, 2004; Leithwood et al., 2004). The school's principal and instructional coaches in this study played a critical role in shaping how teachers think, learn, and integrate literacy instruction into the disciplines. School leaders provided monthly professional learning opportunities for teachers to learn effective literacy based instructional practices and allocated time for teachers to collaborate with literacy coaches with the expectation of developing quality instructional practices.

Relevant professional development is critical for secondary teachers since they display a range of instructional approaches that vary in how each discipline addresses content knowledge and literacy instruction (Shanahan & Shanahan, 2008; Coburn & Russell, 2009; Correnti, 2007). Research asserts that to develop students advanced literacy skills within the disciplines, teachers will need to possess the literacy knowledge to explicitly address the discipline specific literacy demands of the content they teach (Draper, 2008; Shanahan & Shanahan, 2008).

Teachers in this study were making decisions that reflected their professional learning, and they demonstrated the literacy practices pertinent to their discipline. Research supports that when coaches modeled, offered support, and provided teachers with resources and individual feedback, teachers developed instructional habits that enabled them to value and gradually take ownership of their professional learning, share their instructional practices with colleagues, and

ultimately allowed them to become more proficient in their instructional routines (Bean & Morewood, 2006; Fullan, 2001; Guskey, 2000).

Teachers were learning how to adapt their instructional practices and include literacy instruction within the disciplines. Through professional development and their work with literacy coaches, teachers were beginning to become experts in their disciplines. Teachers began to emphasize the habits of thinking that were pertinent in their field as well as promote literacy practices that were specific to that discipline. As a result, teachers were giving students more and more opportunities to develop advanced literacy by functioning as junior members of that discipline.

Administrators, instructional coaches, and teachers have contributed to the understanding of how a school's functions as a whole to improve the literacy skills of adolescent learners. The participants in this study worked towards the common goal of and were successful in integrating discipline based literacy instruction at the secondary level in which all held vital roles in creating a variety of instructional elements that enhance a coordinated school wide literacy program.

The school-wide literacy reform resulted in several successes such as developing a strong culture of literacy learning and instruction. Though many improvements have been accomplished, several challenges still remain. The school as a whole has been a work in progress. Even though there has been improvement on the state reading test over the past few years, a large percentage of students are still not proficient. Teachers, literacy coaches, and the school's administration are continuing to learn how to include and sustain effective professional development and teacher instruction that will result in significant student improvement.

While progress in students' literacy achievement has occurred, teachers and the literacy leaders are still in the process of becoming experts and working towards making substantial

changes in literacy instruction and learning. The school has seen improvement in student achievement as well as teacher instruction; however, critical changes must take place in order for total success to prevail. Structures to support and enhance teacher instruction must continue to grow. Effective, high quality teacher instruction needs to occur across disciplines and grade levels.

Likewise, instructional coaching must continue to meet the instructional needs of teachers. Using student data to guide instruction seemed to be a critical component missing from the school-wide reform efforts. Providing professional learning opportunities in using student assessment data to inform instruction might be a specific step in helping teachers understand how they can improve instruction and ultimately student achievement.

5.4 RECOMMENDATIONS FOR INSTRUCTIONAL PRACTICE AND LEADERSHIP

Integrating effective discipline specific literacy instruction requires a comprehensive effort at the district and school level. In order for significant changes to occur in teachers' instructional practices, districts must also play a critical role in school leadership by building structures that support school leaders and teachers' capacity to incorporate literacy instruction in the disciplines. Districts are faced with the challenge of preparing students for literacy in the 21st century. Thus, students should be exposed to varied instruction that allow them to develop advanced literacy skills needed to learn new information to perform necessary tasks for employment and civic life.

This type of reform must happen not only at the school level, but at the district level as well. In short, there must be a congruent, system-wide reform. School districts become responsible for helping to organize a focused and coherent program that supports teachers and students with engaging and challenging discipline specific literacy practices. These types of support involve coordinating among multiple stakeholders and adhering to research and policies that inform schools how to actively promote discipline specific literacy instruction.

The primary supports that districts should offer school are to secure and allocate funds to support the various components of a comprehensive literacy program. This would include providing schools with appropriate numbers of support personnel and specialists to coach teachers and work with struggling readers; building a diverse collection of discipline specific reading and resource materials that would expose students to an array of rich and challenging texts; and providing extensive professional development activities that continue to develop the knowledge and instruction skills of teachers.

School districts should work with state departments of education to specifically analyze their current commitment to build secondary school's capacity to infuse discipline specific literacy instruction. Establishing literacy standards across the curriculum is a key component in order for instructional changes to occur. State departments must reexamine current challenges so that the marginalization of discipline specific literacy instruction is minimized.

Considerations for changes at the curricular level must also occur in order for secondary literacy instruction to take shape and form. Incorporating discipline specific literacy instruction should not be viewed as something extra to add to an already crowded curriculum; but rather as an opportunity for teachers to emphasize the notion of reading to learn so that students can

engage in a relevant and meaningful curriculum that allows them to use advance literacy skills to build content knowledge.

Changes at the school level must also occur. Participants in the study expressed the need to rely on student achievement data to inform instructional decision-making. Administrators, literacy coaches, and teachers should engage in professional learning opportunities that offer training in examining student data. Examining student data is critical to improving teacher instruction. By understanding how to use multiple forms of assessments (formal, informal, formative and summative) to guide instruction, teachers can modify their instruction to meet the academic needs of students. Increased examination of student assessment data should help teachers reflect on their practice and provide guidance for changes in classroom instruction. In addition, using assessment data can offer students opportunities to receive critical feedback on their academic progress. As a result, students can reflect on their learning, specifically what they learned, how they have learned, and how their thinking and understanding has evolved.

Administrators, instructional coaches, and teachers should continue to participate in ongoing professional development to sustain the schools current literacy achievements. Continued professional learning can help coaches and teachers devise new instructional strategies as well as adapt existing strategies to meet the needs of adolescent learners. In addition, professional development allows for professional learning communities in which teachers as learners engage in collaborative work that examines the theory, pedagogy, and literacy practices within their perspective discipline.

Results of this study indicate that teachers need and want more information and experiences with teaching literacy; thus, schools can systematically create a climate that values literacy instruction and learning for teachers and students by (a) planning ongoing professional

development for discipline specific literacy instruction (b) building collaborative relationships and learning communities that support discipline literacy instruction, and (c) examining and addressing challenges that impede secondary literacy instruction such as the school's curriculum, scheduling, time for collaboration, and congruence between literacy and content based standards. Observing teachers and providing them with feedback also supports improvement in instructional practices. Teachers who receive consistent feedback are able to adjust their level and quality of instruction to best meet the needs of students and the school wide academic goals.

5.5 IMPLICATIONS FOR FUTURE RESEARCH

Implementing a coherent literacy initiative at the secondary level is a complex and at times, an elusive process that at its core involves a central focus of improving student learning and achievement by improving the instructional base of a school's organization. School improvement, therefore, occurs as a result of building and enhancing the knowledge and skills of multiple players and involves intertwined and layered relationships among district personnel, school leadership, teachers, and students. All stakeholders across the educational spectrum must be involved in the effort to building the capacity to systematically incorporate discipline specific literacy instruction into the school's curricular and instructional efforts.

Replicating this study in other high schools that have similar demographics and that followed the PAHSCI model could provide further insight about the benefits and challenges of the systematic implementation of literacy instruction across the disciplines. In addition,

examining other literacy initiatives, such as America's Choice or Success For All, could offer multiple perspectives as to how to successfully implement a school wide literacy reform. Comparing the results from schools involved in various school-wide literacy initiatives could contribute to the body of research on effective secondary literacy instruction. A similar study should be conducted with schools that have a smaller population and different demographics in order to compare the similarities and differences in discipline specific literacy instruction.

Understanding teacher beliefs and knowledge of discipline specific literacy instruction are paramount to their instructional decision making and ultimately their instructional practice. Analyzing preparation programs and certification requirements are necessary for preparing teachers to create a culture of literacy and across the curriculum.

While the ultimate goal of discipline specific literacy instruction is student academic growth, the major goals of this study focused on what teachers know and do to integrate literacy instruction and how school leadership supports teacher learning and instructional practices. Thus, students' perspectives and assessment data were not a part of this study. However, including students' viewpoints could offer insight as to how they develop habits of thinking and practice across the disciplines in addition to how teachers support their literacy learning. Also, analyzing student assessment data could provide critical information about the effects of teacher instruction as well as the areas of strength and weaknesses in students' literacy skills.

5.6 LIMITATIONS

The purpose of this qualitative study was to examine the integration of discipline specific literacy instruction as part of a comprehensive literacy program at the secondary level. The findings for

the study are specific to the participants and literacy initiative implemented at this school and are not intended to be applied to secondary schools in general.

As with any study, there are limitations. This study was limited to one high school's efforts to implement a school wide literacy initiative. The intense nature of the study occurred at the end of the school year and examined a prescribed literacy framework that identified specific goals and outcomes for administrators, instructional coaches, teachers, and students. Participants in the study followed strict guidelines for implementing discipline specific literacy instruction. Thus, teachers' professional development, learning, and instructional practices were solely based on the experiences and information received from the PAHSCI model. Any other professional learning or educational activities that teachers, instructional coaches, or administrators participated in were not taken into consideration during this study.

Findings from this study were specific to this one particular school site. This study was conducted at a large, diverse high school in an urban area. Teachers and administrators at this school worked with students who come from various minority backgrounds and who spoke multiple languages and/or English as a second language. Since language barriers, cultural differences and socio-economic factors of students influenced the implementation of the literacy initiative, the results of this study could be very different if situated in another educational setting.

Another major limitation to this study is the sample size. Although this qualitative study was conducted at a large urban high school with five thousand students, 250 teachers, and roughly 20 administrators including the head principal, one vice principal, eleven assistant principals, four instructional supervisors, and 6 instructional coaches, only the head principal, eight ninth and tenth grade teachers, one math/science and one English/history instructional

coach participated in the study. Perspectives from multiple administrators and grade level teachers were not included. Therefore, the findings from this study can neither be generalized to the larger population of the entire school.

In addition, all teachers who participated in the study taught general level courses. General level courses typically consisted of large class sizes of 30 students or more who were classified as having average academic ability. Teachers involved with the school's literacy initiative who taught accelerated, advanced, gifted, or remedial classes were not interviewed or observed. Including teachers who taught various levels of the core disciplines could provide additional insight into teachers' belief and infusion of literacy instruction in the disciplines.

APPENDIX A

CODES AND DESCRIPTIONS

Codes	Descriptions
INSTRUCTIONAL PRACTICE	
<i>Coach Practice</i>	Coach's discussion of efforts to support discipline specific literacy instruction.
Coach Collaboration	Coaches' discussion about collaboration with teachers, other coaches, or administrators.
Other Roles	Coaches' discussion about how they view their role as a literacy coach and the multiple roles in which they are involved.
<i>Principal Practice</i>	Principal's discussion of efforts to support discipline specific literacy instruction.
Principal Collaboration	Principal's discussion of collaboration with teachers, literacy coaches, and other administrators.
<i>Teacher Practice</i>	Teacher's discussion of instructional routine and efforts to support discipline specific literacy instruction.
Literacy Practice	Teachers' use of discipline specific literacy strategies or literacy focused instruction practices.
Teacher Collaboration	Teachers' discussion of collaborations with other teachers, literacy coach, or administration.
KNOWLEDGE	
<i>Coach Knowledge</i>	Coaches' understanding of discipline specific literacy instruction.
Assessment	Coaches' use and understanding of assessments and data analysis to monitor students' literacy needs and skills.
Literacy Knowledge	Coaches' definition of literacy in their discipline and their understanding of effective literacy instruction.

Professional Development	Coaches' involvement in literacy focused professional development.
<i>Principal Knowledge</i>	Principal's understanding of discipline specific literacy instruction.
Assessment	Principal's use and understanding of assessments and data analysis to monitor students' literacy needs and skills.
Literacy Knowledge	Principal's understanding of effective literacy instruction.
Professional Development	Principal's involvement in literacy focused professional development.
<i>Teacher Knowledge</i>	Teachers' understanding of discipline specific literacy instruction.
Assessment	Teachers' use and understanding of assessments and data analysis to monitor students' literacy needs and skills.
Literacy Knowledge	Teachers' definition of literacy in their discipline and their understanding of effective literacy instruction.
Professional Development	Teachers' involvement in literacy focused professional development and its influence on their instructional practices.
PERCEPTIONS	
<i>Coach Perceptions</i>	
Coach Perception of Administration	Coaches' discussion of the principal's role in creating, promoting and supporting a school wide culture of literacy
Coach Perception of Coaching	Coaches' discussion of their role in supporting teachers and promoting effective literacy instruction.
Coach Perception of School Wide Efforts	Coaches' discussion of the school's literacy goals and overall progress in promoting literacy.
Coach Perception of Students	Coaches' understanding of the literacy needs and skills of students.
Coach perception of Teachers	Coaches' understanding of the needs and skills of teachers in their efforts to promote discipline specific literacy instruction.
<i>Principal Perceptions</i>	
Principal Perceptions of Administrators	Principal's discussion of his role in creating, promoting and supporting a school wide culture of literacy.
Principal Perceptions of Coaches	Principal's discussion of his role in supporting teachers and promoting effective literacy instruction.
Principal Perception of	Principal's discussion of the school's literacy

School Wide Efforts	goals and overall progress in promoting literacy.
Principal Perception of Teachers	Principal's understanding of the needs and skills of teachers in their efforts to promote discipline specific literacy instruction.
<i>Teacher Perceptions</i>	
Teacher Perception of Administration	Teachers' discussion of the principal's role in creating, promoting and supporting a school wide culture of literacy.
Teacher Perception of Coach	Teacher's perception about the impact of coaching on their instructional practices.
Teacher Perception of School Wide Efforts	Teachers' discussion of the school's literacy goals and overall progress in promoting literacy.
Teacher Perception of Students	Teachers' knowledge and understanding of the literacy needs and skills of students.

APPENDIX B

TEACHER INTERVIEW PROTOCOL

Background (5 min.)

1. Can you tell me about your professional background?

Educational background

How long have you been teaching?

How long have you been teaching at this school?

Content area_____ Grade Level_____

2. How would you describe the student population of your class?

Socioeconomics

English Language Learners

Students with special needs

3. Can you describe students' academic achievement in your class?

Are there students who do not perform well in your class?

Are there any specific areas in which students' struggle in your class?

What do you do to address these issues?

4. How would you describe your students' literacy skills and literacy needs?

Instructional Practices/Lesson Study (15 min.)

5. Can you walk me through the lesson that I will observe?

What are the goals' of the lesson?

How will you accomplish these goals?

What materials will you use? Why?

How will you facilitate student learning?

Will you use any literacy strategies?

How will you group students?

Did the literacy coach assist you in planning this lesson? Explain.

Leadership & Organizational Support (10 min.)

1. What kind of opportunities do you have to collaborate with other teachers and/or instructional leaders about content area literacy instruction?

Team/interdisciplinary collaboration or planning.

Do you feel that you can benefit from more opportunities to collaborate with other teachers?

2. How would you describe the role of the school's literacy leadership in supporting your efforts to integrate content area literacy?

How do they organize the school's structure to support your efforts?

3. Have you been involved in any on-going, job-embedded professional development that supports literacy instruction in the content areas?

Can you describe the nature of this PD?

Do you feel that your instruction has improved as a result of PD?

4. Are you involved in any leadership activities that influence the ways in which you integrate literacy in your classroom?
5. In your opinion, what factors hinder your ability to effectively implement content area literacy instruction?

11. What has been the most rewarding aspect of the school's literacy efforts?

What has been the most challenging?

12. Where have you seen the most improvement?

Where have you seen the least?

Where would you like to see more?

13. Is there any additional information you would like to add?

APPENDIX C

LITERACY LEADERSHIP INTERVIEW PROTOCOL

Background (10 min.)

1. Can you tell me about your professional background?

Educational background

How long have you been a _____(principal, assistant principal,
literacy/instructional coach, other)?

How long have you been at this school?

How long were you a teacher prior to accepting a leadership position?

Content area_____ Grade Level_____

2. How would you describe the professional background of teachers at this school?

Years of experience

Educational background

Content knowledge and instructional practices

Literacy knowledge and instructional practices

3. How would you describe the student population at this school?

Socioeconomics

English Language Learners

Students with special needs

4. Can you describe students' academic achievement?

Is there any group of students or academic area that scored below basic?

5. Can you describe the role you play in meeting the literacy needs of students?

What have you done to facilitate the literacy success of students?

1. Can you describe the professional development you have been involved in regarding content area literacy instruction and learning?

How would you describe your knowledge of the best practices for content area literacy instruction and learning?

Are there any particular areas in which you feel you may need additional information or support in order to implement an effective literacy program?

Instructional and Organizational Support (15 min.)

2. How would you describe your role in supporting teachers' efforts to integrate content area literacy?

How do you organize the school's structure to support your efforts?

To what extent is literacy instruction the focus of professional development for teachers and other literacy leaders?

3. What kind of opportunities do you have to collaborate with teachers and/or instructional leaders about content area literacy instruction?

4. How would you describe a content area teacher who effectively incorporates literacy instruction?

Can you identify specific strategies used by effective teachers?

In your opinion, what factors hinder your ability to effectively implement content area literacy instruction?

11. What has been the most rewarding aspect of the school's literacy efforts?

What has been the most challenging?

12. Where have you seen the most improvement?

Where have you seen the least?

Where would you like to see more?

13. Is there any additional information you would like to add?

APPENDIX D

TEACHER OBSERVATION PROTOCOL

Content Area/Grade _____ Date _____

Lesson Content/Objective _____ Time _____

Literacy Focus	Facilitation of Learning						Grouping
Reading (RD) Writing (WR) Speaking (SP) Listening (LS)	Direct Explanation (DE)		Lecture (LC)		Whole (WG)		Whole (WG)
	Guided practice (GP)		Model (MD)		Small (SG)		Small (SG)
	Assessing (AS)		Questioning (Q)		Pairs (PRS)		Pairs (PRS)
	Monitoring (MN)		Discussion (DIS)		Individual (IND)		Individual (IND)
	Independent Practice (IP)						
Materials	Strategies						
Textbook (TXT) Novel (NOV) Graphic organizer(GO) Handout (HT) Audiovisual (AD) Technology (TC) Other (O)	1.Text render	9.Self question	17.Student choice	25.Reflective write			
	2.Word splash	10.Preview/Predict	18.Lit circle	26.Do now			
	3.Key term	11.Chunking	19.I-search	27.Para frames			
	4.Note-making	12.Mental Image	20.Perform asses	28.Demand prompts			
	5.Jigsaw	13.Templates	21.Text transacting	29.Free write			
	6.Peer revision	14.Document review	22.Summarize	30.Writing process			
	7.Pair/share	15.FCA's	23.Guided lecture	31. KWL			
	8.Critical read	16.Rubrics	24.Read/think aloud				
Time (min.)	10	20	30	40	50	60	Anecdotal Notes
Literacy Focus							
Facilitation							
Grouping							
Materials							
Strategies							

APPENDIX E

PENN LITERACY NETWORK STRATEGY DEFINITIONS (2007)

Text render

Reading activity that requires students to go back to text and evaluate and choose key sentences, phrases, and words to express the main idea or make connections.

Word splash

Choose keywords and phrase a story: requires students to use these words in a creative writing piece before reading the text.

Key term

Before reading, choose one key term from the reading, requiring students to write and connect their feeling about the term.

Note-making

Double entry/Cornell note-making that requires students to connect, question, and interact with text.

Jigsaw

Cooperative learning task in which students chunk text in expert groups and home-group/sharing teams. Students become expert in one area and share their knowledge with home group.

Peer revision

Activity to include in the writing process. Includes one-foot voice, partner read alouds, and individual revision.

Pair/share

Students read together and discuss their understanding of the text.

Critical reading

Re-reading activities in which student go back to the text to infer correctly and to read strategically.

Self-questioning

Students create questions that may be answered from text.

Preview/predict

Use students' prior knowledge to focus, motivate, and provide interest.

Chunking

Taking apart pieces of any text and grouping them into manageable learning segments.

Mental image

Making a "mind picture" using verbal clues as a descriptive tool.

Templates

These are used to model and guide student responses.

Document review

Activity to celebrate, understand, and instruct using student writing samples.

FCA

Focus correction areas are used to simplify quality feedback and focus student writing.

Rubrics

Criteria for assessment and teaching. Can include teacher made or student made assessment or benchmarks for scoring

Student choice

Teacher provides choices for students or negotiated choices for writing.

Literature circle

Activity to provide motivation and choice in student reading by assigning roles to individual members of cooperative groups.

I-search

Personalized, streamlined research across content areas.

Performance assessment

A method of assessing student understanding and application of material. Students are required to demonstrate that they have mastered specific skills and competencies by performing or producing something.

Text transacting

Constructing meaning from text and applying student-text-context interactions.

Summarize

After reading activities to improve comprehension, understanding and connection to materials.

Guided lecture

Before, during, and after reading experiences using structured overviews, Cornell note-making, processing of key words, and questions to guide and understand lectures.

Read/think aloud

Teacher and student modeling, oral reading of questions and connections about text.

Reflective writing

Pre-reading activity that asks students to connect with the text before they transact with text, enabling students to tap prior knowledge.

Do now

Writing that has no correct answer, yet it makes a point. Writing used to model and guide student responses; usually stimulates interest.

Paragraph frames

A type of model and checklist used to assure that all components of a well-written paragraph are present.

Demand prompts

Writing that is read aloud and reviewed by the author who then asks three critical questions: does it complete the assignment? Is it easy to read? Does it fulfill the focus correction areas. This writing assignment tied to instruction.

Free write

Connecting students' ideas to classroom contexts.

Writing process

Students pre-write, drafts, edit, and publish a final product.

KWL

Structure/graphic organizer for connecting the new to the known through an active learning process.

APPENDIX F

PARTICIPANT CONSENT FORM

Title: Examining the Integration of Disciplinary Based Literacy Instruction

Researcher: The researcher may be contacted if you have any questions:

Kellee Jenkins

3115 West Street Phone: 412-849-5359

Pittsburgh, PA 15122 Email: kdj10@pitt.edu

Purpose: The purpose of this research study is to examine a school's instructional, leadership and organizational capacity to foster the implementation of disciplinary based literacy practices.

Timeline: This study will be conducted from April 2009 to June 2009.

Procedures: This study will involve individual interviews with the school principal and literacy coach as well as individual interviews and individual observations of 8 content area teachers. Individual interviews will query teachers about their educational background, instructional routines, and interactions between teachers and administrators. Teacher observations

will focus on instructional practices involving literacy development. Interviews will be taped and transcribed.

Risks &

Benefits: There are neither no known risks associated with this study nor are there any direct benefits from participating. There will be no compensation for participating in the study.

Participation: Participation in this study is voluntary and you may withdraw from this study at any time.

Confidentiality: All responses will be kept confidential. All data will be secured in a locked file cabinet in a private and locked office. The researcher is the only person who holds the lock and key and is the only person to have access to the collected data. Any documentation from the study will be securely stored for approximately 3 years. Findings from the study will be reported in the aggregate. The names of the school or teachers will not be stated in the research. If there is a need to refer to direct comments, pseudonyms will be used.

Dissemination: Upon completion of the study, participants may request the written research report that includes the results of the study. Please contact the researcher for any additional information.

I consent to be interviewed for this research study.

Name(print)_____Signature_____Date_____

I consent to be observed for this research study.

Name(print)_____Signature_____Date_____

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