

## ABSTRACT

Title of Document:                   TEACHER SENSE-MAKING AND POLICY IMPLEMENTATION: A QUALITATIVE CASE STUDY OF A SCHOOL DISTRICT'S READING INITIATIVE IN SCIENCE

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In response to the No Child Left Behind federal legislation and Maryland's Bridge to Excellence Act, a school district created a strategic plan that included a program initiative for improving student reading scores in secondary schools. The initiative involved the implementation of Reading Apprenticeship, a program that required content teachers to infuse reading instruction into their practice by modeling reading behaviors and utilizing tools designed to promote metacognitive conversations with their students. This qualitative case study used a cognitive perspective to explore the sense-making of a team of middle school science teachers who received training in and sought to implement the program in their instructional practice during the 2004–2005 school year. The findings revealed that policy implementation varied for the different members of the team and was adversely affected by conflict with other policies and resistance by students. At the same time, policy implementation was enhanced by participation in the communities of practice

associated with the initiative. Implications from the study advocate that school districts actively engage in sense-making activities and support communities of practice that are established when new policy measures are introduced. The study calls for further research on how students receive policy and how they shape their teachers' sense-making. This study contributed to the sparse body of literature in this arena of policy implementation research.

TEACHER SENSE-MAKING AND POLICY IMPLEMENTATION: A  
QUALITATIVE CASE STUDY OF A SCHOOL SYSTEM'S READING  
INITIATIVE IN SCIENCE

By

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## Chapter 1: Introduction

### Context for Study: State and Local Responses to NCLB

The era of school accountability and reform, which started with the landmark 1983 National Commission on Excellence in Education report, *A Nation at Risk*, recently reached another important milestone with the 2001 reauthorization of the Elementary and Secondary Education Act, the *No Child Left Behind Act* (NCLB). NCLB set new requirements for state accountability systems as a condition of federal aid for disadvantaged children. Attention is now paid to school-level performance, with the goal that each student receive a high-quality and meaningful education. Consequences are in place for poor performance and failing to make adequate progress, and school districts, as well as individual schools, are subject to these accountability consequences. Knapp (2008) noted, “The federal No Child Left Behind policy challenges district leaders to set clear, compelling targets for improvement that meet state and federal expectations while motivating and enforcing system-wide efforts to reach these targets” (p. 523).

In the state of Maryland, the passage of NCLB led to a new assessment system that tracked individual student performance in reading and mathematics in Grades 3 through 8 and in Grade 10. These school accountability measures were shaped by the recommendations in the Visionary Panel for Better Schools and by the *Bridge to Excellence in Public Schools Act*, passed by the 2002 Maryland General Assembly. This legislation required each Maryland school district to develop a five-year comprehensive master plan that outlined their goals and strategies to meet state academic standards to assist the state in allocating resources.

In response to the new state requirements, the Center County Public School System (CCPS) published a *Comprehensive Master Plan* (2003) that contained a list of district initiatives designed to boost student achievement. They included district-wide initiatives for increasing computational fluency, gifted and talented participation rates, and participation on the Standard Achievement Test (SAT), as well as strategies and programs designed to support young learners, implement full-day kindergarten, increase career pathway options, target academic intervention services, and implement student support plans

The Strategic Content Literacy Initiative (SCLI) was an initiative designed for content teachers in language arts, social studies, mathematics, and science that focused on improving the reading competence and confidence of students in these disciplines. Borrowing from the work of Peter Senge (1990), CCPS labeled SCLI as a “high-leverage strategy” (i.e., a well-focused action that produces significant enduring improvements). As an initiative to help boost students’ reading scores, SCLI also marked a change in strategy from previous CCPS reading improvement efforts. Previous reading initiatives in the district had focused on the use of Directed Reading Activities intended to help students’ reading performance on the Maryland School Performance Assessment Program (MSPAP). SCLI encompassed a different, cognitive approach to reading instruction. Jordan, Jensen, and Greenleaf (2001) described the SCLI approach, also known as Reading Apprenticeship, in this manner:

The idea of Reading Apprenticeship is grounded in the work of L. S.

Vygotsky and his notion that children’s cognitive development is “socially

mediated,” and that children learn by participating in activities with the help of those who are more expert and can provide strategic support for parts of the task that they cannot do yet themselves. (p. 16)

In its Executive Summary of the BTE Master Plan (Center County Public School System, 2003a), CCPS signaled its support of SCLI in the following manner: “In order to improve student reading performance, educators at all grade levels and across all content areas must see themselves as ‘reading’ teachers” (p. 11). In addition, “Literacy skills should be emphasized in all content areas and across disciplines, not just in designated reading classes” (Center County Public School System, 2003a, p. 11). Furthermore, while CCPS maintained that the initiative aimed to improve the content literacy skills of all students, it also asserted that it was especially valuable for helping students from underserved populations in the School Improvement Unit (SIU) schools—designated low-performing schools that had been targeted by the district for extra resources and support.

*Paradox for Policy Implementation: Role of the School System*

James Spillane (2004) noted that, in this era of standards-based reform and accountability, although federal and state policymaking has grown considerably, school districts must perform the important function of policy implementation.

Even though state governments have become more active in policymaking, school districts are also active policymakers in their own right and often use state sanctions to leverage change and boost the authority of their own policies with teachers and school administrators (p. 64).

Spillane (2004) has contended that educational policy comes in “a variety of shapes and sizes.” Not only does the state make policy through its assessment system, standards documents, other state department publications, and presentations by state officials, but school districts are also key policymakers (p. 172). At the local level, Spillane has maintained that school districts interpret state policy and make their own policies through the curriculum guidelines and materials they publish and the staff development opportunities they offer. Using Spillane’s definition of *policy*, SCLI can be considered to be a policy initiative.

As CCPS embarked on the second year (2004–05) of its five-year implementation plan for SCLI, key questions emerged. Would Reading Apprenticeship be embraced and utilized by the content area teachers who participated in SCLI’s staff development activities? Would the policy be implemented as intended?

Fullan (1993) posited that the literature is filled with examples of district initiatives and innovations that have failed the test of implementation (Goodlad & Klein, 1970; Gross, Giacquinta, & Bernstein, 1971; Sarason, 1971), and the research points to a number of reasons for this failure. The reasons include poor district planning (Fullan, 2001; Schmoker, 1999), a prevailing institutional structure—loose coupling—that has inhibited reform (Elmore, 2000; Weick, 1976), and districts’ failure to grasp the complexity of educational change (Fullan, 1993, 2001). Fullan (2003) noted,

While districts and states are theoretically important to this agenda, in empirical terms they have done more harm than good. They have more often

than not tipped us into chaos—multiple innovations colliding, policy churn as innovations come and go, piecemeal reform and an overall condition of overload and fragmentation. (p. 51).

Fullan (2001) concluded that many district-generated educational policy initiatives frequently fail because school districts often try to do too much, producing strategic plans that are disjointed. He contended, “The problem in many school districts is the presence of too many disconnected, episodic, piecemeal, superficially adorned projects—often compounded by unwanted, uncoordinated policies and innovations raining down from hierarchical bureaucracies” (p.109). In short, superintendents and their school districts often suffer from relentless “projectitis.” Schmoker (1999) also criticized district strategic plans for another reason. He maintained that, despite their logic (i.e., tight connections among mission, belief, goals, actions, responsibilities, and evaluation), they simply do not work. Most district plans have suffered from too many goals, group “buy-in,” and the presumption that the “high-leverage thinking” must be done by an initiative’s planners and not by its practitioners.

The research has also outlined another possible cause for the failure of many district-initiated reforms—school districts’ inability to understand the complexity of educational change. Fullan (1993) asserted that school districts often expect policies that aim to change what goes on in classrooms to read like a blueprint in a strategic plan and to proceed in a clean linear process of implementation. Fullan maintained that educational reform is complex. It does not start with strategic planning, and it rarely proceeds in a linear fashion. Rather, strategic planning should come later in the



change process and only after the building of a shared vision and a commitment and buy-in from the implementers.

Knapp (2008) identified several persistent tensions that school district leaders have often failed to address and have hurt many district-generated improvement initiatives. They include: pursuing ambitious goals with limited and uneven capacity; maintaining a singular reform focus in the midst of multiple, competing agendas and logics; undertaking new tasks within old structures and routines; developing grand plans guided by incomplete (sometimes incoherent) theories of action; and confronting unanswered questions with limited information and understanding.

Although the track record for successful district-initiated reform policies has not been good, some researchers have also asserted that school districts do matter and that their active involvement is imperative for successful policy implementation. In her study of the federal Comprehensive School Reform Program and the connections of the different levels in the policy chain, Datnow (2006) concluded, “Policy implementation is a system-wide activity, even when the desired change is mainly at the school level” and that the conditions at the “federal, state, district, school and design-team levels all co-construct implementation efforts” (p. 119).

Spillane (2004) recognized the central role that school districts play when attempting to change teacher practice and help schools implement and sustain reform efforts related to federal and state standards—“school district policymaking is critical to the success of these higher-level policies” (p. 182). Gallucci (2008) found that, for educational innovations that relate to student learning to be successful, school districts must help shape the environment that fosters learning and change. She

concluded, “when school districts focus single-mindedly on instructional improvement and the professional development of leaders and teachers, we have some evidence that they build professional community and make a difference on student outcomes” (Gallucci, 2008, p. 545).

Elmore (2000) noted that, although standards-based reform has created problems for the public schooling, standards also provide the opportunity for policy to reach directly into the instructional core of schools, “making what actually gets taught, a matter of public policy and open political discourse” (p. 16). He emphasized that school improvement and reform must involve the district if there is going to be “change with direction, sustained over time, that moves entire systems, and engages people in the analysis and understanding of why some actions work and others don’t” (Elmore, 2000, p. 16).

In terms of successful policy implementation, Fullan (1993) cautioned that, although neither centralization nor decentralization works (i.e., both top-down and bottom-up strategies are necessary), districts are essential for the creation of schools as learning organizations in that they play a major role in “coherence-making.” That is, they generate peer pressure and support for an innovation, provide a sorting process by examining its outcomes, and produce a sense of shared commitment to selected ideas and paths of action (Fullan, 2001).

Fullan (2003) also maintained that districts are necessary to bring together curriculum, assessment, and teacher learning. His review of studies in this area have led him to conclude that, for educational innovations to be both successful and long lasting, two conditions are necessary: (a) professional development that focuses on

improved teaching and student achievement, and (b) the establishment of a culture of collaboration among teachers.

In summary, a paradox remains regarding district improvement and reform initiatives. Despite a history of failure for reforms that emanate from district-level strategic plans and a history of studies that advocate ground-up reform initiatives, school districts must remain involved in the support and cultivation of an innovation or reform if it is going to have a chance to become successful and far reaching.

### *Policy Implementation and Sense-Making*

CCPS' Reading Apprenticeship initiative exemplified the paradox associated with district-level policy initiatives and contained the criteria for an interesting and informative case study. On the one hand, it was a district-wide program initiative (i.e., instructional policy) that was disseminated from a strategic master plan that contained a host of other program improvement initiatives. A case could be argued that Reading Apprenticeship was destined for failure before it started due to the overwhelming number of choices that CCPS' schools were provided (Knapp, 2008) and the lack of coherence-making that would ultimately result (Fullan, 2003).

Conversely, because the initiative was not forced upon all CCPS' schools and they were free to choose and adopt it if it fit their needs, and because it was actively supported by CCPS' central office through training, opportunities for experimentation, and the establishment of collaborative professional learning communities, a case could also be made that SCLI contained the essential elements for school district support and successful implementation (Gallucci, 2008).

This case study, however, did not directly explore the success or failure of CCPS' Reading Apprenticeship initiative. Rather, it examined a more fundamental and little explored aspect of educational policy implementation, one that may determine its success or failure—the sense-making by the implementers of policy. Weick (1995) described sense-making, a form of human cognition, as the way that people make sense of their environment (i.e., their attempts to reduce multiple meanings [equivocality] and handle complex informational data).

Why is this study of participant sense-making important in the arena of educational policy implementation? Spillane (2004) contended, “putting sense-making center stage in the implementation process illuminates how district policymakers and teachers construct messages about changing their practices from policies that often misconstrue the intention of policymakers” (p. 169). Spillane, Reiser, and Reimer (2002) maintained that, to better understand the influences on the implementation of policy, “we must explore the mechanisms by which implementing agents understand policy and attempt to connect understanding with practice” (p. 391). Coburn (2001) asserted that “many researchers now suggest that rather than policy influencing teacher practice, it is more likely that teachers influence and shape policy. That is, teachers interpret, adapt and even transform policies as they put them into place” (p. 145). Mantere (2000) has posited, that although successful policy implementation is a goal and a challenge for any organization, it has not been a topic of active research. Policy implementation studies have focused primarily on planning centered points of view and have neglected the important roles that cognition, social interaction, and communication play.”

These researchers have all concluded that studying teacher sense-making of policy is much needed and long overdue since there is little research on the topic. Gaining an understanding of how implementers reconstruct policy messages in their professional practice (i.e., make sense of policy) is crucial if policy implementation is to be successful.

### Components of the Study

The Center County Public School System's high-leverage strategy for improving student reading scores involved the implementation of Reading Apprenticeship—a policy initiative that asked content area teachers to infuse reading instruction into their practice by modeling reading behaviors and using tools designed to produce metacognitive conversations. SCLI happened to be one of many policies that CCPS asked its schools to consider. At the same time that it offered program improvement initiatives, CCPS also pressed its schools to include the results from the district's assessment program into their school improvement plans. For the district's science teachers, Reading Apprenticeship marked a significant change in direction from the school district's previous program to infuse reading instruction into the science classroom.

#### Topic and Problem

This study focused on education policy implementation from a cognitive perspective by examining the sense that the science team at James Madison Middle School made of implementing Reading Apprenticeship as part of their participation in the Strategic Content Literacy Institute during the 2004–2005 school year. It utilized an analytical framework that helped deconstruct the participants' sense-making of the

initiative as they attempted to incorporate it into their classroom practice. In addition, the study examined how other policies, as well as the training and support activities related to the initiative, influenced the participants' sense-making and implementation.

Honig (2006) asserted that education has become a high-stakes, big-budget policy arena and that the focus on what gets implemented and what works is important given that education "commands a lion's share of state and local budgets" (p. 1). While acknowledging that the field of policy implementation research is complex and that the information that has been produced reflects a multitude of perspectives, Honig has maintained that we must confront this complexity and attempt to build a "base of knowledge that can guide practice in informed, responsible, and productive ways" (p. 22). This study contributes to the knowledge base by adding to the research on teacher sense-making of policy initiatives.

This study's importance is also heightened by the current context of NCLB, standards, assessment, and school accountability. Despite studies that have established that top-down reform initiatives from strategic master plans are prone to failure (Fullan, 1993), NCLB's accountability consequences has placed pressure on school districts to continue to create central office plans and policy initiatives that are designed to help schools become/remain compliant with the law. Research that provides school districts with information about their influences on policy implementation is much needed.

The literature has also suggested that while teachers often influence policy more than it determines their practice, the need exists to examine what teachers

understand about a policy as they attempt to link their understanding to implementation (Coburn, 2001). Unfortunately, implementation research offers little in this area (Coburn & Stein, 2006), leaving school districts with little insight into how they can shape ideas about instruction that will enable the implementing agents' sense-making. Spillane et al. (2002) concluded, "Portrayals of implementing agents as resisters and saboteurs working to circumvent policy proposals that do not advance their self-interest are insufficient to account for policy outcomes" (p. 391). In addition, they have found that much of the literature on the problems associated with education policy implementation has offered "numerous explanations that focus on the nature of social problems, the design of policy, the governance system and organizational arrangements in which policy must operate" (p. 389), but that there has been little on how the implementers comprehend the policy they are expected to include into their practice or on how they should prioritize and balance the implementation of new initiative against the other demands they may face (p. 391). This study contributes to this area of research.

#### Purpose and Research Question

The purpose of this case study was to explore the sense-making of Reading Apprenticeship by the science team at James Madison Middle School. Each member of the team received training from CCPS and was asked to incorporate it into his or her practice during the 2004–2005 school year.

The study was guided by the following question: What sense did middle school science teachers make of implementing Reading Apprenticeship in their instructional practice?

The study incorporated a wide range of data sources: document analysis, classroom observations, interviews with the participants, and observations of content training/sharing sessions that were established to support the initiative.

#### Significance

Spillane et al. (2002) contended that understanding sense-making is important for understanding policy implementation:

Many conventional accounts assume that implementers understand a policy's intended messages or that failure to understand results from the policy's ambiguity. Treating policy as a stimulus, these accounts find that implementation failure results when the stimulus is unclear or weak, or when the stimulus does not fit the agendas and interests of the utility-maximizing implementing agents. Viewing failure in implementation as demonstrating a lack of capacity or a deliberate attempt to ignore policy, overlooks the complexity of the sense-making process. (p. 391).

Coburn (2001) also stressed the importance of studying teacher sense-making in the implementation of education policy and asserted that it is crucial that we explore the influential role that social interactions play in the implementation process. She posited that knowing the influences that affect a teacher's interpretation of new strategies is the only way educational leaders will ever fully understand the relationship between policy and classroom practice. Although many studies of curriculum reform have focused on how teachers implement policy or how leadership practices contribute to implementation success, few studies have sought to examine



teacher sense-making—how teachers interact with a reform to understand it and to change their practice (Utomo & Yeom, 2003).

Therefore, the significance of this case study on teacher sense-making and education policy implementation lies with its contribution to the scarce body of literature on the topic. Spillane (2004) supported the need for this kind of case study:

We know relatively little about sense-making as a practice as it unfolds in curriculum committees, professional development meetings, grade-level meetings, classrooms, and informal interactions. Attempting to understand teachers' and district policymakers' sense-making from and about policy as a social practice would press scholars to move beyond an exclusive concern for implementing agents' knowledge structures and beliefs to explore the activity structures and relations that define their sense-making. (p. 179).

Spillane et al. (2002) surmised, “under rubrics that include ‘interpretation,’ ‘cognition,’ ‘learning,’ ‘sense-making,’ and ‘reading,’ scholars argue that the ideas that implementing agents come to understand or interpret from policy are an integral, and largely unexplored, component of the implementation process” (p. 342). In addition, the study was significant because the information obtained can be used by CCPS and other school districts to help shape future policy implementation.

#### Limitations

Marshall & Rossman (1999) have noted that qualitative research studies are limited by the design of the study and their conceptual frameworks. This case study was limited by several factors. For one, it was bounded by time (Creswell, 1998) and was based on the assumption that teacher sense-making for the Reading Apprenticeship initiative could be adequately captured during a one-year period.

Because SCLI is a multiyear initiative, the study does not include any changes in participant sense-making that may have occurred after the 2004–2005 school year.

In addition, the study's sample size was small—exploring the sense-making of five teachers from the same school and teaching in the same subject area (science). Three of these teachers served as primary informants, whereas two were secondary informants. Although this sampling was purposeful (i.e., done to account for variables that may influence sense-making, such as the differences in standards, curriculum and accountability of the different content areas, differences in school contexts, and differences in communities of practice), the small sample size somewhat limited the ability to draw broad conclusions and/or make applications to teachers in other contexts.

Finally, the case study was limited to data collection through participant interviews, observations of SCLI meetings, and document analysis. Other sense-making studies (Coburn, 2001) also used observations of informal teacher interactions over a longer period of time to capture the processes by which teachers construct and reconstruct messages. This study does not provide this level of data collection.

Despite these limitations, the study has contributed to a growing body of research on teacher sense-making, and how context and social and professional interactions, as well as leader-shaping actions, have influenced the implementation of an initiative designed to change teacher practice. It is my hope that the findings in this study will form the basis for further research into this important topic.

### Organization of the Study

I begin this study begins with a detailed overview of the context (Chapter 2). Spillane et al. (2002) asserted, “Situation or context is critical in understanding the implementing agent’s sense-making” (p. 389). Because the passage of NCLB set off a series of changes at the state and district levels that affected CCPS and James Madison Middle School—the site of the study— it is important to explore these changes in greater depth.

In Chapter 3, I describe the literature that informs the study and serves as a basis for the study’s methods. I also present the framework that was used for determining the “sense” that the participants made of Reading Apprenticeship, as well as other factors that may have influenced their implementation. In Chapter 4, I reveal the methodology and design of the study, as well as data collection and analysis procedures that were used. I also discuss the study’s limitations and trustworthiness.

Chapter 5 is the first of two findings chapters and I focus on the sense-making of each of the study’s participants. In Chapter 6, I present findings from a cross-case analysis of the participants’ implementation, and examine the factors that may have influenced their implementation, and how the leaders of the initiative responded to these influences. Finally in Chapter 7, I conclude with a discussion of the conclusions that can be drawn from this study and the study’s implications for policy, practice and future research.

### Definition of Terms

Affect—the observable display of emotions, values and beliefs

Cognition—the processing of information, the acquisition of knowledge

Cognitive Dimension—part of the Reading Apprenticeship framework—directs students to the mental processes skilled readers use, including their repertoire of specific comprehension and problem-solving strategies such as re-reading, questioning, paraphrasing, and summarizing (Jordan, Jensen & Greenleaf 2001).

Cognitive Perspective—a view of policy implementation that takes into account basic information processing, as well as the influences of motivation and affect and the social context and social interactions (Spillane, Reiser, & Reimer, 2002).

Communities of Practice—groups of people who share a concern or a passion for something they do and who interact regularly to learn how to do it better (Wenger, 2001).

Directed Reading Activities—activities that a content teacher could infuse into their instruction to support reading outcomes.

Distributed Context—interactions that occur among teachers, between teachers and leaders, between teachers and students, and through routines and structures (Spillane, Reimer & Gomez, 2006).

Instructional Policy—the assessment systems, standards documents, curriculum guidelines, curricular materials, curricula initiatives etc. that are generated at the federal, state and local levels (Spillane, 2004).

Knowledge Building Dimension—part of the Reading Apprenticeship framework — helps students draw on and build several interconnecting areas of knowledge: background knowledge about the topic; knowledge of text structure, genre, and language; and knowledge about the discipline (Jordan, Jensen & Greenleaf, 2001).

Metacognition—thinking about thinking; monitoring ones thinking as they learn.

Metacognitive Conversations—teachers reveal the mental processes that readers use, as well as places where comprehension breaks down. These conversations play a crucial role in helping students develop insights about reading and to build a repertoire of strategies to overcome obstacles and deepen comprehension (Jordan, Jensen & Greenleaf, 2001).

Motivated Reasoning—the influence of motivation and affect on cognitive processing (Spillane, Reimer & Reiser, 2002).

Personal Dimension—part of the Reading Apprenticeship framework - focuses on developing and extending students individual awareness and self-awareness as readers (Jordan, Jensen & Greenleaf, 2001).

Policy Implementation—bringing knowledge, skills and abilities to the enactment of policy

Reading Apprenticeship—a cognitive coaching initiative where teachers use modeling and strategies to apprentice students in the development of their reading skills

Schema—knowledge or worldview, integrated into a web of interdependent relationships that are also called scripts (Spillane, 2004).

Sense-giving—the process of attempting to influence the sense-making and meaning construction of others toward a preferred redefinition of organizational reality (Maitlis & Lawrence, 2007).

Sense-making—a form of cognition, a theoretical construct that contains the cognitive and social mechanisms for dealing with ambiguity and uncertainty.

Situated Learning—learning occurs from experience, trial and error

Social Dimension—from the Reading Apprenticeship framework - helps students access each other's reading processes and resources in a safe environment where they can also acknowledge their confusions and difficulties with texts (Jordan, Jensen & Greenleaf, 2001).

(List of Abbreviations – See Appendix A)

## Chapter 2: Context for the Study

### Reading and Assessment Changes in Maryland

From 1993 to 2002, Maryland assessed reading and other subjects through the Maryland School Performance Assessment Program (MSPAP), an accountability system that was designed to measure school performance but did not provide individual student scores. In the final year of its administration (spring 2002), the Maryland State Department of Education (MSDE) made the MSPAP tests optional (except for Title I middle schools) based on changes in federal regulations as well as recommendations from the Maryland Visionary Panel for Better Schools, which had been called together by the state to craft a vision for the next step in education reform (Maryland State Department of Education, 2003a).

In 2003, in accordance with the federal *No Child Left Behind Act* (NCLB), Maryland switched its assessment program to the Maryland School Assessment (MSA) program, with proposed tests in reading, mathematics, and science. These new tests would provide “valuable information about the students, schools, school systems and overall state performance” (Maryland State Department of Education, 2008).

Both the MSPAP and MSA had profound effects on local school districts and created a plethora of local policymaking in the form of new curriculum guides, reading instruction programs, and changes in the role and expectations of content teachers in terms of supporting reading.

## Reading Expectations for Content Teachers—MSPAP Years

The Maryland State Department of Education (2002a) described the MSPAP as a test that was given each May to test students' mastery of the basics and how well they applied knowledge in authentic problem-solving situations. The MSPAP consisted of "criterion-referenced performance tasks in reading, mathematics, writing, language usage, science, and social studies for students in grades 3, 5, and 8." The tests were based on the Maryland Learner Outcomes (MLOs) that were developed by Maryland educators and focused on what "students should know and be able to do as a result of their educational experiences."

The Maryland State Department of Education (2002b) also reported that MSPAP tasks required students to "respond to questions or directions that lead to a solution of a problem, a recommendation or decision, or an explanation or rationale for the responses. Some of the tasks assessed one content area; while other tasks assessed multiple content areas." The activities that comprised the tasks were "group or individual activities; hands-on, observation, or reading activities; and/or activities that required extended written responses, limited written responses, lists, charts, graphs, diagrams, webs, and/or drawings."

The Maryland State Department of Education (2002a) asserted "MSPAP measured the performance of Maryland schools by illustrating how well students solved problems cooperatively and individually, how well students applied what they learned to real world problems, and how well students could relate and use knowledge from different subject areas." In its *MSPAP Fact Sheet* the Maryland



State Department of Education (1994) described how the MSPAP differed from traditional assessments:

MSPAP is intended to measure school improvement, not individual student performance.

MSPAP tasks include a series of related steps that draw on knowledge across content areas.

MSPAP tasks are ‘real-life’ situations.

MSPAP tasks typically require students to write extensively; they are not multiple-choice questions that can be answered by simple rote learning and memorization of facts.

As an assessment of reading, the MSPAP was much different than other norm-referenced reading tests, such as the Comprehensive Test of Basic Skills (CTBS) for reading, which the Center County Public School System (CCPS) also administered to its students and was used to provide general measures of the achievement levels of individual students by comparing a student’s achievement with that of a representative sample. With the MSPAP, reading comprehension was not assessed directly. Rather, the reading scores were extracted from the students’ responses to the performance tasks of other content areas. A description of what the MSPAP reading entailed was summarized in the following manner:

In MSPAP, the constructing meaning that most of us consider ‘reading’ is just the beginning phase. MSPAP expects readers to go beyond what is literally on the page . . . and to make inferences or predictions or to draw conclusions (Alvestad, 2000, p. 190).

School districts also quickly realized that this complex method for assessing reading provided a unique challenge as they strove to improve their MSPAP reading scores. A curriculum planner from Worcester County wrote, “It is not that our kids can’t read. It’s that they are not answering the questions asked. They are not giving evidence to support their answers. They are not using inference and injecting personal experience” (Miller, 1998, p. 1).

Middle school content teachers in mathematics, language arts, science, and social studies were asked to infuse practice MSPAP-style performance tasks into their instruction and to stress the appropriate MLOs for reading during their instruction. These outcomes’ three domains included reading for information, reading to perform a task, and reading for literary experience. In addition, as they critiqued and graded student work, content teachers were asked to consider four stances that helped define what students should be able to perform: read for global understanding, develop interpretation, use personal reflection, and write from a critical stance.

Concerned about school performance scores and possible sanctions or loss of funding for poor performance, Maryland school districts stressed the importance of content teachers supporting the MSPAP reading outcomes. A school district from Maryland’s Eastern Shore noted that it is the responsibility of all teachers in a school to help raise the reading scores of students on the MSPAP. Reading in real life encompasses far more than reading literature and stories. It also includes reading to be informed and reading directions to perform a task (Miller, 1998)

After the MSPAP became established, the state was particularly concerned about middle school students’ performance on the test. The Maryland State

Department of Education (1999) reported, “Just as MSPAP results allowed schools and school systems to diagnose and resolve weaknesses, state-level data provided the impetus for many state-sponsored programs and legislation designed to counter discouraging performance trends.” Among the problem areas identified by the 1999 MSPAP results was “slow progress in middle schools, particularly in reading. Despite strong gains in third- and fifth-grade reading (10.6 and 16.7 point increases respectively) over the course of testing, progress remained slow in the eighth grade, where only 25.3 percent of students met the satisfactory standard.”

To address this trend, the Maryland State Department of Education (MSDE) created two initiatives to improve reading performance, particularly at the middle school level. One initiative required all Maryland teachers to take more courses in reading to maintain their certification. The other initiative created a middle school task force that recommended strategies for aggressively improving middle school instruction. The Middle Learning Years Task Force’s report (Maryland State Department of Education, 1999) recommended that “specific reading instruction be provided for all middle school students” and “reading and writing be integrated in the content areas.”

The MSDE’s emphasis on reading in the content areas and its importance to achieving success on the MSPAP had profound effects on the state’s school districts in terms of their curriculum, professional development efforts, and school improvement planning. The Montgomery County Public School System (1998) published a MSPAP guide to be used by middle schools seeking to improve their MSPAP performance. In terms of reading, the guide echoed the importance of strong

reading instruction by content area teachers and noted “reading is the ‘way in’ to every MSPAP activity and task. Students need to be equally fluent and proficient in reading for literary experience, reading to be informed, and reading to perform a task.”

The guide also strongly advocated that students be taught how to read expository texts in social studies, science, and mathematics for several reasons:

Seventy-five percent of the MSPAP reading tasks focused on expository text, MSPAP frequently required comparison reading of two or more texts, and MSPAP often demanded written responses with two, three or more specific textual references to show that the text was explicitly read and understood.

The message for middle school science teachers in CCPS and around the state was clear: When teaching your curriculum, support reading skills.

#### Reading in CCPS During the MSPAP Years

During the years of MSPAP testing, middle school content teachers in language arts, mathematics, science, and social studies were expected to play a significant role in helping their students become better readers and writers. In CCPS, this reliance on middle school content teachers to work with students on reading was evident in several ways: (a) how the district scheduled its reading program in the middle schools, (b) the emphasis on reading strategies in each content area’s teacher curriculum guides, and (c) the professional development materials that the Reading Office produced for content teachers.

In CCPS’ middle school program of studies, reading classes were paired with foreign language. Those students who were on or above grade level in reading often

opted not to take three years of reading instruction. An article that reported on CCPS' middle schools' instructional programs noted "only 6th graders and students in 7th and 8th grade who are having trouble actually took reading as a separate subject. Other students used that time to study a foreign language" (Bradley, 1998)

Because the MSPAP did not provide individual test results for vocabulary development and reading comprehension, most schools used CTBS scores and/or course assessments in the Grade 6 reading course to determine who qualified for placement in foreign language. The students who were below grade level, however, were strongly encouraged to take reading in Grades 7 and 8. A small number of students who qualified for foreign language instruction but were not interested in studying Spanish or French had the option to take a challenge reading class.

The emphasis on reading in the content areas was also highly evident in CCPS' teacher resource guides. For example, each CCPS middle school science resource guide for Grades 6, 7, and 8 contained a section that stressed the importance of reading instruction in science. The guides also contained passages that encouraged the use of Directed Reading Activities (DRAs) and explained how science teachers can assist with reading instruction (Center County Public School System, 1999):

Science teachers do not have to be experts in all areas of language arts instruction to help students develop the ability to read, write, and speak as scientists. However, students will find it easier to apply what they have already learned in English and reading classes to science if the science teacher knows and uses a few key concepts. It is important for teachers to know that reading, writing, and speaking are processes. In English and reading classes,

students have been taught to use specific strategies for each stage of the reading, writing, and speaking process. Good teachers will build on this instruction. Just as a good science teacher would not ask a student to begin a science investigation by stating the conclusion, the science teacher should not begin a lesson in which students read by asking the students to turn to a given page and read and answer questions. The reading process includes the following stages:

pre-reading

silent reading—readers construct meaning

re-reading—readers revise or extend meaning

reflection—readers determine what the reading may mean

personally

peer review/discussion—readers critically examine and evaluate the meaning of text

revised/extended/examinations of meaning—readers return to

the text on multiple occasions and redefine what the text means

Students have been taught strategies to use before, during, and after the silent reading of text. The science teacher can take advantage of this instruction by using the DRA lesson model. Both models include simple things that content teachers can do to engage students in all phases of the reading process. (p. 19).

In promoting reading, the middle school science curriculum resource guides also contained exemplar science lessons, laboratory activities, and instructional strategies that made numerous connections to two of the three MSPAP reading

outcomes—reading to be informed and reading to perform a task. The guides also featured examples where reading outcomes were blended with the 5E Instructional Model for teaching science (Appendix B).

The 5E model was adopted by the MSDE as the model for designing science lessons and was also advocated by CCPS. This model consists of five phases: engagement, exploration, explanation, elaboration, and evaluation. Trowbridge, Bybee, and Powell (2000) described the 5E instructional model as based on a constructivist view, where “students redefine, reorganize, elaborate and change their initial concepts through interactions among the environment, classroom activities and experiences, and other individuals” (p. 243). In this model, students make connections between past and present learning experiences while constructing new knowledge based on previous understandings. Reading activities can serve as a means of constructing these new ideas.

CCPS’ Reading Office also offered numerous professional development seminars to science teachers to assist them in improving their students’ reading skills and performance on the MSPAP. The office produced a compendium of teacher resources and strategies from these professional development efforts titled *Reading in Science* (Stein, 1998). This guide was distributed to each middle school and served to remind science teachers of how they could emphasize reading in science. A summary of the resources contained in this guide can be found in Table 2.1.

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Table 2.1

*Reading Resources/Strategies Contained in Reading in Science*

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Reading Resources for Science Teachers	Purpose
Creating strategic readers	Provides tips to help students develop a sense of purpose and direction when reading
Reading foundations	Describes purposes and stances for reading that teachers should consider
DRA	Models how to infuse reading strategies into a science lesson that requires reading
KWLS chart	Helps students reflect on their reading
Frayser model	Helps students select and organize information
Word maps and charts	Help students define terms and concepts
SMART	Help students self-monitor their approach to reading and thinking
Scan and run	Help students navigate through a science textbook
CUCC	Help students read and understand instructions to complete a task
Reading techniques: read aloud, paired reading, focus reading	Describes how science teachers can implement reading activities
Quality reading questions	Provides questions that science teachers ask to promote higher level thinking

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*NCLB and Changes in Reading Assessment at the State Level*

With the passage of the Elementary and Secondary Education Act, known as NCLB, and recommendations from the Maryland Visionary Panel for Better Schools that advocated for changes to its overall accountability program, MSDE changed the way it assessed reading in 2003.



Instead of measuring reading performance by deriving scores from a series of written student responses to a series of performance tasks, MSDE switched to a reading test that measured reading skills and objectives contained in the state's new set of content standards known as the *Voluntary State Curriculum* (Maryland State Department of Education, 2006). The new reading test, the MSA, contained both selected response (SR) questions—multiple-choice questions with four choices—and brief constructed responses (BCR)—questions that require a short written response. This test would be taken individually, without group activities, and would yield information about the performance of the student, the school, and the school district.

In March 2003, students in Grades 3, 5, and 8 took the field test of the MSA in reading and mathematics. This field test was produced by Harcourt Educational Testing—Stanford Achievement Test Series, 10th edition (SAT10)—in collaboration with MSDE and local school systems (Maryland State Department of Education, 2003a). In a technical report on the 2003 MSA, MSDE established that “the 2003 MSA-Reading field tests were designed to provide two kinds of information.” Norm-referenced information was provided by the items from the abbreviated form of the SAT10. The SAT10 consisted of word study, reading vocabulary, and reading comprehension items. Criterion-referenced items, also called augmented items, were written for the Maryland Reading Standards in Grades 3, 5, and 8. Only the criterion-referenced items would be used for accountability purposes.

The reading MSA tested three topic areas: general reading processes, informational text comprehension, and literary text comprehension. The norm-referenced component of the Grade 8 test consisted of selected response items and included vocabulary and reading comprehension questions. The criterion-referenced

portion of the exam included both SR and BCRs and contained general reading items that tested vocabulary, phonics, comprehension skills, literal and inferential meaning, as well as informational and literary reading processes (Center County Public School System, 2003b). A summary of the test’s components can be seen in Table 2.2.

Table 2.2

*Grade 8 Reading Blueprint*

Grade	Strand Title	Item Type	Number of Items	Total Points
8	Reading vocabulary	SR	20	20
8	Reading comprehension	SR	30	20
8	General reading	SR	15	15
8	Literary reading	SR, BCR	15	21
8	Informational reading	SR, BCR	15	21

*Note.* SR = Selected Response items; BCR= Brief Constructed Response items.

CCPS’ New Focus on Reading—Content Literacy

With new accountability parameters established by NCLB and news that the MSPAP would be replaced by new accountability tests in reading and mathematics in the spring of 2003, CCPS placed a new emphasis on reading and mathematics instruction and assessment. Professional development sessions to acquaint central office leadership and elementary and middle school principals with the types of questions that would be asked on the reading MSA were conducted during the 2002–2003 school year. CCPS’ middle schools began to reexamine the practice of

permitting some students to opt out of reading in Grades 7 and 8 for foreign language instruction, and discussions at meetings explored scheduling alternatives that would ensure that every student would receive 3 years of reading instruction. In addition, CCPS quickly made a commitment to a new approach to teaching reading in the content areas—content literacy.

Content literacy, also called Reading Apprenticeship, was brought to CCPS by the Coordinator of the Secondary Language Arts Program, Charles Brown, who learned about the significant reading gains it produced with secondary school students and English language learners in California (see Appendix C for a detailed description of the program). In the article “Amidst Familial Gatherings,” Jordan et al. (2001) described the evolution of content literacy:

It grew out of an inquiry into reading pursued by a group of middle and high school teachers and researchers (WestEd) in the San Francisco Bay Area. Teachers were looking for ways to help adolescent readers break the literacy ceiling that was holding them back from the independent reading of challenging content area text. Participating teachers made a commitment to a case inquiry process (p. 16).

Brown traveled to California to learn more about Reading Apprenticeship. After participating in WestEd professional development activities, he became convinced that it was a good fit for CCPS and would help address the district’s desire to close the achievement gap that existed between its white and minority students. Brown received permission to run a small pilot program with several secondary teachers in the district (2002–2003), and he created a *Content Literacy Systemic*

*Improvement Plan* (Center County Public School System, 2003c) that directly connected SCLI to aspects of the Holistic Learner Framework that CCPS was developing. This framework—later called the Vision for Exemplary Teaching and Student Learning (Appendix D)—advocated that teachers should know who their learners are and what their needs are as they plan learning activities and lessons that cover the objectives of their courses as well as incorporate teaching strategies that engage their students and work to meet their learning needs.

The *Content Literacy Systemic Improvement Plan* (Center County, 2003c) also built the case for the adoption of SCLI by highlighting a series of factors that Brown felt contributed to the achievement gaps that existed in the district at the secondary level:

A large percentage of the secondary language arts teachers are female and lack practical methods for meeting the particular needs of African American students and especially males, in reading, comprehending, and analyzing text in content areas. This is compounded by the demands of the state-tested content areas, where teachers see the demands of covering the content as competing with the need to address their students' content reading needs. Secondary teachers typically lack concrete and practical ideas for promoting a classroom environment through the social and personal dimension of the Holistic Learner Framework (HLF). More deeply than this, these teachers lack methods for involving students routinely in metacognitive conversations to develop all three dimensions of the HLF.

Secondary teachers generally depend too heavily upon whole-class, teacher-centered activity and lack effective ways of engaging students, especially in reading and processing text.

Secondary teachers have generally received professional development in content reading that consists of activity-based approaches; thus, their repertoire in content reading presents activities and, at best, prepares students to read particular texts, by giving them purposes for reading and questions to answer after reading. This approach externalizes the reading process for teachers and for students; it fails to equip students to increase their control over reading by setting their own purposes, asking their own questions, monitoring their understanding, and integrating new learnings from text with prior knowledge. (pp. 3-4).

CCPS subsequently lent its full support to the SCLI initiative and enlisted Brown to create a five-year plan (Center County Public School System, 2003b) for implementing the program with the district's middle and high schools (see Appendix E). With the approval of district leadership and assistance from WestEd, a special emphasis was made to involve the schools designated as in need of improvement – the School Improvement Unit (SIU) schools.

The five-year plan defined specific goal areas that it hoped to achieve, including: (a) meeting grade-level performance standards in reading in all schools in 2005, (b) closing the achievement gap in reading by 2007, (c) promoting content literacy expertise among content teachers, (d) integrating the program parameters into content area instruction, (e) establishing and strengthening a collaborative learning

community in secondary school, and (f) generating instructional and professional development resources for strategic content literacy.

The new initiative was officially named the Secondary Strategic Content Literacy Initiative (SCLI) and was included in CCPS' Bridge to Excellence (BTE) plan (Center County Public School System, 2003b), and funds were earmarked in the CCPS budget to support its implementation. In the BTE plan, content literacy was listed as one of four program improvement initiatives that schools should consider.

In CCPS' Executive Summary of the BTE Plan (Center County Public School System, 2003b), SCLI was described as "a major initiative to enhance the quality of teaching and learning" (p. 10) and asserted that, "in order to improve students reading performance, educators at all grade levels and across all content areas must see themselves as 'reading' teachers . . . and literacy skill will be emphasized in all areas, not just in designated reading classes" (p. 11).

The middle schools met on a monthly basis during the 2002–2003 school year and as they began to formulate their individual school improvement plans, SCLI was introduced in a 30-minute presentation (Center County Public School System, 2003d) to both middle school and high school principals. At the conclusion, the schools were asked to strongly consider Reading Apprenticeship as a school improvement initiative for their schools and to encourage their teachers to enroll in the SCLI Year One Institute. During the presentation, SCLI was categorized as something more than a simple reading program to accelerate student growth in content literacy. It was also a learning framework that "will help teachers develop the personal, social and cognitive

dimensions of classroom life ... while enabling participants to make visible the invisible strategies that they use as expert readers.”

In May 2003, both SIU schools and content offices received additional professional development on creating their school or office improvement plans for the following year. SCLI was used as an example of a high-leverage strategy—loosely defined as an initiative that would give schools or offices “a lot of bang for the buck” in terms of teacher professional growth and improving student performance (Center County Public School System, 2003e).

#### Content Literacy Categorization by Reading: Moderate Intervention

At the start of the 2003–2004 school year, as Mr. Brown was moving forward with the first year of a five-year implementation plan, SCLI was being framed in multiple ways. It was categorized as a program improvement initiative in the BTE report, as a high-leverage strategy for school improvement plans for SIU schools, and as a learning framework for content teachers. In addition, CCPS’ Reading Office also depicted the initiative in a different way.

With the switch from the MSPAP to the MSA as the reading accountability test, the Reading Office was asked to give a series of presentations to the Board of Education (October 2003) and to elementary and secondary principals (November 2003) about the MSA reading tests and the types of intervention programs that CCPS had in place for students who were below grade level in reading.

In the Board of Education report (2003f), the Reading Office maintained that, “although interventions are sometimes embedded in regular classroom instructional practices, some students need extra assistance to perform on or above grade level . . .

and that this may take on multiple forms depending on the needs of in the individual student” (p. 1). The report classified the types of interventions that are needed as minimal, moderate, and intensive. Table 2.3 summarizes these differences.

At a presentation to principals (Center County Public School System, 2003b) and a follow-up presentation to the Board of Education (Center County Public School System, 2004b), a host of interventions programs were listed for addressing below grade level middle and high school students. In this listing of programs, SCLI was classified as a moderate intervention and was categorized as one of eight reading intervention strategies that middle school principals had available to them.

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Table 2.3

*Types of Reading Interventions in Center County*

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Intervention Type	Definition
Minimal	Designed to help students who are slightly below grade level. These interventions are usually part of regular classroom instruction but may also include additional time on task.
Moderate	Designed for below-grade-level students who benefit from additional intervention service beyond those typically provided as part of regular instruction. These might include extended-day/extended-year programs.
Intensive	Designed for students who are significantly below grade level and who need additional services, often in small groups or one on one.

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*Other Challenges Faced by Science Teachers*

Fullan (2001) noted that it is “not uncommon to find school districts where vastly different approaches to education reform are being tried at the same time” (p.



109). In addition, he posited, “When an organization embarks on new interactions and ideas, coherence making by the organization’s leadership must be ongoing, or confusion and rejection will result” (p. 115).

While Center County attempted to build the capacity among its content teachers to incorporate Reading Apprenticeship into their practice, CCPS’ science teachers faced several other ambiguities that were unique to their discipline. These obstacles included a press for instructional time needed to meet the district’s curriculum standards and the deadlines imposed by its quarterly assessment program, unanswered questions related to the standards-based debate of content versus process-centered approaches to science instruction, confusion over the integration of reading and language instruction into the science classroom, and possible adverse effects on innovation and change from multiple initiatives within a school setting.

#### Press for Instructional Time

The CCPS produced curriculum guides for each of its science courses. When applicable, these guides encompassed the content and process standards that were outlined in Maryland’s *Voluntary State Curriculum* for Grades K to 8 and the high school core learning goals. In addition, based on the goals, objectives, and indicators in each of its guides, CCPS developed quarterly assessments to help measure how its students were mastering their curricula, so that schools may offer intervention services to the students who are in danger of falling below grade level.

The amount of content that teachers are now asked to cover, as well as the deadlines on instruction that have been imposed by the assessment program, drew a response from some of the district’s science teachers. Many of these teachers

reported at district professional development meetings or through their school's instructional leaders that there was not enough instructional time to cover their curriculum goals and objectives in an adequate fashion to meet the assessment deadlines. The district leadership took the position that, because the state curricula documents spell out what students need to learn, there was no compromise on the topics that were to be taught and teachers would need to adjust their instruction and cover the content in a fashion that best meets the needs of their students. In addition, the local assessments must be given to monitor students' progress and ensure that the curriculum is being learned.

Berliner (1990) conducted early research on instructional time and found that it is a hard concept to measure because different instructional time variables (i.e., allocated time, engaged time, time on task, academic learning time, etc.) are frequently misused in studies. There is a body of research, however, which concludes that the concern about the loss of instructional time related to some curricula reforms is a real issue that states and school districts should examine closely when they create their standard-based curricula frameworks and documents. In a meta-analysis of studies related to school effectiveness, Marzano (2003) found that the number one school-level factor affecting student achievement is a guaranteed and viable curriculum. That is, students not only need to have the opportunity to learn the intended curricula from qualified instructors, but teachers must also have the instructional time necessary to teach their curricula. Citing a study by researchers at the Mid-Century Research for Educational and Learning, who identified 200 standards and more than 3,000 benchmarks in national and state-level documents for

14 different subject areas, Marzano found that the movement toward accountability had created a situation where teachers simply did not have enough classroom time to teach all of the standards and benchmarks outlined in their curricula documents. Using estimates of actual learning time (i.e., when students are engaged in instructional activities), Marzano estimated that teachers have only 9,042 hours of instructional time to cover 15,465 hours of standards and course content.

Marzano's (2003) research supported the notion that the lack of instructional time is a real issue that school districts should closely examine and is especially true when a school district attempts to implement new policies and programs. Mandating quarterly local assessments that were designed to measure how well CCPS' students have mastered their curricula made many of CCPS science teachers feel pressed to cover their content. A reluctance by teachers to try new instructional strategies when feeling pressed for time to cover the curriculum poses a potential obstacle to policy implementation.

#### Unanswered Questions About Science Instruction

The complaint about instructional time might also be related to a more basic concern that science teachers have faced in the era of standards and assessment-driven instruction. That is, what should science instruction look like? Since the mid-1990s, state and school district curricula have been heavily influenced by the national science standards that have come primarily from two sources: the American Association for the Advancement of Science (1989), which published *Project 2061: Science for All Americans*, and the National Research Council (1996), which published *National Science Education Standards*. The goal of both sets of standards

was the same—scientific literacy for all students—and both sets of standards had much in common. They both presented a strong argument for the need for a scientifically literate society, and they identified unifying concepts that students need to know, and science-related skills that they should be able to perform at different grade levels. MSDE and CCPS have used the recommendations from both sets of national standards as a basis for their curricula frameworks. However, although these national standards are clear on the outcomes that they want for students, they are somewhat vague on how teachers should get there. In fact, some have argued that the standards have created a dilemma for science teachers who must attempt to help their students achieve these outcomes in the context of high-stakes accountability. At the heart of the matter lies this debate: What does effective science instruction look like?

In *A Vision Of Effective Science Education* (NSF, 1997), the National Science Foundation asserted that a vigorous debate was occurring over the most effective way to teach science—teaching that stresses the acquisition of content (direct instruction) versus teaching that emphasizes processes to construct knowledge (constructivist inquiry). The direct instruction end of this continuum for science instruction asserted that science classes should value “knowledge that is defined by the text and emphasize student learning from readings and lectures. On the opposite end of the continuum is the open exploration of materials with little guidance or structure” (p. 18). The National Science Foundation (NSF) noted that the debate was centered on where the proper balance should lie between content and process and where on the continuum teachers should focus their efforts. NSF advocated a balance of content and process in the establishment of an inquiry-based science programs and concluded

that further studies must be done to settle the issue. The organization advocated that educators first understand their own values and engage in their own inquiry to determine a program that meets the needs of their children, community, and school district.

O’Connell-McManus, Dunn, and Denig (2003) attempted to answer NSF’s call. They noted that, although the National Science Education Standards were designed to overhaul the educational system on the belief that learning science required active student engagement, the NRC failed to operationally define active. Hence, pedagogical decisions and approaches to teaching science (inquiry vs. direct instruction) were open to interpretation by the teachers who were to implement the standards. In their study, an analysis of the effects of different instructional treatments on the achievement of 10th-grade science students, O’Connell-Manus et al. found that the more students were actively involved with tactile and kinesthetic resources, the more their science achievement and attitude test scores increased. Their report, however, did not specify the amount of classroom time that teachers should engage in while using these resources, and it does not account for the use of standards-driven assessment programs.

In the context of this study, CCPS had not clarified its position on the debate of content versus process for its science teachers. Although CCPS had produced inquiry-based science curriculum materials for teachers to use in their secondary science courses—materials that embody the curriculum framework of the MSDE and the national standards—the school district had not mandated their use. In each of its

science curriculum guides, CCPS had included a philosophy statement that echoes the intent of the standards (Center County Public School System, 2004a):

CCPS believes that an effective student-centered science program includes an approach to learning that engages students physically and mentally in an inquiry based laboratory program. The program must provide students with opportunities to expand, change, enhance and modify the ways in which they view the world. Teachers should provide an environment that promotes students' thinking, honesty, curiosity, and questioning.... An ideal setting for discovery includes hands-on activities that provide for the active involvement of students. Science is a never-ending process of discovery, interpretation, and evaluation.... The CCPS science program is closely aligned with MSDE Science Standards and with national standards for science education. (p. 5).

However, although CCPS' science curriculum guides provided sample units of instruction that identified core-learning experiences for its students and served as models for its teachers, the school district had chosen not to operationalize its teachers' instructional practices by prescribing a set of lessons or instructional approaches. Rather, it gave its teachers the freedom and responsibility to choose the instructional methods and materials they felt were right for their students: "CCPS science teachers are free to use whatever lesson models they find most effective and appropriate" (p. 11). Further, "Curriculum writers have identified core learning experiences and included information on where teachers can find materials that they can use to provide students with the indicated experiences" (p. 63).

In summary, although CCPS asked its science teachers to consider the standards when designing their lessons and implementing the curricula, it failed to define what a quality instructional program looked like. It left the debate of content versus process for its teachers to decide. This lack of specificity made it harder for the district to address the issue of inadequate instructional time. It also may have made it harder to sell some science teachers on the merits of implementing a new instructional strategy or program while they were still trying to determine the balance that was advocated for science instruction. With CCPS' science teachers, the degree of implementation of a new approach to reading could be affected by the "balance" between content and process a teacher has formulated in his or her definition of quality science instruction.

## Chapter 3: Literature Review

This case study explored policy implementation by examining the sense-making of a middle school science team, whose members had all received training to implement a reading improvement strategy initiated by their school district. It touched on broad areas of study, including the work done in organizational learning, strategic planning, instructional methodology and pedagogy, and teacher professional development. However, with the onset of standards-based reform and school accountability, the focus of education policy research shifted to the work of classroom teachers (Gallucci, 2008).

In accordance with this shift, this literature review is grounded in the arena of education policy implementation. I begin with a discussion of what educational policy is, as well as an overview of the research in the field of educational policy implementation. I then move the literature review to a more general discussion of two “conventional” views commonly used in policy implementation research (institutional and rational choice). I next introduce a perspective that is designed to supplement the conventional perspectives and is used to guide the study’s methods and data analysis—a cognitive framework to characterize sense-making during the policy implementation process. After an examination of what sense-making is, how it has been applied to educational contexts, I conclude the chapter with a description of the study’s conceptual framework for sense-making.



## Education Policy

Cooper, Fusarelli, and Randall (2004) reported, “Despite the increasing importance of using the policy process to change and improve education, the very definition of policy in general and education policy in particular, is complex and confusing” (p. 2). Hogwood and Gun (1984) described several common uses of the term *policy*—it can be an expression of general purpose or a desired state of affairs, a specific proposal or set of rules, a decision of government, a formal authorization, a program of activity, and/or a theory or model. Cooper et al. asserted that the “plethora of definitions and terms signals that the field is vital, changing, and new.” They define *policy* as “a political process where needs, goals, and intentions are translated into a set of objectives, laws, policies, and programs, which in turn affect resource allocations, actions and outputs which are the basis for evaluation, reforms, and new policies” (p. 3).

Hogwood and Gun differentiated public policy from other examples of policy (e.g., corporate policy) and describe public policy as the decisions and actions that arise from governmental structures and/or are generated within the framework of governmental organizations. Cibulka (1994) maintained that public policy “includes both official enactments of government and something as informal as practices” (p. 106). Fowler (2000) wrote, “Public policy is the dynamic and value-laden process through which a political system handles a public problem. It includes a government’s expressed intentions and official enactments as well as its consistent patterns of activity and inactivity” (p. 9). Because public schools and their surrounding administrative structures are governmental organizations that are enacted

by state and local governments, are expressions of government intentions, and are funded by taxpayers, educational policy can be considered public policy.

Spillane (2004) asserted that writing about education policy is something of a misnomer. He contended that education policy comes from many sources (federal, state, district, or school entities) and in many shapes and sizes. For instance, educational policy could be a state's assessment system, its curricula framework, or its set of accountability guidelines. At the same time, education policy could also be a school district's staffing guidelines, its curricular materials, its staff development program, and/or its school improvement initiatives.

Regardless of the source and despite a sharp increase in policymaking by state and federal agencies, Spillane (2004) noted that school districts play an essential role in education policymaking. He described this importance in the following manner:

School districts do not treat state policy as a hand-me-down to schools, they make their own policies and are key instructional policymakers. Occupying an influential mediating position between state (and federal) agencies and the schoolhouse, school districts send teachers messages about instruction that sometimes amplify and sometimes misrepresent, unintentionally, the ideas promoted by state and national standards. Because most teachers rely on school district policy, it becomes the state policy for them. (p.172).

Because school districts are important policymakers in their own right and serve as the primary source of state and federal policy interpretation for teachers, this study focuses on the implementation of one example of a school district policy—Reading Apprenticeship.

## Education Policy Implementation Research History

Cibulka (1994) wrote, “While policy studies are relatively new, spanning the last three decades, the field is still growing up, and is struggling for a clear identity” (p. 106). Cibulka added, “policy studies actually comprise a number of subfields with distinct, although overlapping emphases ... drawing broadly from political scientists, sociologists, demographers, educational psychologists, evaluation specialists, and others who contribute to the study” (p. 107).

Torenvlied and Thomson (2003) contended that an absence of a coherent and theoretical framework presents “a conceptual problem for distinguishing between implementation and other relevant activities in public policy making” (p. 65). They concluded that scientific research on policy implementation, although abundant, is scattered across different fields in the social sciences. Cooper et al. (2004) listed seven theories for examining education policy. These theories “are complimentary, not contradictory, and help us better understand policy in all of their complexity” (p. 9). They include: systems theory, neopluralist advocacy coalition and interest group theories, neoinstitutional theory, critical theory, feminist theory, and postmodern and ideological theory.

Honig (2006) more recently concluded:

Educational policy implementation as a field of research has amounted to a national search for two types of policies: “implementable policies”—those that in practice resemble policy designs—and “successful policies”—those that produce demonstrable improvements in students’ school performance. (p. 1).

Honig found that education policy research has evolved over decades. She categorized this evolution into three waves that can be distinguished by the changes in policy demands that grew progressively more complex. The first wave occurred in the 1960s and 1970s, and the focus was primarily on federal policy and what was implemented. Many early studies examined actors (teachers) trying to cope with new policy requirements. The studies were conducted almost exclusively from a top-down perspective. Cooper et al (2004) categorized this period of research as one focused on the implementation of the Great Society programs.

In the second wave, the 1980s and early 1990s, Honig (2006) asserted that the focus started to shift to the state level as researchers examined the new curriculum frameworks and sought to find out what worked. Studies in this era started to examine how principals shaped implementation processes and what constituted effective schools. Effective schools research demonstrated that the places where policies are implemented matter as much as the policies. Janger (2007) categorized this era as the time when research studies examined an “all-around approach to designing and implementing school change,” including “systemic-reform, standards-based reform, and comprehensive reform” (p. 21).

In the last wave, from the 1990s to the present, Honig (2006) categorized the research as confronting “complexity,” that is, implementation research starts with the idea that policy is transformed and adapted to the condition of the implementing unit. In this latest era of research, policies, people, and places all shape implementation outcomes. As a result, Honig concluded that we are now less likely to seek universal truths regarding implementation. Rather, the new focus of research has been on

knowledge building. Cooper et al. (2004) also categorized this period as the shift “from macro-level analyses of programs to micro-level studies of the particulars of implementation at the local level” (p. 8).

#### Perspectives in Policy Implementation Research

Holt (2004) concluded that the inherent difficulty of implementation has created a literature that can be split into two schools or perspectives: a top-down or “institutional perspective where the focus is on the decisions (policies) that are made at the top of the organizational structure and are handed down to be followed/implemented at the lower levels; and a bottom-up or ‘rational choice perspective’ where the research focuses on the actors in the organization who must put the policy into practice” (p. 4). Spillane et al. (2006) surmised that policy implementation studies have rested on assumptions that implementation failure is a “function of an unclear policy message (institutional perspective) or the mismatch between policy and the agendas and interests of local implementers (rational choice)” (p. 47).

Calling for a new perspective in policy implementation research, Honig (2006) and Knapp (2008) asserted that organizational and sociocultural learning theories can elaborate on what might be involved if central offices operated as learning organizations and try to initiate reform. In the following sections, I summarize the literature related to the two conventional perspectives that have been used in policy implementation—the institutional and rational choice perspectives—before moving the literature review to new perspectives.

## Institutional Perspective

R. Scott (2001) described institutions as social structures that consist of symbols, actions, and material resources, and he maintains that they are durable, transmittable, maintainable, and reproducible. Cooper et al. (2004) asserted that “institutions play a key role in defining individual, group, associational, and societal identities ... help shape and mediate policies ... and encompass a variety of perspectives including rational choice theory” (p. 31).

Spillane et al. (2002) described that, in an institutional perspective, the “social agents’ actions are situated within institutional sectors that provide norms, rules, and definitions of the environment that both constrain and enable action” (p. 738).

Mantere (2000) concluded,

The important factors in terms of policy implementation are the organizational structure and control mechanisms, and the coordination of goals and tasks, resources and responsibilities. The policy itself is about preserving the legitimacy of the institution in order to maintain public support for the institution (p. 11).

In their call to reframe organizations, Bolman and Deal (2003) suggested that organizations that rely solely on a top-down, bureaucratic perspective as they work to improve their organizations often experience failure. They reported:

Policymakers develop laws and regulations to guide organizations on a more correct path. And modern mythology promises organizations will work splendidly if well managed (p. 8). Organizations allocate responsibilities to participants and then create rules, policies, procedures, and hierarchies to

coordinate diverse strategies into a unified strategy (p. 14). However, armed with computers, information systems, flowcharts, quality programs, and a panalogy of other tools and techniques, they (managers) go forth with this rational arsenal to tame our wild and primitive workplace. Yet in the end, irrational forces most often prevail. (p. 9).

In terms of schools, Coburn (2001) wrote,

Institutional theorists suggest that messages in the environment shape patterns of action and belief within schools, through regulative means as they are incorporated into formal policy; through normative means, as teachers feel pressured to adopt certain approaches to maintain legitimacy; and through cognitive means, as beliefs and practices attain taken for granted status. (p. 146).

Although an institutional perspective has limitations, it has been useful to help understand education policy failures as well as the challenges of implementing changes in classroom practices. Researchers (Elmore, 2000; Weick, 1976) categorized the institutional structure that exists for public education as “loose coupling.” In describing K-12 education’s loosely coupled institutional structure, Elmore (2000) noted,

Most innovation in schools, and most durable innovations, occur in the structures that surround teaching and learning, and only weakly and idiosyncratically in the actual processes of teaching and learning. Most innovation is about maintaining the logic of confidence between the public and the schools, not about changing the conditions of teaching and learning

for actual teachers and students. Schools are consequently almost always aboil with some kind of “change,” but they are only rarely involved in any deliberate process of improvement, where progress is measured against a clearly specified instructional goal. (pp. 7, 8).

Fullan (1993) supported this conclusion and noted that the “hardest core to crack is the learning core—where change is in instructional practices and in the culture of teaching” (p. 49).

#### Rational Choice Perspective

Relying solely on an institutional perspective to examine policy implementation does not account for the interaction between political actors. Aligned with an institutional perspective, but with a much different lens to view policy implementation, is the rational choice perspective. Rational choice “focuses on policy as a technical enterprise designed to achieve particular instrumental goals” (Spillane et al., 2002, p. 8). In this perspective, policy implementation is viewed through “the actions of the people charged with implementing the policy, and explanations are premised on principal-agent and rational choice theories” (Spillane et al., 2002, p. 389). Hay (2004) contended,

Rational choice theory assumes that choice is at the center of an individual’s life, and that political actors are instrumental, self-serving utility maximizers. That is, they are rational and behave as if they engage in a cost-benefit analysis of each and every choice available to them before plumping for an option most likely to maximize a given utility function (generally, an expression of material self-interest). (p. 41).



Spillane et al. (2002) asserted that in the rational choice perspective, “both the principal and agent are motivated by self-interest; hence appropriate incentives and monitoring systems are essential if principals are to have their way” (p. 390). Lipsky (1980) classified these actors as street-level bureaucrats who often work according to their own judgment and preferences regardless of policy directives.

Spillane (2004) noted that the studies from a rational choice perspective of policy implementation have found that policies often fail to get implemented because they are poorly constructed or have unclear outcomes and directives, are ignored by local actors due to their own interests and agendas, or suffer from inadequate supervision by those in charge of implementation. Despite the popularity of this perspective in analyzing policy implementation, the literature has also pointed out its limitations. North (1990) found that institutions matter and cannot be ignored because they set the rules for exchanges and help shape the strategic action of political actors by enabling or constraining the available choices. McGovern and Yacobucci (1999) argued, “Most important cases of individual choices are not rational decisions but are effective and normative value positions” (p. 15). That is, “many important decisions within the policy arena are not driven by means-ends calculus but through affective involvements and normative commitments” (p.16). Hay (2004) contended that, although a rational choice perspective is useful for exploring hypothetical scenarios, it is not as good as an explanatory/predictive framework.

As noted earlier, Spillane et al. (2002) found that it is often inaccurate to portray the implementers of policy as “saboteurs” working to undermine policy proposals that they do not support. They pointed out that the rational choice

perspective assumes that the implementers understand a policy's intended messages or that the "policy message is not subject to competing signals that can undermine the authority and power of the policy" (p. 390). Unfortunately, in education policy, this is not always the case. Policies are often ambiguous and present implementers with mixed and often conflicting messages.

*New Perspectives on Policy Implementation Research*

Honig (2006) concluded that past policy implementation studies have revealed three dimensions—policy, people, and places—that have affected implementation. She posited that contemporary implementation research demands a blended perspective because we must now focus on "the how and why interactions among these three dimensions that shape implementation in particular ways" (p. 14). She categorized this new perspective as confronting complexity and asserted, "Implementation studies should keep pace with and reflect, not minimize, or ignore the complexity of contemporary policy demands and implementation processes" (p. 22).

In addition, as accountability demands have shifted from a focus on policy creation and implementation at the federal and state levels to district-wide efforts to improve teaching and learning, some researchers have advocated that further studies more closely examine the role that central office administrations play in terms of policy implementation. Honig and Coburn (2008) have suggested that federal and state policies that demand "evidence use" as part of a district's strategic planning, often do not acknowledge the complexities of policy implementation and provide inadequate signals and supports for what actually constitutes evidence, who should obtain the

evidence, and how it can be incorporated into decision making. Honig (2006) has suggested,

In recent decades, various policy initiatives have called on district central offices to shift the work practices of their own central staff from the limited or managerial functions of the past to the support of teaching and learning for all students (p. 627).

Honig and Knapp (2008) asserted that both organizational and sociocultural learning theories can elaborate on what might be involved if school districts operate as learning organizations and central offices become actively involved in the support of high-quality teaching and learning. They contend that the lenses from each strand can inform the problem of system-wide leadership practice and better describe policy implementation. One of the useful lenses for policy implementation that they advocate is a cognitive perspective, also referred to in the literature as sense-making.

In her support of the use of sense-making for policy implementation studies, Honig (2006) noted that organizational and sociocultural learning theorists agree that sense-making is fundamental to learning and that, “taken together, these lines of theory elaborate a conception of this process with cognitive, historical, cultural, normative, social, and political aspects” (p. 647).

#### Sense-Making

Sense-making has its roots in organizational theory and has been applied in a myriad of settings, a myriad of levels (e.g., intrapersonal, interpersonal, small group, organizational, and national), and within a myriad of perspectives (Dervin, 2004). On

its online forum, the University of Michigan's Ross School of Business (2008) has described sense-making in the following manner:

Most aspects of life contain various degrees of ambiguity (conflicting or excessive information) and uncertainty (lack of information) that must be continuously processed. As individuals, we process ambiguity and uncertainty through both cognitive and social mechanisms. Sense-making is a theoretical construct that contains the cognitive and social mechanisms for dealing with ambiguity and uncertainty. Sometimes sense-making is explicit in that it occurs when we are deliberate and mindful of our surroundings. Sometimes sense-making is tacit in that we do not realize that we are doing it, but it nevertheless helps us confront the equivocality of life. Sense-making helps both individuals and organizations think, learn, act, react, and design solutions more effectively. The theoretical base of sense-making cuts across and is applicable to the disciplines of psychology, sociology, organizational behavior, management, information science, education, and design. (p. 1).

This assertion is supported by the wide variety of research studies that have utilized a sense-making methodology and/or focus. Some examples of recent studies posted on the sense-making forum have addressed the areas of crisis management, information gathering to assess threats and opportunities in business, the relationship between emotions and sense-making, and responses to corporate change (University of Michigan, 2008). Sense-making has also been used to examine the Apollo 1 and Challenger disasters (White, 2000).

In the field of education, studies and dissertations have begun to use a sense-making perspective to see how implementers constructed an understanding of educational policy. Spillane (1998) examined how district personnel made sense of the implementation of state reading policies, Coburn (2001) examined how teachers mediated their state's reading policy, Spillane (2004) explored the responses of school districts to new state science and mathematics standards, Schmidt and Datnow (2005) investigated how teacher emotions affected their sense-making of school reform efforts, Janger (2007) considered the collective sense-making of a school's reform efforts, Beckford-Smart (2007) explored teacher sense-making of a new science curriculum, Coldren (2007) investigated the learning of elementary teachers across two content areas, Wood (2007) explored a grounded theory of teacher sense-making of a school reform targeting pedagogy, and Park (2008) examined how urban high school teachers made sense of data use.

All studies on sense-making must reference the work of Karl Weick (Mantere, 2000). Craig-Lees (2001) supported this assertion and wrote that Weick's ideas have had a "consolidating effect on the concept" (p. 3). She elaborated on the influence of Weick's work:

The central thesis that Weick presents is that sense-making is not a metaphor as it is something that exists and can be examined. It is not interpretation: it is about the process that culminates in interpretation. Although Weick initially conceived sense-making as "developing plans" (1979), he later defined it as the "making of sense" (1995) in line with the mainstream psychological idea of the term. (p. 5).

In his work on sense-making in organizations, Weick (1995) contended that sense-making is about such things as the “placement of items into frameworks, comprehending, redressing surprise, constructing meaning, interacting in pursuit of mutual understanding, and patterning” (p. 6). He associated sense-making with such cognitive processes as understanding, interpretation, and knowledge building but stressed seven properties that make sense-making different: 1. sense-making is based on identity construction and includes an individual’s personal as well as organizational identity; 2. sense-making is retrospective (i.e., it is based on experience); 3. sense-making is enactive of sensible environments (i.e., experience is gained by doing things with and in the environment); 4. sense-making is social and is done by a group of people instead of a single subject; 5. sense-making is ongoing and never starts and stops; 6. sense-making is based on familiar points of reference (cues ) that can act as seeds for new meaning; and 7. sense-making is driven by plausibility rather than accuracy. Enactment helps construct meaning by permitting individuals to label their experiences.

Choo (2001) adapted the work of Weick (1995) to create a “sense-making recipe” that uses a systems theory approach to describe how people in organizations use information to construct the environment to which they attend. Choo views sense-making as one of three interrelated activities that are vital to the well being of organizations. The other activities are knowledge-creation and decision-making. Table 3.1 below outlines Choo’s ideas and shows the stages, inputs, processes and outputs that are involved with sense-making within organizations.

Table 3.1

*Choo's Sense-Making Recipe*

Stage	Inputs	Processes	Outputs
Enactment	Raw data from the environment	Bracket data create new features of the environment to focus sense-making	Equivocal data as raw data for sense-making
Selection	Equivocal data from enactment process	Select and impose meanings or interpretations on equivocal data	Enacted environment
Retention	Enacted environment from selection process	Storage of enacted environment as product of successful sense-making	Enacted interpretation for future use

Spillane (2004) used Weick's model of sense-making and the work of several other cognitive theorists (Carey, 1985; Glasersfeld, 1989; Rumelhart, 1983) to summarize how implementers make sense of policy:

Sense-making is not a simple decoding process of a given stimuli. It is an active process of interpretation that draws on the sense-maker's experiences, knowledge, beliefs, and attitudes. Knowledge and experiences are integrated into a web of interdependent relationships called scripts or schemas.

Implementers filter incoming information through these scripts. The sense they make thus depends on the sense that they already have ... existing knowledge is a primary resource in the development of new, sometimes better, understandings. The new is always noticed, framed and understood in light of what is already known. (p. 76).

In the next section, I describe a framework for sense-making that was used to inform the methods and data analysis of this study.

### Framework for Sense-Making

Why a Framework for Sense-Making?

Spillane, Reiser, and Gomez (2006) reported that cognitive frameworks “have been used in studies of policy implementation in education to investigate how various dimensions of human sense-making influence implementation.” Spillane et al. (2006) contended, “If implementation involves interpretation, because implementers must figure out what a policy means and how it applies in order to determine how it is used, then a cognitive framework that unpacks the ideas that implementers construct from reform proposals” is useful (p. 49).

Utomo and Yoem (2003) supported this assertion and reported that frameworks provide:

An opportunity to refine the theory and implementation of instructional policies by investigating the connection between the way in which teachers understand the content of instructional reform efforts, how they enact this understanding in specific classroom practices in the situated context of their school, and both of these things, in turn, influence teacher learning and change. (p. 4).

Spillane et al. (2002) created a cognitive framework for sense-making that was embedded within a systems theory approach to policy implementation. It focused on the “throughputs” of policy implementation—the understandings of the policy implementers and the influence of the relationships among the key actors.



This framework focused on the implementing agents' knowledge structures, beliefs, and networks.

Spillane et al. (2006), however, proposed the use of more expansive framework—one that not only examined an individual's cognition of a policy but also “explores sense-making from a distributed perspective—as a system or system of practices” (p. 61). This distributed perspective includes an examination of how sense-making is made from interactions that occur in a variety of social interactions among teachers, interactions between teachers and leaders, interactions between teachers and students, and through routines and structures.

The framework used for this study combines two strands of sense-making research. It uses elements of the Spillane et al. (2002) cognitive framework for sense-making (i.e., how an individual makes sense of policy based on his or her knowledge, experience, and beliefs), and it also addresses Spillane's call for an examination of a distributed cognitive framework for sense-making by embracing the work of Coburn (2001, 2005). Coburn (2005) has examined the sense-making that occurs within communities of practice and how leaders can indirectly influence shifts in practice by shaping the conditions under which learning unfolds.

In the following sections, I explore the facets of the framework that are used to inform this study.

#### Cognition—Discovering Deeper Level Understanding

Mantere (2000) described cognition as a concept used to describe the mental processes of knowing things. It has gained a wider scope to include all kinds of information-containing or information-processing models. Schein (1972) proposed a

model of the process of planned change that was one of the earliest and most prominent works relevant to cognition and policy implementation. He wrote,

Learning has to occur in a situation in which, by virtue of their membership in a social system, individuals have ways of thinking, feeling, and acting to which they are committed and which make sense to them. Such sense may be based on rational diagnosis or may derive from a set of rationalizations for emotionally based traditions or habits . . . the essence of a planned changed process is the unlearning of present ways of doing things. It is in this unlearning process that most of the difficulties of planned change arise. (p. 75)

Schein also concluded, “One cannot induce change if there is not motivation to change, and one cannot induce motivation simply by putting more and more pressure on a person or a school” (p. 83).

Schon (1983) added a new model to the science of cognition. Benn (2004) reported,

Schon maintains that well-trained teachers do not encounter a problem and determine which research-based strategy to apply to a situation, because they rarely encounter clearly defined problems. Rather, teachers face a set of complex, ambiguous problems that they must interpret before devising a solution. (p. 34).

Schon called this model reflection-in-action, which, when referring to teachers, Benn (2004) described in the following manner: “Through reflection they would select the relevant factors to frame the problem and organize the factors based on prior knowledge and an appreciation for the direction of the solution” (p. 34).

Similar to reflection-in-action, sense-making involves looking for patterns in one's experience to make plausible judgments about future experiences. Benn (2004) reported,

Sense-making is another approach within the interpretive paradigm that has much in common with Schon's model of the reflective practitioner. Sense-making also recognizes the creative and interpretive role of the practitioner in understanding and implementing a new program or policy. While both models are similar, sense-making is a broader concept that places more emphasis on social and external forces beyond the individual that influence the individual. (p. 41).

Spillane et al. (2002) supported this view and reported, "Human cognition is complex. A key though often ignored aspect of cognition is sense-making" (p. 736).

In the arena of education policy implementation, Spillane et al. (2002) contended "individuals assimilate new experiences and information from their existing knowledge structures ... and that what a policy comes to mean for implementing agents depends on their repertoire of existing knowledge and experience" (p. 393). Coburn (2001) maintained that teachers' actions are based on how they "notice or select information from the environment, make meaning of that information and then act on those interpretations" (p. 147).

In their summary of the research related to cognition and the cognitive processes involved in complex activities, such as teaching and learning, Spillane et al. (2002) found three implications:

The fundamental nature of cognition is that new information is always built upon what is already understood, and is guided by schemas—knowledge structures that link together concepts for the purpose of sense-making. In terms of education policy implementation the result is that there are often different interpretations of the same policy message, i.e. teachers’ beliefs about subject matter, teaching, students and learning are influential in what they interpret in terms of policy designed to affect their practice. (p. 397).

When a schema or worldview has been established, it is difficult to restructure or modify this framework for learning. The result is that implementing agents can misunderstand new ideas as familiar, thus hindering change. The result is that “teachers attempting to engage in reform efforts often exhibit understandings and practices that diverge from the intent of the designers. (p. 399).

People often rely on surface similarities when accessing related information from memory, even when schemas based on deeper principles have been established. Hence, implementing agents such as teachers may be distracted by superficial similarities becoming overconfident about their success in achieving the true principles of a reform. (p. 396)

Spillane et al. (2002) acknowledged, however, that a focus on the cognitive processes of implementers is limiting. They concluded, “the substance of the (teaching) reforms—implementation of changes in teaching practice—affects the core behaviors that are central to one’s self image. Hence one’s motivation, goals and affect come into play in making sense of and reasoning about reforms” (p. 401).

## Affect—Values, Beliefs, and Motivated Reasoning

In her case study of three teachers' interpretation and implementation of reading policy in their classrooms, Jennings (1996) noted that, despite the fact that two of the participants had similar ideas about teaching reading prior to their introduction to new reading policy, "they learned very different things from it. This seems to be so because in addition to their beliefs about reading and reading practices, they brought different dispositions toward learning" (p. 101).

Spillane et al. (2002) supported this assertion and contended that values, emotions, and motivated reasoning all play an important role in sense-making. They reported, "The influence of motivation and affect on cognitive processing is called 'hot cognition' or 'motivated reasoning' by social psychologists" (p. 401) and summarized two conclusions about affect and its implications for sense-making and policy implementation. People are biased toward interpretations consistent with their beliefs and values. That is, when presented with new ideas about their practice, they are prone to focus on information that is consistent with their point of view. In addition, the affective costs to self-image can work against the adoption of a reform in that "people want to believe that they have performed well in the past and are hesitant to believe that their efforts have failed" (p. 402). Because accepting reform practices could result in some loss of positive self-image, implementers of new policy initiatives must be motivated to change their practices to meet the policy goals.

Spillane et al. (2002) concluded,

Relations between implementing agents' values and emotions and their sense-making are not well understood . . . (and) investigating the emotional

dimension of the implementing agents' values and emotions is likely to be especially fruitful. The relations between local implementing agents' values and emotions, on the one hand, and what they come to understand about reforming their practice from policy, on the other hand, is one of the areas where studies of cognitive science and social cognition can help frame new lines of inquiry. (p. 404)

Cognitive scientists have set as their goal finding common or universal patterns in human cognition, whereas some sociologists and psychologists have argued for more attention to the social and situated dimensions of cognition. Although sense-making is a cognitive paradigm, one must also account for the context of an individual's workplace and social interactions if a full context as he or she tries to implement a new program or policy.

#### Sense-Making: Situated, Distributed, and Social

Spillane et al. (2002) asserted, "Although individual cognition and the search for universal patterns are important, sense-making is not a solo affair. The situation of an individual (i.e., context) is also important for understanding human cognition in that situation does not simply affect what teachers do, it defines implementation practice" (p. 412). Because much learning results from action, sense-making is often situated in classrooms where understanding unfolds from trial and error, leading to situated learning. In addition, Spillane et al. (2006) concluded that sense-making is distributed in an interactive web of actors and artifacts.

Finally, Spillane et al. (2002) posited "The knowledge embedded in social contexts as the practices and common beliefs of a community, affect sense-making

and action in (policy) implementation” (p. 404). Brown (2003) cited Vygotsky (1978) to maintain, “Learning begins as an interpersonal process and is transformed through activity to an intrapersonal one, where learning takes place in a context that fosters participation in collaborative activities, which lead to intellectual growth” (p. 9). Coburn (2001) noted that “People make sense of messages in the environment in conversation and interaction with their colleagues, constructing shared understandings—organization and workgroup specific culture, beliefs, and routines—along the way” (p. 147).

Researchers who study sense-making acknowledge the centrality of its social nature and generally have agreed with Weick’s (1995) contention that the creation of meaning is social and is rooted in interaction and negotiation.

Teacher social interactions can aid sense-making not only because individuals learn from one another but because group interaction brings insights and perspective to the surface that otherwise might not be visible to the group, while discussing ambiguous situations with co-workers may allow an individual to be exposed to alternative interpretations of shared stimuli. (Spillane et al., 2002, p. 406)

This scenario creates opportunities for collective sense-making. Spillane et al. (2006) also argued that sense-making is cognition, “but cognition is inherently a social practice that can be conceptualized as being stretched over people and key aspects of their situation” (p. 63).

In a review of education policy implementation “under the rubric of social cognition,” Spillane et al. (2002) drew the following conclusions about context and

collective sense-making: (a) sense-making occurs in a social context, (b) social interactions can shape sense-making in implementation, (c) sense-making is affected by the organizational context, (d) informal communities provide a social context that affects sense-making in implementation, (e) historical context affects sense-making in implementation, and (f) values and emotion are key parts of the social context.

Benn (2004) further defined collective sense-making and reported that communities of practice theory offers a “naturalistic context” for understanding sense-making “as a group process in which a collective meaning emerges as the members influence each other through their individual perspectives” (p. 65). She maintained that, in terms of education policy implementation, “communities of practice theory explains implementation not as an event, but as a learning and change phenomenon, particularly when the policy involves teams or groups of teachers working together” (p. 71). Coburn and Stein (2006) supported this assertion by concluding, “Teachers develop responses to policy by interacting with colleagues in informal communities forged through mutual engagement, joint enterprise, and shared repertoires of practice” (p. 26).

#### Sense-Making Within Communities of Practice

Wenger (2001) described communities of practice as “groups of people who share a concern or a passion for something they do and who interact regularly to learn how to do it better” (p. 1). Coburn and Stein (2006) defined them as a “group of individuals who have developed shared practices, historical and social resources, and common perspectives” (p. 28).



Although communities of practice can be formal, they are more often informal associations of individuals bonded by a common set of skills, expertise, or interests. In many organizations, communities of practice are known under various names, such as learning networks. Coburn and Stein (2006) posited that it is wrong to assume that communities of practice reside only in organizational structures such as departments or grade-level teams. Rather, they are more often informal networks.

From the arena of organizational learning, Kimble, Hildrith and Wright (2000) differentiated between teams and communities of practice. They concluded that teams draw their legitimacy from a hierarchy imposed by leadership, whereas in communities of practice, members draw their legitimacy by their contributions and expertise. Hence, although a team can become a community of practice, a community of practice cannot be imposed on a group of individuals. Pearce and Conger (2003) posited that there is frequently a shared leadership that develops within teams and groups that form communities. Seibert, Sparrowe, and Liden (2003) asserted that, by focusing on the relationships and exchanges that occur within a team—a concept they have labeled as the group exchange structure—organizations may obtain a better understanding of the nature of shared leadership and the changing dynamics within a team. They have presented a variety of group exchange structures that can be used to categorize these relationships.

Printy (2003) and Gallucci (2003) asserted that communities of practice have heavily influenced teacher practice. Spillane (2004) found that these informal and/or formal communities can serve to amplify district policy messages or can lead to resistance. Gallucci maintained that using a sociocultural perspective is highly useful

for examining how implementers (teachers) mediate education policy in an organizational context. She maintained that studying teacher communities of practice is useful because communities of practice are the “locus of shared understandings and the negotiation of meanings about work” (p. 4). Gallucci contended that the work of Wenger (1998) provides a “useful framework for the analysis of communities of practice and their relationship to external structures” (p. 4) and reform measures and policy initiatives.

Wenger (1998) maintained that three characteristics are essential to communities of practice: (a) the domain of interest and commitment that distinguishes members from other people, (b) a sense of community where members engage in joint activities to share information, and (c) shared practice where there is a “repertoire of resources, experiences, stories, tools, and way of addressing recurring problems” (p. 1). More simply stated, Wenger asserted that communities of practice define themselves along three dimensions: what they are about, how they function, and what capability they produce. Wenger (2001) stated, “a community of practice is different from a business or functional unit within a business in that it defines itself ‘in the doing,’ as members develop among themselves their own understanding of what their practice is about” (p. 3).

As a sociocultural learning theory, communities of practice have integrated the individual and collective components of a learning experience and can account for the members’ practice. When practice is identified as the result of learning, the premise is that the group’s negotiated meaning about the new policy guides their implementation efforts.

Gallucci (2003) found that communities of practice are an integral part of how teachers respond to reform policies. For instance, strong and open communities of practice examine initiatives in “light of their own practices and use them as an opportunity for further learning” (p. 7), whereas strong and closed communities of practice tend to reject initiatives “if they are in conflict with their current ideas about practice” (p. 8). Printy (2003) drew similar findings, noting that communities of practice in schools could be useful in testing and sharing understandings of the ways that students learn or they can perpetuate the status quo.

Some researchers however have maintained that further research and clarification is needed for educators in terms of communities of practice. Wubbels (2007) recently questioned whether schools are “environments that are conducive to the development of teacher communities of practice,” and he asserted that schools might be better served if the “concepts of ‘community of practice’ and ‘professional learning community’ are combined” (p. 225) with a stronger focus placed on improving teaching.

In summary, an examination of the communities of practice that affect teachers is important for exploring and understanding teacher sense-making in relation to education policymaking. In the next section, I provide an overview of how leaders, who represent one community of practice, can influence or shape the sense-making another community of practice, those who implement policy.

#### Leader-Shaping Actions

Coburn and Stein (2006) supported the importance of communities of practice in terms of implementation and framed it as one community of practice—the

policymakers—attempting to influence or coordinate the practice of another community of practice—the implementers. From this perspective, they have categorized education policy implementation “as a process of learning that involves the transformation of practice via the ongoing the negotiation of meaning among teachers” (p. 26). In this regard, principals play an extremely important role in indirectly shaping the environment under which learning unfolds.

From her study of the sense-making of elementary school teachers of a California reading initiative, Coburn (2005) described what these leader-shaping actions might look like at the school level. They include: (a) shaping access to policy ideas—school leaders have greater access to policy messages than teachers, hence they can decide which messages they bring in, emphasize, and/or filter out; (b) indirectly shaping the social construction of meaning—school leaders interact with teachers and focus teachers’ attention in particular ways or help identify the range of appropriate responses; and (c) shaping conditions for learning—school leaders create conditions that are conducive for engaging with policy messages in consequential ways.

#### Sense-Giving: An Organizational Perspective

Although Coburn’s findings are useful for shedding light at the school level on the role that a principal plays in terms of influencing sense-making and creating conditions for policy implementation, a more comprehensive framework may be needed for district level leaders who attempt to shape policy sense-making and implementation. In other words, how does the central office ensure that its school-based leaders understand the policies that they oversee and are supposed to support and supervise?

Knapp (2008) and Honig and Coburn (2008) called for district offices to become learning organizations. At the same time, researchers who have used a cognitive perspective for examining policy implementation have failed to examine the role that the central office plays in shaping the sense-making around policy. In this regard, K-12 education may need to borrow from the field of organizational learning and examine the construct of sense-giving.

Maitlis and Lawrence (2007) referenced the work of Gioia and Chittipeddi (1991) to define sense-giving as “the process of attempting to influence the sense-making and meaning construction of others toward a preferred redefinition of organizational reality” (p. 57). Maitlis and Lawrence contended that sense-giving is critically important to organizational change (i.e., policy implementation), and they asserted that it is a process where actors may influence each other at all levels in an organization—leaders, middle managers, and employees. Other organization learning theorists have posited that sense-giving is essential for organizational change to occur because “people create a new reality through language” (de Caluwe & Vermaak, 2003, p. 90).

In their study of the sense-giving that occurred in three British symphony orchestras, the researchers explored the conditions under which sense-giving in these organizations occurred. One of Maitlis and Lawrence’s (2007) major findings was that, although a central leadership function is the construction of meaning, leaders often only engage in sense-giving when it is triggered under specific conditions. One of those triggers is the perception or anticipation of a sense-making gap. For many leaders, this gap only became apparent when there were highly uncertain issues or

when they were involved in what they perceived to be complex stakeholder environments. Because leaders cannot anticipate all sense-making gaps, Maitlis and Lawrence asserted that it is important that stakeholders, by virtue of their legitimacy and expertise, be given the opportunity to become involved in the sense-giving process and help identify when there are sense-making gaps.

In describing their sense-giving model, Maitlis and Lawrence (2007) concluded,

Looking at both these groups (leaders and stakeholders) we have argued that sense-giving was enabled by the combination of a discursive ability that allowed actors to construct and articulate persuasive accounts of the world in the form of organizational routines, practices, and performance (p. 80).

#### Conceptual Framework for the Case Study

This case study sought to capture the sense that the James Madison Middle School science teachers made of a new reading initiative—Reading Apprenticeship—as evidenced through their implementation. The study examined their negotiation of the technical details of the initiative’s implementation in the context of pressures and ambiguities, and it sought to capture the influence of the communities of practice established around the initiative.

Weick (1995) maintained that “sense-making is about the placement of items into frameworks, comprehending, redressing surprises, constructing meaning, interacting in the pursuit of mutual understanding, and patterning. It is grounded in both individual and social activity” (p. 6). Based on this work and that of other cognitive theorists, Spillane et al. (2002) created a cognitive framework that they

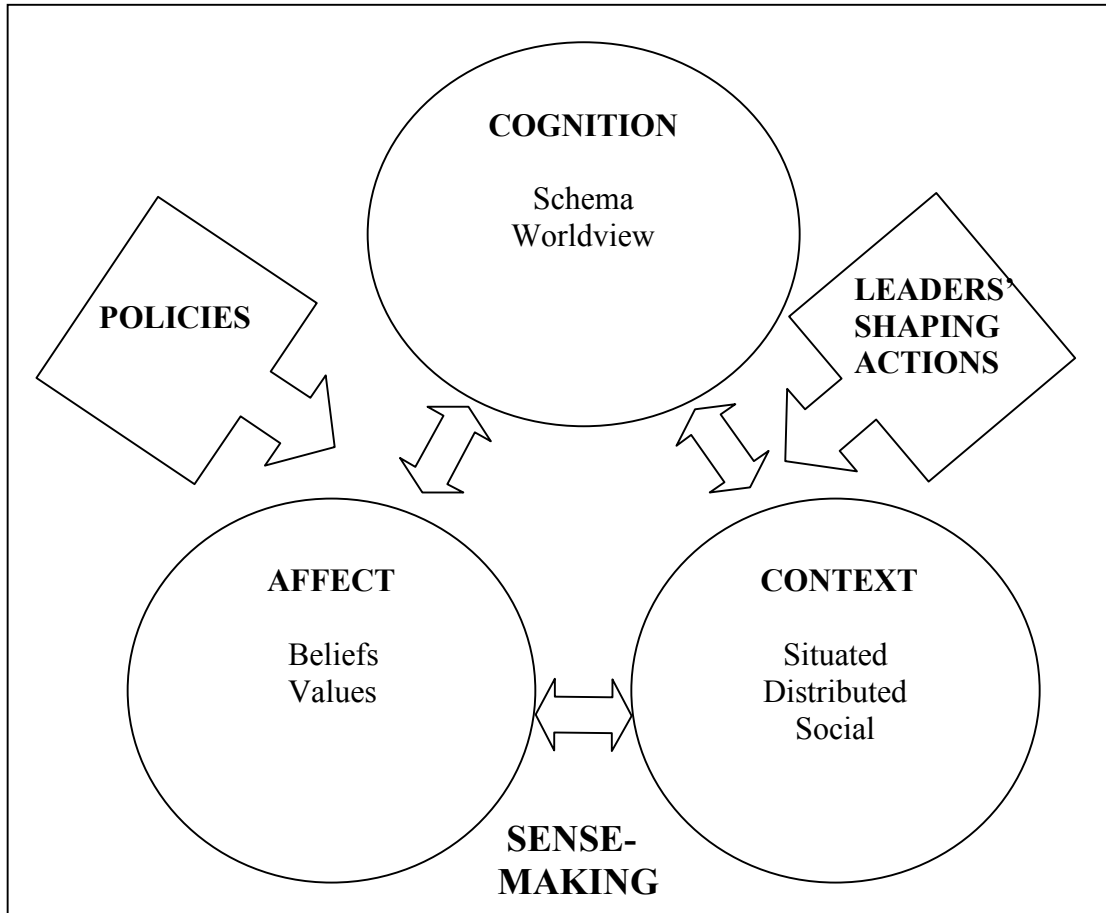
contended is “designed to unpack implementing agents’ sense-making from and about policy” (p. 392). Their framework has been adapted and serves as the basis for the conceptual framework for this study. Appendix F summarizes cognitive research related to aspects of the framework.

This study’s conceptual framework starts with each teacher’s sense-making—positioned in the center of the diagram. The implementing agent’s sense-making is influenced by the components described in the Spillane et al. (2002) cognitive framework: cognition—the implementer’s schema or worldview, affect—the implementer’s beliefs and values, and the context—the implementer’s working situation and formal and informal social networks. In addition, sense-making is influenced by the shaping actions of school leaders and by other policies from the larger context of the school district (Coburn, 2005).

Utomo and Yeom (2003) have concluded that an examination of education policy implementation through a cognitive framework for sense-making is useful for discovering how teachers learn and change their practices and construct meaning when confronted with multiple messages. Figure 3.1 below depicts the conceptual framework used in the study.

Guided by this conceptual framework, in the next chapter, I describe the methods that were used in this study of the sense-making of the middle school science teachers related to Reading Apprenticeship.

Figure 3.1 Conceptual Framework for the Case Study





## Chapter 4: Design and Methodology

### Research Design Theory

This study focused on policy implementation—a school district’s self-described high-leverage strategy for improving student reading achievement—the Strategic Content Literary Initiative (SCLI), also known as Reading Apprenticeship. The study did not focus on the success or failure of SCLI’s implementation. Rather, it concentrated on a more fundamental and little explored aspect of education policy implementation—the sense-making of the policy implementers.

The study explored how the science team at a CCPS middle school made sense of Reading Apprenticeship through their implementation. It examined how they constructed their understandings of SCLI, determined the aspects of SCLI that they would implement in their classroom practice, and showed how they negotiated the technical details of their implementation. In addition, the study explored how the participants balanced their implementation of SCLI with the curriculum pressures of their content area, as well as the demands of other district policies and the school improvement initiatives at their workplace.

#### Rationale for a Qualitative Case Study

I used a qualitative research methodology was for this study. Creswell (1998) defined *qualitative research* in the following manner:

An inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting. (p. 15).

In addition, Creswell (1998) listed several compelling reasons that served as a rationale for undertaking a qualitative study and supported my decision to use qualitative methods in this study. They included: (a) the nature of the research question started with a “how” or “what” so that initial forays into the topic described what is going on, (b) the topic needed to be examined because the variables could not be easily explored and/or theories needed to be developed, (c) a detailed view of the topic was needed, (d) it studied individuals in their natural setting, (e) the researcher brought himself into the writing, (f) the researcher was willing to spend extensive time gathering data in the field, and (g) the researcher took on the role of an active learner who can tell the story rather than an “expert” who passes judgment on participants.

Within the arena of qualitative research, I decided to use a case study for several reasons. This study was “a detailed examination of one setting and one particular event” (Bogdan & Biklen, 1998, p. 54). It was “an exploration of a ‘bounded system’ or a case over time through detailed, in-depth data collection involving multiple sources of information rich in context (Creswell, 1998, p. 61). It occurred in a natural context and captured the perspective of the participants involved in the phenomenon (Gall, Gall, & Borg, 2003), and it occurred in a bounded context (Miles & Huberman, 1994). Tellis (1997) reported, “Case studies have been increasingly used in education...being applied in a variety of instructional situations...and striving towards a holistic understanding of cultural systems of action—interrelated activities engaged in by the actors in a social situation” (p. 5).

Finally, Marshall and Rossman (1999) identified several reasons for selecting an exploratory case study that also supported my rationale for selecting this tradition of qualitative research. They included: the investigation of little-understood phenomena, the identification of important categories of meaning, and the generation of hypotheses for further research.

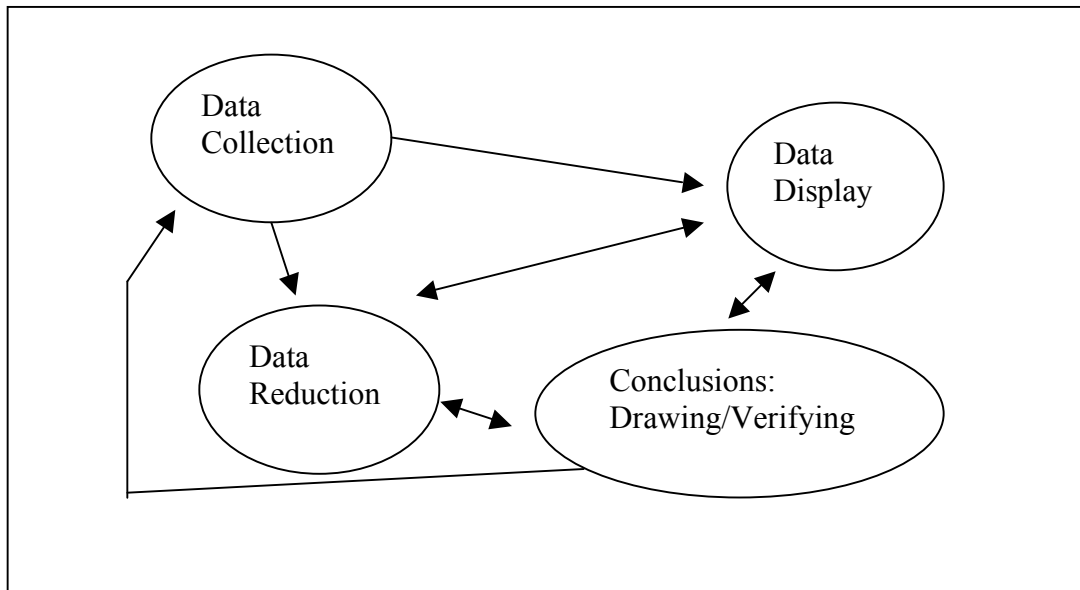
#### Data Activities

Data gathering and analysis was an ongoing process and consisted of a variety of activities and sources. Six sources of data are common to case studies (Cresswell, 1998) from which I used five: documents, archival records, interviews, direct observation, and participant observation. Each source helped produce a rich, descriptive case of the phenomenon of sense-making.

Previous studies of teacher sense-making related to policy implementation utilized these data sources but exhibited different areas of emphasis. Jennings (1996) focused her data-collection emphasis on direct classroom observations followed by in-depth interviews. Coburn (2001) concentrated her data-collection efforts on her observations of formal and informal teacher meetings, and she relied to a lesser extent on follow-up interviews. Spillane (2004) relied largely on interviews and surveys, with some follow-up classroom observations.

Miles and Huberman (1994) viewed qualitative data analysis as a concurrent flow of three activities—data reduction, data displays, and conclusion drawing/verification—“that are interwoven before, during, and after data collection” (p. 11). Their interactive model, depicted in Figure 4.1 below, was used for data analysis in this study.

Figure 4.1 Miles and Huberman—Components of Data Analysis: Interactive Model.



### Defining the Case

This study met the criteria that defined a case study. It examined a cultural system of action in a single setting—the science team at a middle school attempting to implement a new reading initiative. It was bounded by time (i.e., it occurred during the second semester of the 2004-2005 school year), and it involved in-depth data collection from multiple sources (e.g., observations, interviews, and document analysis). Finally, the study focused on a phenomenon of interest (sense-making) that was important for an understanding of education policy implementation. Data gathering took place over six-month period from January 2005 to June 2005. The University of Maryland’s Institutional Review Board and the school district’s office of evaluation approved data-collection protocols. In this section, I describe the site where the study occurred and the case boundaries.

## Site Selection

This case study was based on purposeful sampling strategies. The selection of James Madison Middle School as the site of the study and the decision to study the sense-making of their science team of the CCPS Reading Apprenticeship initiative was based on a number of factors. They included: James Madison Middle School's designation by the school district as a School Improvement Unit (SIU) (i.e., a school in need of improvement), the school's embrace of the Reading Apprenticeship initiative, accessibility to participants, and my desire to capture the rich experiences of teacher sense-making to provide credible and transferable findings.

## James Madison School Profile and School Improvement Initiatives

James Madison Middle School opened in 1973 as urban sprawl began to affect Center County. It served students in Grades 6 to 8 from a neighborhood that featured mixed incomes and mixed-use housing (i.e., apartments, townhouses, and single-family homes). This combination made James Madison one of the most diverse schools in the district. Based on the previous year's data, James Madison Middle School's web site published a profile for the school during the 2004–2005 school year. Figure 4.2 below shows the breakdown of James Madison's student body.

In its response to NCLB and the state's new system for accountability, CCPS developed its Comprehensive Plan for Accelerated School Improvement (Center County Public School System, 2003a). At a Board of Education (BOE) meeting, the superintendent's office reported that "recent results indicate that the processes which once worked well for the majority of students have proven insufficient for the growing number of students from poverty and diverse backgrounds . . . and student

achievement gaps have continued to widen” (Center County Public School System, 2002, p. 1).

Figure 4.2 James Madison Middle School Profile.

<b>Total Enrollment: 610</b>	
<b><u>Gender</u></b>	<b><u>Student Mobility 2003–2004</u></b>
Male 311	Entrants 30
Female 299	Withdrawals 35
<b><u>Ethnicity</u></b>	<b><u>Students Receiving Special Services 2003–2004</u></b>
White 287	Limited English Proficient 18
African American 230	Free/Reduced Lunch 148
Asian 53	Special Education 52
Hispanic 30	
Native American 3	
Unidentified 7	

As a result of NCLB, the school district would place a greater emphasis on the school improvement planning process and would designate 15 schools to become part of the SIU. The SIU was created to address the needs of the designated low-performing schools. James Madison Middle School was one of five middle schools to receive this designation. For the selection of James Madison and the other SIU middle schools, the following indicators were used:

- Functional test pass rates for disaggregated groups for reading and mathematics
- CTBS scores in reading and mathematics
- MSPAP scores and disaggregated results
- School Performance Index and Change Index over time.

In the effort to improve student performance, SIU schools received extra resources and scrutiny from the district. For instance, the teachers at each of the SIU schools were given laptop computers for tracking their students' performance. The CCPS' central office staff worked closely with each SIU school's leadership team to identify, plan, and coordinate academic interventions for low-performing students and to help provide each school with the capacity to improve its teaching and accelerate student learning. SIU school principals met regularly with the district leadership team and were the recipients of the latest innovations and professional development opportunities from the district's Office of Curriculum and Instruction. After being listed as an SIU school as part of HCPSS' Comprehensive Plan for Accelerated School Improvement, James Madison Middle School's web site (2004) advertised that the school embraced three core values to serve as its foundation for meeting the goals that it had set for itself—focus on instruction, partnerships, and continuous improvement.

In CCPS' Office of Curriculum and Instruction, SIU schools became known as the "learning laboratories" for the district. New programs and innovations were introduced to the SIU schools first. As a result, they received frequent visits from curriculum and administrative supervisors who also had been directed by the superintendent to devote more services to the SIU schools. SIU principals reported that their staffs had grown accustomed to seeing visitors from the central office, many of who participated in their school improvement team meetings or teacher professional development programs.

Many of CCPS’ new instructional initiatives, such as the co-teaching pilot with special education and mathematics teachers, computational fluency with technology, and Reading Apprenticeship, were introduced first to the SIU schools. After initially being presented to SIU schools in the spring of 2003, participation in the first year of SCLI training and implementation (2003–2004) was limited to personnel from the SIU schools. James Madison sent several participants during this first year, including assistant principal Tracy Jones. Their favorable reports, as well as the positive outcomes reported by the Mr. Brown, increased interest in the program dramatically in the Year Two Institute (2004–2005) and led to its endorsement by the James Madison’s administration.

As a result of the focus that it had received as an SIU and the support that was offered, James Madison Middle School enacted a host of intervention programs to try to improve the performance of some of its struggling learners. Some of the reading supports that were published on James Madison’s web site, are listed in Table 4.1.

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Table 4.1

*James Madison’s Academic Enrichment Supports for Reading*

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Program Name	Description
Core Plus	Core Plus is 33 minutes of daily instruction for students who do not participate in chorus or band. Students are involved in a different activity each day of the week such as DEAR—Drop Everything and Read, TOS—Tutorial, Organization and Study Skills, Character Education, and the Habits of Highly Effective Teens. Grade-level teams may also use this time to “pull out” students needing extra assistance in reading.
Mathematics Reading Initiative (MRI)	MRI is a support initiative that allows targeted students to work every other day in the areas of mathematics and reading to accelerate their learning in these areas through small-group instruction.



Interdisciplinary Studies (IS) IS allows students not taking a foreign language to have a course that combines units throughout the year in reading, writing, and mathematics. The concept is to give students the opportunity to strengthen skills in these subject areas.

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#### James Madison Middle School's Adoption of Reading Apprenticeship

At the start of the 2004–2005 school year, CCPS published the new MSA scores for all of its schools. Compared with most of the other middle schools in the district, James Madison's results were lower in reading and mathematics. The 2003–2004 MSA reading scores for James Madison are listed in Table 4.2 below.

The administration at James Madison Middle School invited the members of Center County's Curriculum Division to attend the school's September faculty meeting and participate in the content team meetings that would follow the administration's general presentation to the faculty. At the James Madison faculty meeting, Principal Scott Sellers informed the staff and the guests from central office that he was establishing a new practice. To help with its school improvement effort, James Madison's staff meetings would focus almost entirely on professional development, with more than half of the time that is contractually set aside for faculty meetings to be used by each department to meet and work on their department objectives.

Principal Sellers also reviewed a handout he created and provided to the meeting attendees. The handout listed the school's two primary professional

development initiatives for the year—a focus on instructional practices and student achievement and the SCLI.

Table 4.2

*James Madison's 2003–2004 MSA Scores for Reading, Grades 6–8*

Reading	Number Students	County Standard	Percent Proficient and Advanced	Status	Percent Advanced	Percent Proficient	Percent Basic
Overall	610	70	81.3	Met	43.1	38.2	18.7
Male	311	70	80.1	Met	40.2	39.9	19.9
Female	299	70	82.6	Met	46.2	36.5	17.4
Asian	53	70	92.5	Met	49.1	43.4	7.5
African American	230	70	68.7	Not Met	20.0	48.7	31.3
White	287	70	90.6	Met	63.1	27.5	9.4
Hispanic	30	70	66.7	Not Met	20.0	46.7	33.3
American Indian	3	70	100	Met	33.3	66.7	0
Not Reported	7	70	85.7	Met	42.9	42.9	14.3
ELL	18	70	38.9	Not Met	5.6	33.3	61.1
FARMS	148	70	60.1	Not Met	14.9	45.3	39.9
Spec Ed	52	70	34.6	Not Met	9.6	25.0	65.4
GT Math	113	98	100	Met	90.3	9.7	0
GT Lang	114	98	100	Met	90.4	9.6	0

Table 4.3 shows the portion of the handout that addressed James Madison’s emphasis on professional development and reading.

Table 4.3

*James Madison Middle School Professional Development for 2004–2005*

Focus Area	Description
Monthly Professional Development Strand: Enhancing Instructional Practices and Student Achievement	Each content area will convene its meeting focusing in <i>Knowing the Pedagogy</i> portion of the <i>Vision for Exemplary Teaching for Student Learning</i> framework.  Each subject area will review, discuss, and clarify implementation of specific high-leverage strategies that will be employed in one’s instructional delivery. Included should be a discussion of our school-wide SCLI, of which Reading Apprenticeship is practiced in each core area.
SCLI	This cohort meets regularly and is composed of specific teachers who have attended the appropriate training and are practicing Reading Apprenticeship. Meetings are facilitated by the assistant principal.

Principal Sellers concluded the meeting by pointing out that 18 of James Madison’s teachers had now received training in Reading Apprenticeship and that he was placing Assistant Principal Jones in charge of this initiative. He noted that Ms. Jones had also been trained in Reading Apprenticeship in 2003 and that her knowledge and strong instructional background would help the teachers implement strategies that would ultimately improve student scores in reading and help the school achieve its goals.

## James Madison Middle School as a Site for the Case Study

Although Reading Apprenticeship was a district-wide initiative, the decision to limit the case to a single school and a team of science teachers was intentional. For one, principals are key figures in determining the ultimate success of any effort to influence change in the activities of school personnel, as they typically function as gatekeepers for change and innovation (DuFour, 1999, p. 8). Hence, a principal who is not supportive of Reading Apprenticeship could discourage or impede the efforts of teachers who are interested in implementing the program. However, a principal who is committed to using Reading Apprenticeship as a primary strategy for school improvement, and who has set up professional development sessions for the school's staff around this innovation, is much more likely to have teachers who are willing to try to make sense of an initiative and implement it in their practice.

James Madison Middle School principal's stated support of the innovation, a leader-shaping action, made James Madison a good site for studying sense-making related to policymaking. No other middle school in Center County had made such a commitment to the initiative. Therefore, a multi-school case study of policy implementation would have been problematic due to possible differences in principal support for the initiative.

In addition, context, accessibility, and time were other considerations in choosing James Madison Middle School as the site for the case study. In limiting the study to science teachers and not including teachers from other disciplines, I was not required to develop a deep and fundamental awareness of the content of other disciplines, the curriculum demands made on its teachers, or the subject's

recommended best practices. Such an endeavor would have taken more time, created problems with my sense-making as a participant observer, and made it harder for me to gain approval for the study in Center County. However, as the Secondary Science Coordinator, understanding content-related demands in science classrooms and obtaining permission to visit science classrooms was not a problem.

Finally, field issues can result when researchers attempt to gain access to the site of their research (Cresswell, 1998). They include: building credibility at the site, gaining access to the individuals at the site, and getting people to respond to requests for information. By focusing the study on the science team at James, Madison Middle who knew me, these field issues were addressed.

#### Study Participants

Although James Madison Middle School had five full-time science teachers, three were selected as primary participants. As primary participants, each teacher agreed to invite me into his/her classroom to observe the implementation of a reading apprenticeship strategy.

The decision to study three teachers as primary participants—John Murphy, Jill Jones, and Tony London—was based on two criteria. First, one of the members of the science team, Sharon Steele, had completed training in Reading Apprenticeship during the 2003–2004 school year and did not commit to actively participate in any of the training activities for 2004–2005. Second, when I approached the other member of the team, Tara Fields, about participating in the study, she asked that she not be observed trying to implement any strategy related to the initiative. Tara indicated that this initiative was new to her, and that she was still trying to decide how she might

incorporate it into her instruction. She reported that she did not want to feel pressured into implementing Reading Apprenticeship because she was going to be observed. The entire science team all agreed to be interviewed about their understanding of Reading Apprenticeship and its implementation.

Being limited to three primary participants however was not necessarily a detriment to the study. Performing classroom observations of three teachers provided me with added depth and information to capture sense-making, draw meaningful conclusions, and validate that the primary participants had actually implemented what they had reported to try. More importantly, having a team of individuals willing to be interviewed and observed at their school and training meetings was useful for helping me capture the interactions within the science department and the challenges that the teachers faced with implementing SCLI.

Table 4.4 lists the science team and their assignments. The first three teachers listed are the primary participants and the other teachers served as secondary participants.

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Table 4.4

*2004–2005 James Madison Middle School Science Team and Assignments*

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Teacher	Trained in SCLI	Years at JMMS	Science Schedule for 2004–2005
John Murphy	2002, 2004	9	Grade 6—2 Standard, 3 Gifted Talented
Tony London	2004	6	Grade 7—2 Standard, 3 Gifted Talented
Jill Jones	2004	2	Grade 6—4 Standard, Grade 7—1 Standard
Tara Fields	2004	3	Grade 7—2 Standard, Grade 8—3 Standard
Sharon Steele	2003	6	Grade 8—3 Standard, 2 Gifted Talented

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In addition to the data collected on the teacher participants, this case study also utilized interviews with the two trainers of SCLI— Tracy Jones, who ran the school-based SCLI meetings at James Madison, and Clarisse Green, a central office science resource teacher who was the workshop facilitator for all of SCLI's science teacher training sessions. Ms. Jones and Ms. Green were trained in SCLI and worked closely with Mr. Charles Brown, who brought the initiative to Center County and oversaw the entire program. Both individuals served as informants and critical friends, and played a key role in helping me confirm my personal sense-making of the initiative and its implementation, and in validating many of the study's findings.

#### Case Boundaries

This case study examined the sense-making and implementation of Reading Apprenticeship by the science teachers at James Madison Middle School. It was a bounded system that occurred within the context of a K-12 school district in Maryland and was bounded by the location of the school district's geography. Interactions and observations with the participants occurred at CCPS' staff development center and/or at the school site where the teachers worked—James Madison Middle School.

The case was also bounded by time. The participants in the study attended a two-day summer training in August 2004 on Reading Apprenticeship and attended a series of content and school-based meetings on the initiative throughout the year. The study officially began at the start of the school system's second semester (January 27, 2005) and ended at the conclusion of the academic school year (June 13, 2005). During this time frame, observations of content- and school-based meetings related to

the initiative were conducted, as well as classroom observations and interviews with the participants. The decision to study the second half of the year-long initiative was made to ensure that the case study was more manageable and to capture two important data-collection methodologies—observations of lessons that utilize Reading Apprenticeship and the participant portfolio project (see Appendix G).

From my role as a participant observer in the 2004–2005 SCLI Institute, I also included field notes from some of the training events and meetings that preceded the start date of the study. Included in this pre-study data were field notes of a videotaped interview of two of the participants that was provided by Ms. Jones.

### *Data Sources and Collection*

This case study relied heavily on the documents related to the SCLI, the interviews of the study’s participants and critical friends, and the observations of the meetings related to the initiative. The following sections of this chapter focus on the sources of data that were collected in the study and the data-collection timeline of events.

#### Document Evidence

In this study, the documents collected and examined included the Reading Apprenticeship materials that I obtained as a participant observer, the agendas for the content and school-based meetings, the e-mail correspondences and attachments that were posted on CCPS’ electronic learning community conference site for SCLI participants, and documents related to CCPS and James Madison Middle School’s school improvement efforts. The documents helped provide an in-depth look at the



broad context of the study, the policy (i.e., the Reading Apprenticeship program), and what the policymakers intended in terms of implementation.

All collected documents were stored in a binder and were categorized according to their purpose. The documents were also used to confirm and inform the data that were collected from interviews and observations, and they were used to validate some of the resultant findings that emerged. Finally, they helped serve as a focus point for some of the interview questions with the study's two critical friends.

#### Interviews

The interviews explored the participants' educational platform (i.e., their beliefs about schools and instruction). In addition, it examined their understanding of Reading Apprenticeship and how it fit into their science teaching, as well as the ways they chose to implement Reading Apprenticeship and what may have influenced their implementation—such as other policy initiatives or ideas that emerged from the communities of practice that had been established around SCLI. The interviews with my critical friends—Ms. Jones and Ms. Green—were used to help validate my sense of Reading Apprenticeship and to explore how leader-shaping actions affected the participants' sense-making and implementation.

Interviews are purposeful conversation that are directed to get information and may be the dominant strategy for data collection, or may be employed in conjunction with participant observation, document analysis, or other techniques (Bogdan & Biklen, 1998, p. 93). The interviews used in this study were semi-structured around the conceptual framework and the content literacy initiative. A set of questions from Glickman, Gordon, and Ross-Gordon's (2004) work on developmental leadership

related to forming an educational platform were used to start each interview and served to help unpack the participants' beliefs and values (see Appendix H).

Following the questions related to the participants' educational platform, other interview questions centered on the study's cognitive perspective and were guided by the participants' responses related to implementation and aspects of the SCLI framework. The interview questions conducted in this study therefore varied somewhat from participant to participant and depended on the individuals' worldviews, where they were in terms of implementation, other policies that may have affected their implementation, and/or unexpected findings that might have been uncovered during the interview.

In this study, all of the interviews were tape recorded with the consent of the participants and were transcribed using Microsoft Word. The transcripts were then stored electronically as word processing files, printed out in hard copy, and stored in a notebook binder. The interview transcripts were also imported into the NVivo 7—a qualitative research and data analysis software program—as document sources to be used later for analysis.

Each participant was interviewed one time. The three primary participants were interviewed before their classroom observations. The secondary participants were interviewed before the June 2<sup>nd</sup> end-of-the-year meeting for SCLI, and both critical friends were interviewed after the school year had ended.

#### Observations

The observations of the content and school-based meetings were conducted to provide a rich context to the study, further inform aspects of sense-making, capture

conversations that may shed light on the implementers' sense-making or the influence of communities of practice on sense-making, and provide focus points for some follow-up interview questions. Of particular importance was the June end-of-the-year meeting, where the participants reflected on their understanding of Reading Apprenticeship, how they implemented it into their instruction over the course of the year, and how they planned to implement it in the future.

As a participant observer, I attended a host of SCLI-related meetings: a two-day summer in-service, an SCLI meeting for science teachers, three meetings at James Madison Middle School, and the end-of-year meeting. At each meeting I recorded and stored field notes on my laptop. These descriptive field notes were used to describe the setting for each meeting, chronicle the participants' professional development activities and discussions, and record where feasible the participants' behaviors.

In addition to the descriptive field notes, I wrote reflective memos of each meeting I attended. Reflective memos reflect a personal account of the course of the inquiry, and can include speculation, feelings, problems, ideas, hunches, impressions and prejudices (Bogdan & Biklen, 1998). I used these memos to capture my thoughts on the meetings, emerging themes, and/or links from the activities I observed to aspects of the conceptual framework.

Because most of the science teacher meetings were held in large rooms with as many as 25 teachers present, I tried to sit at the same table as the James Madison Middle School participants. Although all facilitator led training activities were captured with field notes, the table conversations related to the session's activities

were tape-recorded. Guided by references made in the field notes, participants' statements that related directly to implementation and/or aspects of the conceptual framework for the study, were transcribed using word processing software and entered into NVivo for later analysis. The meeting observations in this study were useful for helping to determine the "sense" that the participants made of implementation, and they helped to uncover how the participants constructed policy messages in their communities of practice.

Announced classroom observations were also conducted with the three primary participants to verify that the practitioners implemented what they reported to be using, but also to also unpack their sense of content literacy. During the lesson observations I took field notes and afterwards modified a district planning form to serve as a template for organizing and analyzing the notes. The template helped me capture the objective for the lesson, the dimensions and techniques of Reading Apprenticeship that the participant attempted to implement, the activities in which the students engaged, and the closing activity that the teacher used to ascertain if the objective was met (See Appendix I). The field notes and observation results were not shared with the participant or with James Madison's administration. Rather, they served as another source of data to assess participant sense-making and to verify that the participants were able to implement a component of the Reading Apprenticeship framework. All of the lesson observations conducted in this study were prearranged observations, and in each case, the participants described in their pre-observation interview what they would attempt to do with their students related to content literacy.

## Conceptual Framework and Data Sources

As mentioned in the review of literature, the cognitive framework for sense-making that had been developed by Spillane et al. (2002) was adopted for use in this study as a conceptual framework. In addition aspects of Coburn’s (2001, 2005) research related to communities of practice and leader-shaping actions were incorporated into this study’s conceptual framework to obtain a more comprehensive view of the influences on sense-making and policy implementation. This framework helped guide my early data collection and later data analysis efforts and was used to steer subsequent data collection and analysis as emerging themes developed. Table 4.5 illustrates the relationship between the different components of my conceptual framework and the corresponding data-collection sources that I used.

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Table 4.5

*Conceptual Framework for Sense-Making and Data Sources*

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Seeking to Capture	Data-Collection Sources
Cognition - worldview toward science instruction and reading.	Field notes from SCLI meetings Participant interviews Classroom observations of implementation
Affect - beliefs and values toward science instruction	Participant interviews Field notes from SCLI meetings
Social Context - social construction of SCLI sense-making and/or influence of communities of practice	Field notes from SCLI meetings Participant interviews
Other Policies—other policies that affect sense-making and/or implementation	Participant interviews Interviews with critical friends Messages from electronic learning community

Leader-Shaping Action - actions taken that shape message and/or influence implementation

Field notes from SCLI meetings  
Participant interviews  
Interviews with critical friends  
Messages from electronic learning community

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#### Data-Collection Timeline

The summer of the 2004 school year marked the start of the second year of the SCLI, CCPS' five-year initiative to improve student reading performance at all grade levels and across all content areas. In its BTE strategic plan, Center County Public School System (2003a) described SCLI's annual implementation cycle in this way:

This yearly pattern will include two parts—intensive summer institutes equipping school teams of teachers to implement Reading Apprenticeship in content area classrooms, and yearlong follow-up projects. Throughout the year, participants will conduct action research on classroom applications of their summer learning, followed by professional portfolios. (p. 96).

This study had two components: (a) a pre-study collection of data that related to my role as a participant observer in the second SCLI—used almost exclusively to inform my sense-making and the context for the study, and (b) data-collection activities directly related the Institute's activities and used to answer the study's guiding research question.

#### Pre-Study Data

As a participant observer, I was involved in a series of meetings related to SCLI that had occurred before the study's official start. These meetings started in June 2004 and finished in January 2005. They included the end-of-the-year reflection

meeting for the first SCLI in June 2004; the two-day August training for science teachers; a kickoff faculty meeting at James Madison Middle School—where Reading Apprenticeship was touted as one of its school-wide initiatives; a James Madison science department meeting that followed the kickoff meeting; a school-based SCLI meeting facilitated by Ms. Jones; and three first-semester professional development sessions facilitated by Ms. Green. In addition, Ms. Jones gave me a copy of an October 2004 reflection session that she conducted and had videotaped. This tape featured two of the study’s primary participants, John Murphy and Jill Jennings, who reported on what they were doing with implementation.

Table 4.6 summarizes the pre-study events I collected—the agendas, handouts, and instructional materials that were distributed and the field notes as to who attended and what occurred.

Table 4.6

*Summary of Pre-Study Data Sources for Field Notes*

Date	Event	Captured
June 2004	End-of-year meeting for Year 1 SCLI Institute	Sharon Steele’s portfolio presentation on her use of Reading Apprenticeship
August 2004	Two-day training SCLI	Overview of SCLI and literature on Reading Apprenticeship
September 2004	SCLI launched at James Madison Middle School	Schools commitment to Reading Apprenticeship and science department’s goals for the year
September 2004	Science content meeting for SCLI	Workshop topics: Promoting Meta-Cognitive Conversations; Sharing Strategies for Implementation
October 2004	Science content meeting for SCLI	Cognition packet: Summarizing with a 25-word abstract

November 2004	James Madison Middle School SCLI meeting	Shared examples of implementation and videotaped reflection of John Murphy and Jill Jennings
December 2004	Science content meeting for SCLI	Questioning packet on cognition and QAR

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I used these field notes and agendas to establish a historical context of what had gone on prior to data collection, develop my sense of reading apprenticeship and its implementation in a science classroom, and capture the factors and leader-shaping actions that might have influenced the participants' sense-making and implementation.

#### Study Data Collection

For this study, all of the data related to meetings was to be collected on the dates specified by SCLI. The interviews and lesson observations dates were to be worked around mutually agreed-on meeting times among with the participants. Data collection for the study was to begin officially at the January 2005 mid-year meeting, where I was to observe SCLI participants from several content areas reflect on their implementation of SCLI so far and on how they planned to use it in the second semester. At this meeting, participants were to bring copies of student work samples, lesson plans or video clips, as part of their mid-year reflection. This meeting was also designated to teach the participants about a tool that they could use to conduct a reading process analysis called Focus, Question, Image, Predict (FQIP).

The observation of the mid-year meeting was to be followed by a February observation of a sharing meeting at James Madison Middle School for the school's



SCLI participants. Table 4.7 shows the schedule of content meetings that were originally scheduled for the participants in the SCLI Institute.

Table 4.7

*Scheduled Content Meeting Activities in the SCLI Institute*

Date	Purpose	Resources Distributed	Strategies Presented
January 27 mid-year meeting	Reflection on where candidates are with Reading Apprenticeship training	FQIP packet	Reading analysis: focus, question, image, predict; sharing accomplishments
March 22	Training	Schema packet	Knowledge-building: schema
April 26	Training	Reciprocal teaching packe	Reciprocal teaching
June 1	Training	Extensive reading packet	Extensive reading
June 2	End-of-year reflection	Reading surveys	N/A

As the second semester began, however, changes occurred to this published schedule of meetings. The mid-year reflection meeting for January 27 was changed to March 1 due to central office concerns about the number of substitutes required. They reasoned that if every participant from SCLI used a substitute on January 27, some schools would be without substitute teachers due to the limited supply of available substitutes.

The decision was made by Mr. Brown and the SCLI Steering Committee to hold two separate reflection meetings. English, Reading, and ESOL would meet as

scheduled on January 27. Mathematics, Science, and Social Studies were rescheduled to meet on March 1. As the March 1 date approached, however, CCPS was hit with several days of inclement weather that caused schools to be cancelled. Mr. Brown decided to cancel the mid-year meeting altogether.

In addition, Ms. Jones, who was to head up two school-based sharing sessions for the SCLI participants, underwent a medical procedure in early January that caused her to miss three months of school. The February meeting that she was to lead and that I was scheduled to observe was cancelled and not rescheduled. However, she returned to work and conducted an April meeting, which I observed.

Ms. Green made adjustments to the original training schedule and to the list of topics covered. At the March 22 meeting, she held a shortened version of the mid-year reflection meeting by asking the participants to reflect on their implementation of Reading Apprenticeship to date, and she conducted an activity that introduced a strategy that could assist the participants with analyzing where their students were with content reading—the FQIP. At the conclusion of this meeting, Ms. Green distributed the Knowledge Building: Schema packet that was scheduled to be the original focus of the meeting. However, she did not do any professional development activities related to the material.

At the April 26 session, Ms. Green moved on with scheduled Reciprocal Teaching Packet and activities. She announced at the end of this meeting that the group would not be holding the final content session on June 1 because the institute's final end of year meeting was scheduled for the next day. As she did at the previous

meeting, Ms. Green distributed supplemental materials on promoting extensive reading without reviewing the content with the participants.

In terms of the interviews and classroom observations, there were few problems with the scheduling interviews or gaining access to each of the primary participants' classes observe them teach. The participants selected the time and location that worked best for them for the interview. Each interview lasted approximately 30 minutes and was tape-recorded.

Mr. Murphy and Ms. Jennings scheduled their classroom observations of Reading Apprenticeship implementation shortly after my interview with them. For Mr. Murphy the observation occurred two weeks after the interview, while for Ms. Jennings it occurred on the next day. Mr. London, however, had to be contacted several times after the interview to arrange a date for the observation. The observation of his class occurred several months after the interview, and on the day before the scheduled end-of-the-year reflection meeting. Table 4.8 summarizes the activities related to the data collection that occurred in the study.

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Table 4.8

*Data Collection Activities*

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Date	Event	Participant(s)	Data Sources Collected
March 22	Content training science teachers	John Murphy Jill Jennings Tony London Tara Fields Clarisse Green	Documents  Field notes of training events and interactions of participants
April 5	Interview	Tara Fields	Interview transcript
April 7	Interview	Jill Jennings	Interview transcript

April 8	Lesson observation	Jill Jennings	Field notes
April 11	Reflection meeting at James Madison Middle	John Murphy Jill Jennings Tony London Tara Fields Sharon Steele Tracy Jones	Field notes of reflection and sharing
April 21	Interview	John Murphy	Interview transcript
April 21	Interview	Tony London	Interview transcript
April 26	Content training science teachers	John Murphy Jill Jennings Tony London Tara Fields Clarisse Green	Documents  Field notes of training events and interactions of participants
May 11	Lesson observation	John Murphy	Field notes
June 1	Lesson observation	Tony London	Field notes
June 2	Content session—end-of-year presentations	John Murphy Jill Jennings Tara Fields Clarisse Green	Documents  Field notes  Transcript of participant reflections during session
June 7	Interview	Sharon Steele	Interview transcript
June 20	Interview	Tracy Jones	Interview transcript
June 25	Interview	Clarisse Green	Interview transcript

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### Data Analysis

In this section, I describe the steps that were used in organizing, coding, and analyzing the data. They included: data collection and organization, data reduction and data displays.

#### Data Collection and Organization

Field notes that were collected from the observations of the SCLI meetings and lesson implementation by the participants, as well as the interviews of the participants, were all stored by type. The next step in the process was to convert much of the data that would be used for analysis into an electronic format. Many of the documents, such as agendas, electronic correspondences, and training materials, were scanned and converted from a portable document format (pdf) format into Microsoft Word. All of the interviews were transcribed into Microsoft Word, and the field notes and reflective memos were also stored electronically as computer files.

The interview transcripts were sent electronically to the participants for error checking and verification. All electronic files had hard-copy backup and were kept in notebook binders. The initial collection and organization of the data were stored both chronologically and by data source, such as field notes of meeting observation, interview transcript, or field notes lesson observation.

#### Data Reduction

Data reduction is the process of selecting, focusing, simplifying, abstracting, and transforming the data that appear in field notes or transcriptions (Miles and

Huberman, 1994, p. 10), and includes such activities as writing summaries, coding, writing memos, and clustering data.

After the data were collected and organized, the word files for the different data sources were imported into NVivo 7. These data records were imported as documents and were grouped by the categories by which they were stored in the binders—field notes, interviews, memos, observations, meeting agendas, electronic communications, and training documents. In addition, each document was given a name to identify what it was, who it pertained to, and when it occurred. For example, the interview of Tara was coded as “Interview—Tara—4/11/05.”

When importing data sources into NVivo, each new data record can be assigned to a case, and it can be coded at a case node so that attribute data—such as demographics—can be attached. As I imported the different data sources into NVivo, I made the decision to treat each of the participants in the case study—the five middle school science teachers and my two critical friends—as separate cases. Using each participant as a separate case in NVivo permitted me to later code parts of other documents to each individual, such as a remark they may have made at a meeting or a description of an activity in a reflective memo.

Once each participant had been selected as a case, I was also able to create a set of attributes for each case that would be useful later in data analysis. These attributes for the cases (participants) in this study included the following: gender, years of experience at school, teaching assignment, whether they received credit for participation in the initiative, role in initiative (participant or trainer), and their certification area. Figure 4.3 shows the attributes that were used in the study:

certification, credit for participation, gender, grade-level assignment, role in training, and years of experience.

Figure 4.3 Screen Shot Of Case Attributes.

	A : Certification ▼	B : Credit for Participation ▼	C : Gender ▼	D : Grade Level Assign... ▼	E : Role in Training ▼	F : Years Ex... ▼
: Cases\...	Secondary Science Certified	Not Applicable	Female	Not Applicable	Trainer	Not Applicable
: Cases\...	Secondary Science Certified	No	Male	Grade 6 Science	Participant	6-10
i: Cases\...	Secondary Science Certified	No	Female	Grades 6, 7 Science	Participant	1-5
: Cases\...	Secondary Science Certified	Yes	Male	Not Applicable	Participant	26-30
i: Cases\...	Secondary Science Certified	Not Applicable	Female	Not Applicable	Trainer	11-15
i: Cases\...	Secondary Science Certified	Not Applicable	Female	Grade 8 Science	Participant	11-15
: Cases\...	Elementary Certified	Yes	Female	Grade 7 Science	Participant	11-15
i: Cases\...	Elementary Certified	No	Female	Grades 7,8 Science	Participant	6-10

Proponents of qualitative research advise that researchers develop a list of preliminary coding categories (Bogdan & Biklen, 1998, p. 182), and use these broad categories of codes—constructs that refer to a phenomenon in the study—as units of data collected (Gall et al., 2003). Using the conceptual framework as a guide, I created a series of categories that corresponded with its different aspects. The categories that I initially created were cognition, affect, social context, external factors (policies), and leader-shaping actions.

Researchers are also advised to develop a category label and definition for each type of phenomenon to be analyzed and to consider whether a particular category can be analyzed into subtypes. Text database managers are especially valuable software programs that allow the researcher to format a document into fields, code each field, and then retrieve all fields within a given code (Gall et al., 2003). These functions were both evident in the NVivo software program used for this study.

I went about the process of coding each of the data sources by using an approach described as “broad-brush or ‘bucket’ coding” (Beazley, 2007, p. 67). With this approach, my initial coding task was to code large portions of the text into broad

topic areas to see what I had. I first coded all of the sources as free nodes and, if it pertained directly to one of the participants, double coded it to the case node for that individual so that I could do searches later on in the analysis process. I also established some anticipated tree nodes – hierarchal, branching structures that serve connecting points for subcategories (Beazley, 2007, p. 83). The categories established in the conceptual framework were all designated as tree nodes.

The free nodes that I initially created were named conceptually—what something is seen as, a priori—theoretically derived, and/or in vivo—directly from the words of the participants (Beazley, 2007). For example, “Communities of Practice” was added as another early tree node under context, as was “Understanding of RA” under cognition.

The coding process started with the interview transcripts and moved to the other sources. After the first wave of coding, I examined many of the free nodes that I had created made some decisions about whether they belonged as “baby” nodes underneath one of the initial tree nodes that I had established and/or whether they should be further delineated. To assist with the second and third rounds of coding, I used the number of “sources” and “references” that NVivo displays when the category “Node” is selected from the navigation view toolbar. This information helped me decide whether some of my first free nodes were good choices to be reexamined and recoded into a new set of subcategories (and possibly become their own tree nodes) by virtue of the amount of information they contained. In each of these cases, I opened up the node and recoded its contents in more detail to create more subcategories.



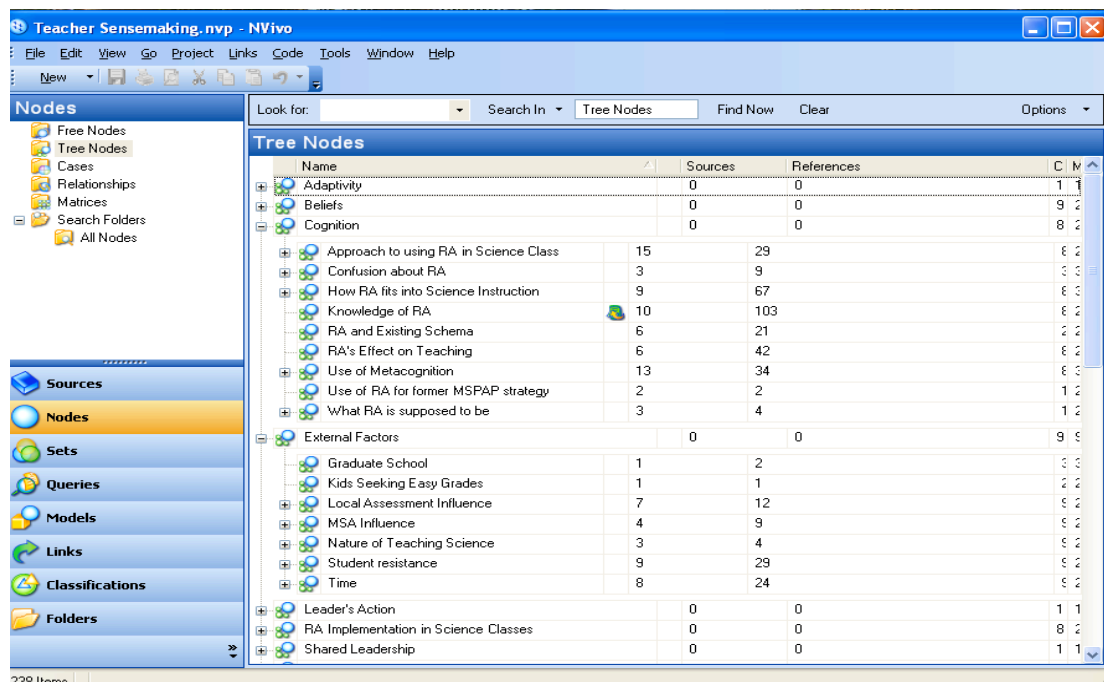
Identifying the nodes that initially had a large number of sources and references was an easy way to spot the free nodes that needed further demarcation. However, all of the nodes that were initially coded in the first round using the broad-brush approach were eventually reexamined and/or recoded. In many instances, when two nodes were determined to be essentially describing the same phenomenon or concept, the data from one of the free nodes was merged with the data from the other free node to combine information and collapse the number of categories.

As the coding first started, I had developed tree nodes that reflected the categories of the conceptual framework for the study—cognition, affect, social context, external factors, and leader-shaping actions. During the second round of recoding, I created some other tree categories that I had anticipated. For example, because the teacher interviews started with the questions related to the participants' educational platform, I created a free node for each question and placed each participant's response into this parent node. This tree node was later recoded into more specific categories. For example, the tree node—"purpose of education"—a theoretical name related to one of the questions asked of each participant was broken down into four baby nodes based on the participants' responses: prepare for the future, be responsible and productive, grow up and be successful, and spark interest to learn.

Some other anticipated tree nodes that emerged during the first two waves of coding were implementation, participant understanding of Reading Apprenticeship, metacognition, school goals, and factors interfering with implementation. Other tree nodes also emerged: student resistance, adapting Reading Apprenticeship strategies,

and interactions within the science team. After all of the broad-brush codes were re-read and recoded in more detail and with subcode names that represented more nuanced aspects of a concept, arrangements within the established trees began to change. As this process progressed, memorandums were created and attached to nodes to capture the decisions and thinking that went on during the process of recoding, merging, and/or renaming them. Nodes that did not seem to fit into any of the tree categories were left as free nodes. After starting the process with large “buckets” of information and repeatedly reexamining, recoding, and re-categorizing the information more closely, a list of overarching tree node categories was established along with baby nodes that cataloged concepts under each organizing concept. Figure 4.4 shows an example of the tree-coding structure in NVivo.

Figure 4.4 Screen Shot of Some NVivo Tree Nodes.



## Data Displays

Data displays are an organized compressed assembly of information that permits conclusion drawing and action (Miles & Huberman, 1994, p. 11) as they encompass activities that include the creation of charts, matrices, and networks (Beazley, 2007, p. 11). To facilitate this part of the data analysis process, I used the query tools that NVivo provided to ask questions, check associations in the data, and look for emerging themes. NVivo's query tools permit the researcher to locate all the passages that meet the criteria that have been set up in the search by the researcher.

Since I decided that there should be two chapters of findings, I knew that I wanted to feature detailed descriptions of the study participants (Chapter 5) that revealed the sense that they made of Reading Apprenticeship as they attempted to implement it in their classrooms. This outcome was best served by my use of within-case analysis strategies (Beazley, 2007), where I made simple coding queries within each case (i.e., for each participant) to unpack the various aspects of his or her sense-making. In addition, I used several matrix-coding queries to explore within case relationships between nodes within a tree node. During this process, multiple queries were run; when they produced the results that I felt were worth saving and using in the findings chapter, they were saved as a report in the results folder.

An example of a single-case query that I ran is seen in Figure 4.5. In this example, I used a matrix-coding query to collect the data on the beliefs that I had gathered on one of the participants. In the report that was generated, a list of the number of coded sources was generated for each subcategory.

Figure 4.5 Screen Shot of NVivo Matrix Query Report for Within-Case Analysis.

1 : Motivated Reasoning	▼	2
2 : Relationship teacher & students	▼	1
3 : Motivation of Students	▼	1
4 : Purpose of education	▼	1
5 : Effective Teaching	▼	1
6 : Definition of Good School	▼	1
7 : Control of Learning Environment	▼	1
8 : Content of Curriculum	▼	1
9 : Conditions successful learning	▼	1
10 : Characteristics Successful Teachers	▼	1
11 : Assessment of Student Learning	▼	1

However, I also realized that there was much to be learned through the use of cross-case (i.e., participants) comparisons where the complexity of the individual cases is retained as participants are compared in the search for unique insights and common patterns based on common attributes, or common coding (Beazley, 2007, p. 186). These cross-case analyses are necessary to deepen understandings and explanations.

To produce the findings for Chapter 6, I relied exclusively on matrix coding queries. This approach allowed me to compare cases by attributes, individuals, or groups of factors, and it also permitted me to determine the significance of the patterns of the codes by seeing how many cases contained particular nodes. Figure 4.6 illustrates one of many matrix-coding queries that were used for producing cross-case findings. In this query example, the nine nodes under the tree node for cognition (rows) were searched for each participant (columns). The numbers reflected how many “hits” there were in each category for each participant, and permitted me to see what each participant had to say about the category.

Using the result of this type of query I was then able to look at the information contained in each cell and formulate further searches and queries to check hypotheses and determine if the information represented the start of a theme or pattern that could result in a finding for the study.

Figure 4.6 Example of NVivo Matrix Query Report for Participants' Cognition.

1: RA's Effect on Teaching	▼	1	3	0	2	1
2: How RA fits into Science Instruction	▼	2	4	2	2	1
3: Knowledge of RA	▼	3	4	2	2	1
4: Use of Metacognition	▼	3	1	3	1	1
5: Approach to using RA in Science Cla...	▼	2	1	1	1	1
6: What RA is supposed to be	▼	1	0	1	0	0
7: Use of RA for former MSPAP strategy	▼	0	0	0	0	1
8: RA and Existing Schema	▼	1	2	1	0	1
9: Confusion about RA	▼	1	1	0	1	1

The matrix queries that were used in the study helped me compare cases on a single factor, examine the significance of patterns of association in codes, and search for aspects of the study that were not addressed by the participants.

### Validity and Verification

*Validity* is “the correctness or credibility of a description, conclusion, interpretation, or other sort of account” (Maxwell, 1996, p. 87). Internal threats to the validity of this study were present when one of the participants (Tony) almost dropped out of his commitment to be observed while implementing Reading Apprenticeship in his science class. This conflict was avoided when he changed his mind and an observation was scheduled late in the year. In addition, the study required that I accurately interpret the numerous documents that surrounded the

initiative (Reading Apprenticeship) being studied. Conversations with my critical friends clarified my interpretation and understanding of these documents.

Verification of findings in a study has procedural implications and can be assessed by the researcher” (Cresswell, 1998, p. 201). For this study, I used both triangulation and member checking. The triangulation of data occurred through comparisons within the various data sources that I had—field notes, memos, interviews, observations, and documents. NVivo searches were very useful for this verification purpose.

In this study, I also used my two critical friends, Ms. Green and Ms. Jones, to review and verify the observations, themes, and patterns that I began to see emerge in the study. Finally, I used member checking to ensure that there were no factual errors or misrepresentations. Each participant had the opportunity to examine the transcripts of their interviews and clarify any statements that he or she felt were incorrect.

#### *Relationship with Participants and Ethical Considerations*

Given my role as science coordinator it was important that I took steps to protect the interests of the teachers at James Madison who participated in the study as I also tried to obtain data that reflected what was truly going on with their implementation of reading apprenticeship and not what they thought that I would want to hear.

To assist with this effort, I informed the participants that by participating in the study they were helping me achieve an educational goal while also providing information that could be useful in terms of learning more about the implementation SCLI in science. To protect their interests, I met briefly with each teacher, my critical

friends, and Mr. Sellers at James Madison, and reviewed the following conditions that were contained in a memorandum that they signed:

I had no evaluation responsibilities for James Madison Science teachers during 2004-05.

My role in this study was to serve as a researcher not a science coordinator.

I was not interested in whether or not the participants fully implemented Reading Apprenticeship. Rather, I would seek to capture their understanding of the initiative.

If they agreed to participate, any information that I gathered through interviews or observations would not be shared with the principal or any other district personnel.

The participant's identity, the school's and the school district's would be kept confidential and pseudonyms would be used.

The participants would be given copies of the transcripts of all tape recordings to verify, revise, or remove.

None of the data would be used in any evaluation process.

All tape recordings will be destroyed upon completion of the study.

All participants could choose to cease participation at any time.

#### *Researcher's Sense-making and Bias*

A qualitative researcher's challenge is to demonstrate that his or her personal interest will not bias the study (Marshall & Rossman, 1999), while clarifying researcher bias from the outset is important so that the reader understands the researcher's position and any biases or assumptions that impact the inquiry (Creswell,

1998, p. 202). In this section of the study I account for bias by revealing my personal sense-making of Reading Apprenticeship and science implementation so that any orientations that may have shaped my interpretations are apparent.

My understanding of Reading Apprenticeship was obtained from my introduction to SCLI during the 2003–2004 school year, my examination of the literature associated with the program’s founders, and the professional development activities associated with my role as a participant/observer in the SCLI Institute. A “sense” of how it could work in a science classroom was also developed over the course of the year and during interviews and conversations with my critical friends, Ms. Jones and Ms. Green, who verified my understanding of the initiative.

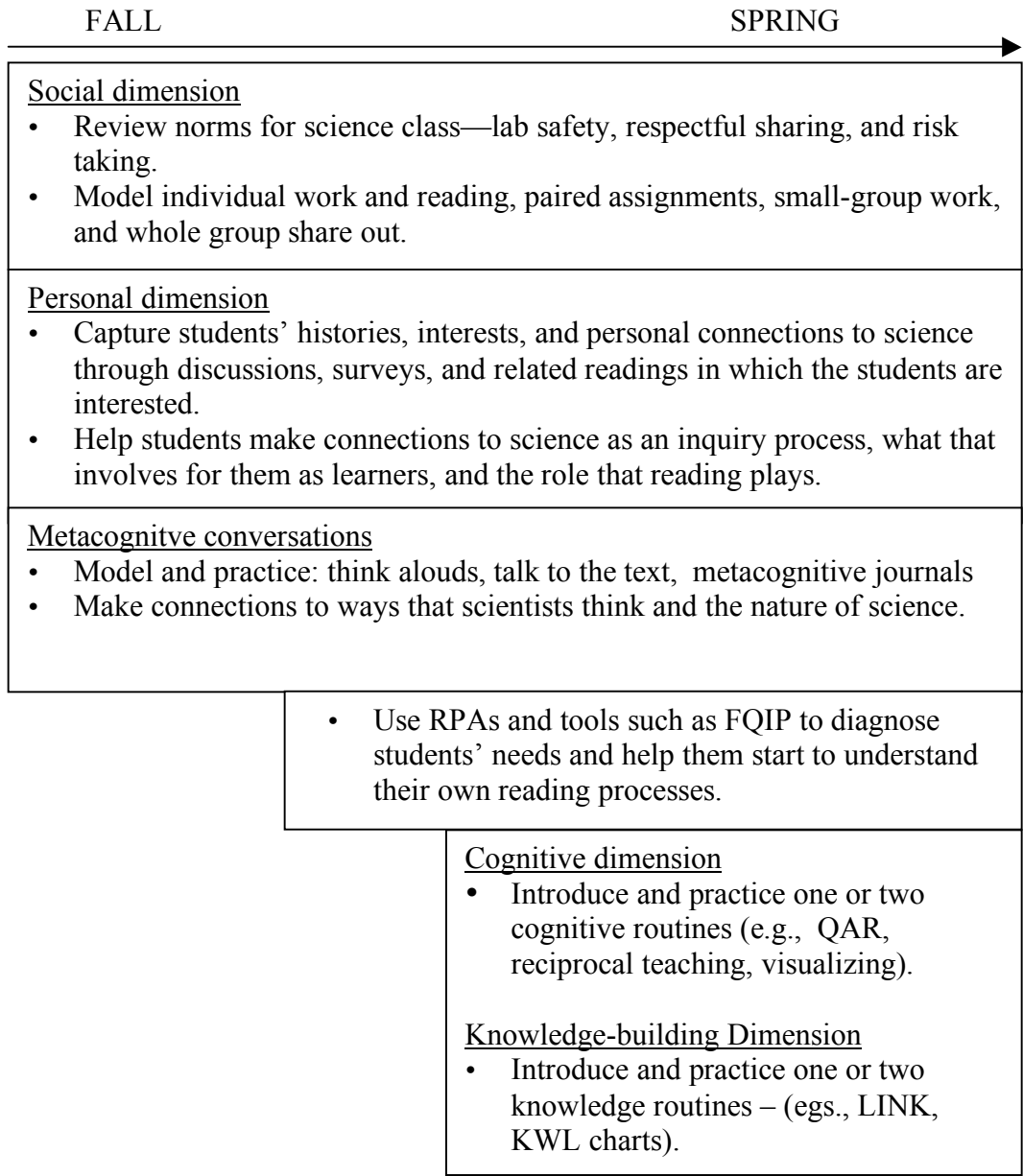
Schoenbach, Greenleaf, Cziko, and Hurwitz (1999) strongly advocate that using Reading Apprenticeship to teach reading in a content area is teaching the content. In some of their support materials, they also asserted that Reading Apprenticeship and science inquiry complemented each other nicely (Hinchman, Sheridan-Thomas, & Alvermann, 2008). I agreed with this conclusion.

Schoenbach et al. (1999) recommended that a good place to focus when beginning the implementation of Reading Apprenticeship is on building the social and personal dimensions of classroom life. Aspects of these two dimensions complement the activities that I have advised science teachers to consider as they start each school year. That is, they should get to know their students as learners as they strive to help students make connections between the subject they are studying and their personal lives, and they establish rules and procedures for working safely and



cooperatively in a laboratory setting. Figure 4.7 describes my sense of how Reading Apprenticeship could be implemented in a science classroom over a school year.

Figure 4.7 Researcher’s Sense of SCLI Implementation in a Science Classroom.



It is important to note that when science teachers introduce students to the nature of the scientific process and its habits of mind, it provides them with the opportunity to promote metacognitive conversations. These conversations are the

important first steps in establishing a cognitive coaching or apprenticeship relationship, one where the disciplinary ways of thinking are modeled for students who can later appropriate some of the strategies as they unpack their own thinking. These cognitive coaching activities should occur early and be implemented frequently over the course of the year.

### Personal Biography

I have worked in the CCPS for my entire career, and serve as the Coordinator of Secondary Science, a position I have held since July 2003. Through my contacts in the school district's central office, my position has given me access to the documents related to the CCPS' district-wide improvement plans, James Madison Middle School's School Improvement Plan, and instructional materials related to the Reading Apprenticeship initiative.

In my position as science coordinator, I have frequently been tasked with developing and implementing new curricula programs, enhancing existing curricula, and/or introducing program enhancements that are designed to improve teacher performance and student achievement. I was motivated to do this study by my desire to obtain a deeper understanding of the challenges that teachers face in their attempts to implement new instructional strategies, make sense of new instructional policy in a context of multiple policy messages and presses, and to gain insight into ways that leaders may promote sense-giving by shaping policy messages and creating conditions that enhance the implementation of new initiatives.

It was my hope that the results of this study would help inform other leaders who attempted to initiate new programs and/or improve existing teacher practices.

## Chapter 5: Findings: Participants' Sense-Making

This chapter explores the sense-making and implementation efforts of each participant in the study. It starts with the three primary participants of the James Madison Middle School science team—John Murphy, Jill Jennings, and Tony London. Each of these teachers agreed to classroom observations of their attempt at the implementation of Reading Apprenticeship. The other members of the science team—Tara Fields and Sharon Steele—were categorized as secondary participants. They were interviewed and observed in meetings related to Reading Apprenticeship, but were not observed implementing Reading Apprenticeship in their classrooms.

### *Primary Participants' Sense of Reading Apprenticeship*

John Murphy—Instructional Team Leader, Grade 6 Teacher

John Murphy was the science team leader and had been at James Madison Middle School for 10 years, longer than any other member of the science team. John grew up in Center County and graduated from the Center County Schools. He majored in secondary education at a local university and graduated in January 1994 with a certification in chemistry after first completing his student teaching at a Center County high school.

Soon after graduation, John accepted a long-term substitute position in science at James Madison Middle School and finished the school year as the Grade 6 science teacher. John's principal was highly impressed with his performance, and when the teacher who John had substituted for did not return in the fall of 1994, John accepted a contract for the open position. John indicated that at first he did not know whether

he would like teaching in a middle school, but after serving as a long-term substitute at James Madison Middle School, he quickly discovered that teaching young adolescents had been the right move for him.

During the 2004–2005 school year, John taught three sections of Grade 6 Science Gifted and Talented (GT) and two sections of Grade 6 Science standard level. The Grade 6 Science curriculum focused primarily on the earth sciences and included units in geology, astronomy, meteorology, and oceanography.

John also indicated that this was the second time he was exposed to Reading Apprenticeship. He indicated that he participated in training with a small group of teachers as part of a small pilot in 2002–2003, when Mr. Charles Brown first brought the initiative to Center County. For the 2002–2003 pilot training, John went through a four-day summer workshop, where he said that he learned some Reading Apprenticeship strategies. In the pilot training, there was a small group of teacher participants, including two other teachers from James Madison Middle School. John lamented, however, “It kind of fizzled quickly and never materialized here at this school.” He reported, “I don’t exactly know why (it failed). Maybe it was up to the few of us to run with it and we didn’t. It certainly wasn’t a school-wide initiative.” John reported that when the school year started, “it was basically forgotten.”

When comparing his first exposure to Reading Apprenticeship to the training he had received in 2004–2005, John indicated,

Going through it this year was better because it was better run this time. I think it was much more extensive this year, more so than just four days over

the summer. It has been ongoing throughout the year and I've learned a lot more this time around than I did that first time.

John's motivation for taking SCLI a second time was twofold. First, because he was not taking it for credit and did not have to create an end-of-year portfolio, he indicated that he would not be too stressed about it, and he could be paid for participating in the professional development sessions. Second, John reported that it is a school-wide goal and one of the areas of his department's focus for the school's SIT plan. So he felt that it was necessary to give SCLI another try.

As the science team's instructional team leader, John was in charge of leading the science team's monthly meetings. At the team's first meeting in September 2004, John shared the science team's focus for the year with the rest of the team.

Table 5.1 summarizes what John shared with the team.

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Table 5.1

*James Madison Middle School Science Team Focus for 2004–2005*

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Strategy	Opportunities for Support	Data Collection and Evaluation
Foster a professional learning community by linking science assessment results to instructional planning and providing opportunities for the sharing of best practices	<p>Monthly faculty meetings</p> <p>Opportunities to collaborate with colleagues in school and outside</p> <p>Meetings for SCLI</p> <p>Quarterly assessment workshops</p>	<p>70% of sixth and seventh graders will pass the selected response portion of the local assessments</p> <p>70% of sixth and seventh graders will earn a 2 or 3 on the BCR portion of the quarterly assessments.</p> <p>Department meeting notes and reflection.</p>

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In terms of Reading Apprenticeship implementation, John reported, “Early on in the year we were consistent with it. We were using it. I did two lessons very early on using it. And we were talking about it at our monthly team meetings.” However, as the year progressed, John reported,

Reading Apprenticeship had taken a back seat to the time and the business of the year, and I’ve kind of reverted back in a sense to more of what I’ve done in years past. And, in our team meetings, we’ve had to focus more on assessment results, the other part of our SIT Plan, and less, because of that, on Reading Apprenticeship.

To describe his overall sense of Reading Apprenticeship and how it might work in his science classroom, John expressed his strong beliefs about science instruction.

Well I am certainly not sold on the idea that Reading Apprenticeship is the way to teach science. And I have no intention in going completely to my class becoming science by way of Reading Apprenticeship. So for me it’s more of another resource, another technique, or series of techniques that when appropriate can be used for different topics or lessons or units.

John believed that the purpose of education is to give students the knowledge that they need to one day be successful and that a curriculum should spell out the big things that students need to know while leaving the teacher room to select from a variety of resources and lessons what they need to be successful. John also strongly felt that teachers create and control the learning climate in a classroom. His view of

science instruction was that it is best learned when students engage in hands-on activities.

For a student to sit and listen, I don't think that much learning goes on. I'm sure that there are some (students) that learn a great deal that way. But for the most part learning has to be participatory, it needs to be interactive, and there definitely needs to be a tremendous amount of communication back and forth.

In terms of reading apprenticeship implementation, John's view that hands-on activities are necessary to ensure that there is learning in science led him to state,

I have no intention of my class ever becoming a textbook centered class. If it is not going to be a textbook class, then it can't be a Reading Apprenticeship class. There has to room for labs and activities.”

When discussing the reading apprenticeship meetings at the school, John indicated that he enjoyed the meetings and hearing ideas about implementation from other teachers. He credited Sharon for influencing him to do the reading apprenticeship activity that I observed. This activity was consistent with John's view that good science instruction should includes hands-on activities and that reading apprenticeship “should be something to use when appropriate” because it directly supported reading for a science laboratory experiment.

For the lesson where I observed John implementing a SCLI activity, John selected and modified a summarizing activity for reading lab procedures. This activity was described on page 139 in *Reading for Understanding* (Schoenbach, et al., 1999) and reported that a chemistry teacher had created this reading strategy to help those students who had difficulty reading and following laboratory procedures. The

teacher's goal was to avoid the constant requests for assistance and to ensure that the class understood the directions before launching into a lab procedure. John successfully implemented a variation of this activity with one of his Grade 6 GT classes.

In terms of his overall implementation of reading apprenticeship, John reported that he did think-alouds and talking to the text early on but then fell away from using Reading Apprenticeship. He indicated that he did "sprinkle" aspects of Reading Apprenticeship into his instruction on occasion by modeling think-alouds. John also reported, "I did a couple of times a variation of talking to the text where they talked to the text and then turned talking to the text into an illustration."

John also reported that he was concerned about the time factor for implementing Reading Apprenticeship. He wondered how was he expected to revamp and change everything all at once? John concluded that Reading Apprenticeship implementation does not have to be a total change in how one teaches. It could be gradual. John summarized,

One of the questions I had, in thinking of all this is how are we going to find time to alter, change lessons and incorporate new strategies? And I guess the answer is that we don't have to do it for every lesson all the time. It is something we can incorporate when it is appropriate and when there is time.

John categorized his plans for the future implementation of Reading Apprenticeship as a search for balance.

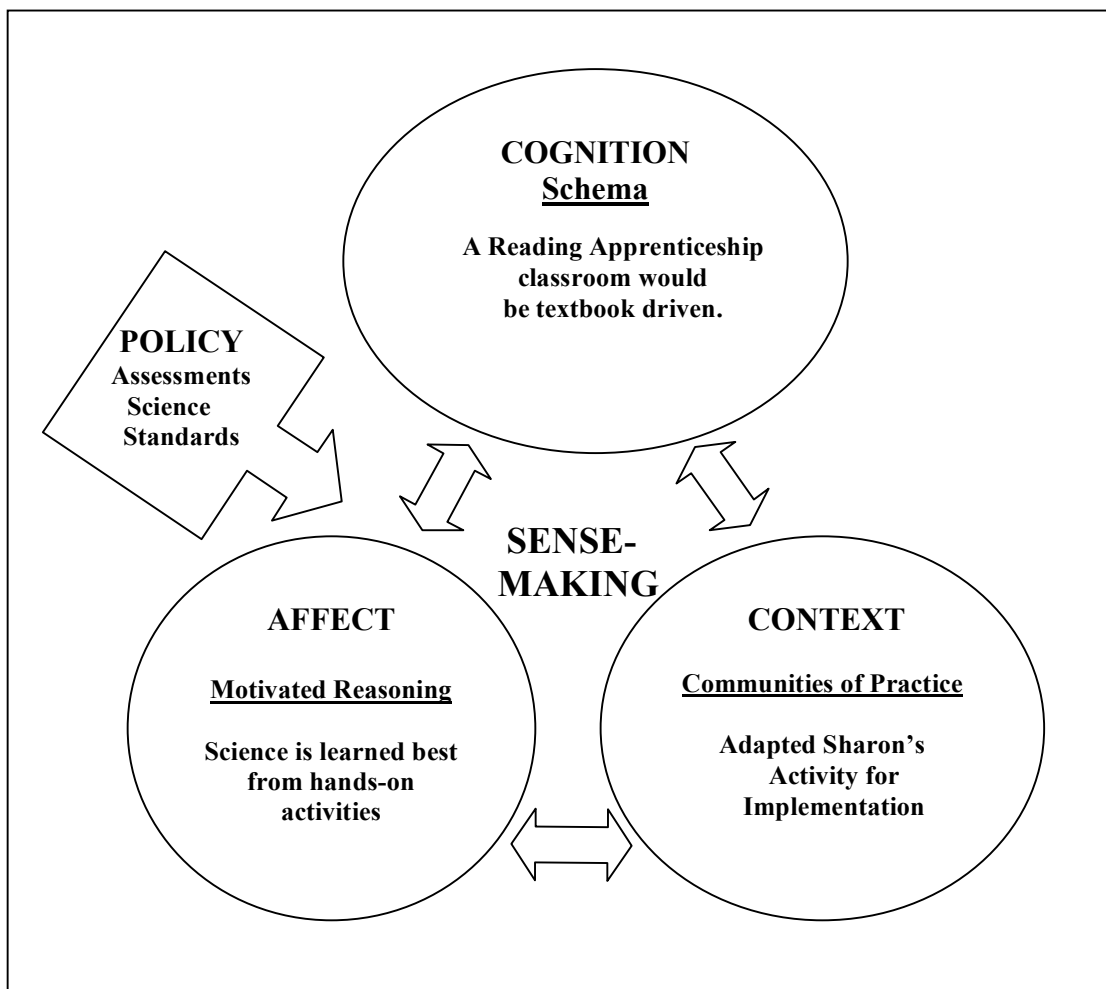
Yeah I definitely want to keep using two techniques, the think-alouds and the talking to the text. And I will try to balance things (implementation vs. what



he normally does)—you know how busy things get, it is hard to constantly incorporate new ideas, new methods and new techniques. There does need to be a balance.

Figure 5.1 (below) uses the conceptual framework to illustrate aspects of John Murphy’s sense-making of his implementation of Reading Apprenticeship in his science classes. The diagram highlights some of the themes that emerged from the data and that appeared to influence John’s implementation.

Figure 5.1. John Murphy’s Sense of SCLI Implementation in his Science Classroom.



Jill Jennings—Grades 6 and 7 Teacher

Jill was the newest member of the James Madison Middle School science team and was in her third year at the school. Jill moved to Center County after graduating from a college in a neighboring state and teaching agricultural science at a vocational high school in South Carolina for two years. After getting married and giving birth to her first child, Jill took time away from teaching to raise her family. She had a second child and eventually moved to Center County where her children attended school.

Jill was active in her children's Parent-Teacher Associations, worked for two years as a substitute teacher, and returned to work as a full-time instructional assistant at one of the county's elementary schools when her children entered high school. During the time that she worked as an instructional assistant, Jill returned to college to take courses that would renew her teaching license and qualify her to become certified in biology in the state of Maryland. After completing her certification requirements, Jill accepted a position to teach science at James Madison Middle School.

For the 2004-2005 school year, Jill taught three sections of Grade 6 Science standard level and two sections of Grade 7 Science standard level. The Grade 7 Science curriculum focused on the life sciences and included units on cells, body systems, genetics, and ecology.

Jill reported that she felt a personal connection to the students who might benefit from her use of reading apprenticeship.

Well you know, I just kind of flew through everything (text). So those are the kids that I relate to and those are the ones that I am trying to catch. As I am reading something I will say, ‘now wait a minute I have to go back and look at this again.’ And I will read it over again. And that’s what I get them to try to do without telling them, this is what you should do. It’s more like I’m saying, it’s okay if you have to go back.

Jill’s sense of reading apprenticeship implementation is that it is an initiative that contains strategies that can improve instruction and student learning. Instead of doing a lot of stand-and-deliver instruction, she became more involved in facilitating learning that engaged her students in her learning activities. Jill remarked that she was surprised how reading apprenticeship often “affects the ones (nonengaged students) who I didn’t think would get much out of it (the reading apprenticeship activity). They probably got more out of it than the ones that I thought would benefit most.”

Jill asserted that the use of SCLI strategies had helped her transform her teaching and had given her the confidence to experiment with new teaching strategies or modify some existing instructional activities. She illustrated this while describing an activity that she created and showcased at the end-of-the-year reflection meeting— an activity where students color-coded sentence strips to understand the reactions that occur in photosynthesis. Jill remarked,

I would never have done it if I hadn’t been doing reading apprenticeship all year long. I would have taken one look at it and said ‘Oh I can’t do this!’ I

never would have even tried it. I would have been thinking inside the box and this was a way for me to think outside the box.

Jill believed that her job is to help students grow up and be successful and that a successful teacher gets students to remember and recall information at a later time (i.e., transfer ideas into long-term memory). She asserted that, in an ideal setting, students control the learning environment and that the curriculum reflects the things that students will need to know for later success. Jill also believed that “students work best when they are actively engaged and that the most productive teacher–student relationship was the one where “I am guiding them and that they are kind of following along and figuring it out.”

Jill reported that she enjoyed the opportunities to meet with her peers and share strategies and that she had tried some new things as a result. She learned one strategy from Tara. “I’m trying more with pictures ... like draw me a picture—because they are okay with that. I’m thinking in terms of doing more with the imaging, and the picturing . . . they (the students) are much more receptive.”

In the lesson where I observed her implement a Reading Apprenticeship strategy, Jill successfully utilized a technique—the FQIP—that was recommended for analyzing students reading processes. Jill was the only member of the team to try this analysis strategy.

In terms of her implementation of Reading Apprenticeship, Jill was disappointed that she had to take some time away from trying SCLI strategies to concentrate on preparing students for the district assessments. “Their BCRs weren’t

good. The question on the third quarter assessment (BCR) was really hard. Even the first time I read it, I had to read it like three times to see what they were asking.”

Jill was also struck by an incident of student resistance that she encountered when she attempted to do a talk to the text activity. She had planned to implement the strategy with a reading passage for her Grade 7 students when they showed up in her class wearing signs that they had made at lunch that read, “No more talking to the text!” Jill indicated that the students complained to her that they were doing the same strategy in their other classes. She reported that the protest soon “spread to the other kids in the seventh grade.” Jill reflected,

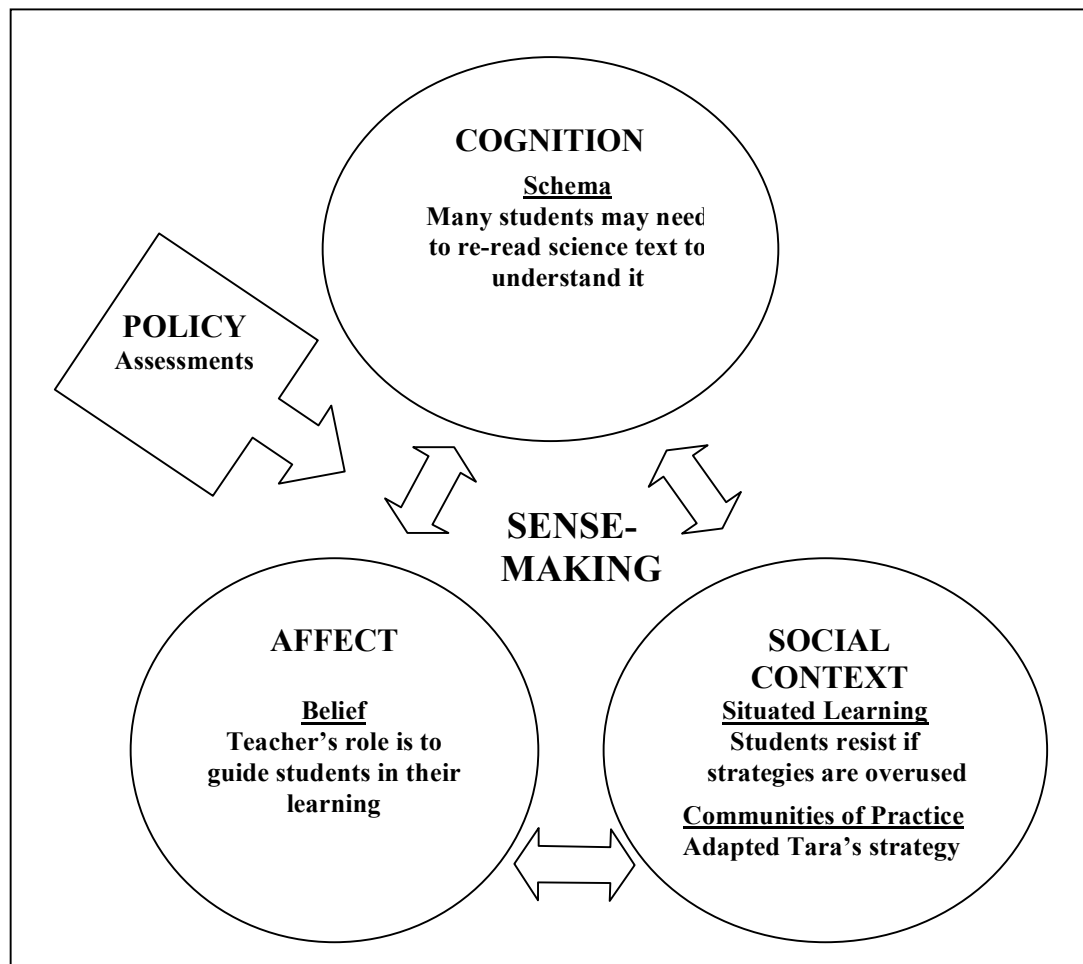
I learned from the protests from this group that I can’t do this too often, no overkill. It wasn’t so much that they were getting talking to the text from me so much as they were getting it from everyone throughout the building. And so, I realized that I could probably only do this once or twice a quarter so that they wouldn’t protest.

After the student protest experience, Jill found that it was best for her to disguise her use of reading apprenticeship during future implementation efforts.

In terms of future implementation, Jill was the only member of the science team to sign up for a second year of Reading Apprenticeship training, a new program that was introduced in the summer of 2005. She reported that she wanted to expand her use of Reading Apprenticeship for the following year: “Reading Apprenticeship is making me do things that I haven’t done before, go out of my comfort zone. This is not what I am good at.”

Jill concluded that SCLI had made her a much stronger teacher. She reported, “I’m definitely going to do more things like this (the reading apprenticeship activity she showcased at the end of the year meeting) next year.” Figure 5.2 uses the conceptual framework to illustrate aspects of Jill’s sense-making of her implementation of SCLI in her science classes.

Figure 5.2. Jill Jennings’s Sense of SCLI Implementation in her Science Classroom



Tony London—Grade 7 Teacher

Tony London, a teacher with more than 15 years of teaching experience, had been in Center County at James Madison Middle School for six years. He had

traveled extensively, received part of his education in England, and taught previously in two other states. When Tony moved to Maryland, he worked in a neighboring school district for several years, taught for a year in a private school, and joined the James Madison staff in 1999. Tony was the only teacher on the James Madison science team who taught in a non-science classroom. Whereas the other members of the team had designated science rooms with lab tables and storage facilities for lab equipment, Tony taught in a standard-sized room that had previously been used for other subjects and contained few science amenities. All of his students sat at desks, and there were four lab tables in the room where the students occasionally worked when they needed additional space. Despite the classroom's limitations, Tony indicated that he was able to run a lab-based program and frequently took his kids outdoors to learn when the weather was appropriate, and when it fit with the Grade 7 life science curriculum.

When interviewed about his progress with implementing Reading Apprenticeship, Tony apologized for not doing as much with SCLI implementation as he would have liked. He indicated that he had been concurrently taking courses in graduate school and was immersed in completing his master's degree. Tony stated that the time that he had spent in classes and working on assignments limited his ability to plan reading apprenticeship activities. "With having all of these graduate classes that I'm going to, I haven't been able to spend the time that I would like to have spent implementing the Reading Apprenticeship. Because of my course work at college, there are some things that I'd like to try that I haven't tried yet." During the

2004–2005 school year, Tony taught three sections of Grade 7 Science GT and two sections of Grade 7 Science standard level.

Despite his professed disappointment over not being able to implement Reading Apprenticeship, Tony’s sense of the initiative was that it had merit and addressed a fundamental issue that he had come to recognize.

I was very enthusiastic about it (reading apprenticeship) at the beginning because, over my years of teaching science, I have seen time and again that kids may read the words but they don’t get a lot out of it. It seems to go in one eye and out the other.

Tony felt that vocabulary development was an integral part of sound science instruction. “As a science teacher, I recognized that vocabulary was going to be the big stumbling block. I’ve always had an interest in words, and so from the very beginning I have sought to relate words to the students.”

Tony believed that the purpose of schools was to not only give students the knowledge that they need to be successful in school but also the skills to acquire additional information in their areas of interest. Tony also believed that classroom teachers control the learning environment but “the kids are the ones who we are serving so they need to have input to in how they are being taught.” He reported that an effective classroom “is one that produces results” and that to be successful, teachers must be flexible “because learning is such a complex process and kids are coming at it in all different places.”

Tony also reported that he enjoyed the opportunity to interact with other teachers in the communities of practice that were established around SCLI.



I always enjoy getting ideas from other teachers. I took some notes but I haven't tried another teacher's (strategy) yet. But I got them all. Several of them have been very attractive and I've gone to ask the teachers about other details about them.

Besides graduate school interfering with his ability to spend more time on planning lessons for implementing Reading Apprenticeship, Tony also cited local assessments and a lack of time to cover the curriculum as issues that affected implementation.

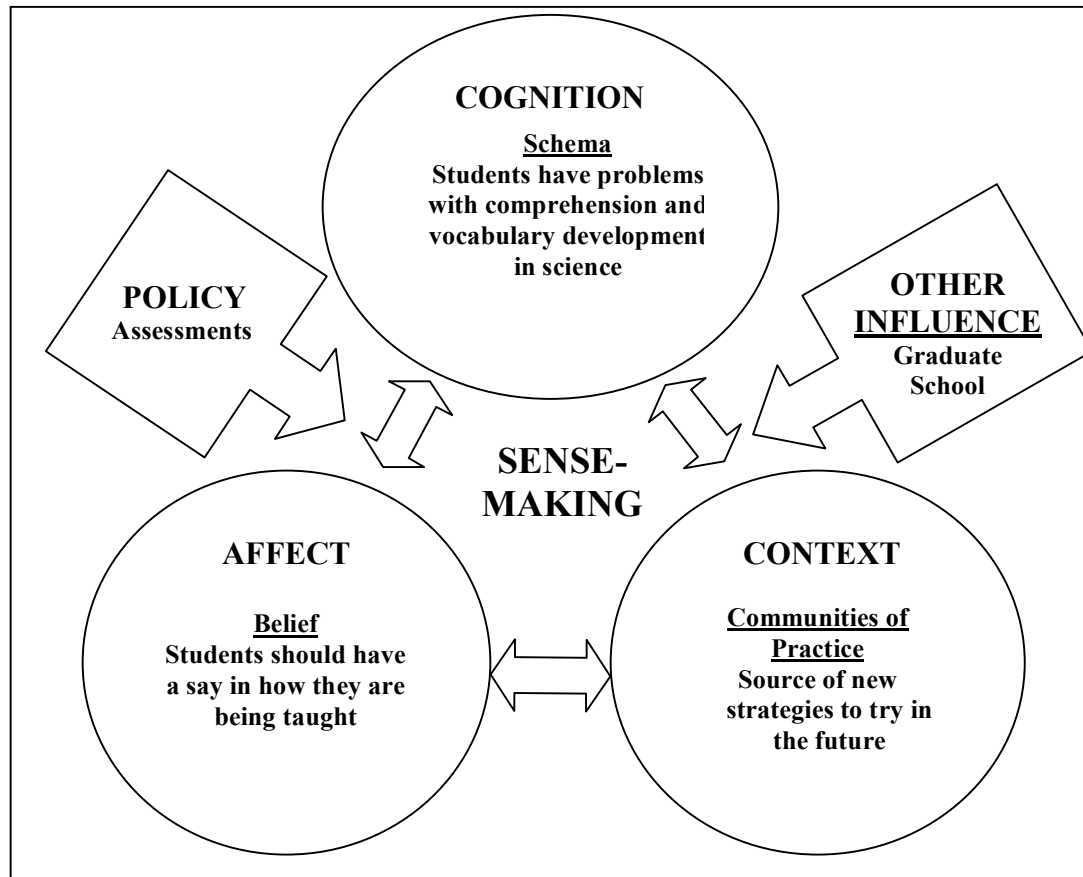
The problems I see with implementing the program are several fold. One of the problems is now we have the assessments to do and there is a lot of pressure, maybe because we are a school improvement unit or whatever. We feel a lot pressure from our administration to perform well on these assessments, so that has been a major thrust. And that takes a lot of time. We have less time to teach. And doing things like putting together a study guide, and spending a class period on it, all of these things take time.

Following the April interview, I was finally able to observe Tony implement a Reading Apprenticeship lesson on June 1, 2005, the day before the end-of-the-year meeting. Tony indicated before the lesson that he was no longer pursuing certification credit for reading apprenticeship. When he did not attend the end-of-the-year meeting on the following day, John reported that Tony said he was too busy with end-of-the-year class activities and could not afford to miss a day of school.

For the lesson observed, Tony successfully introduced metacognitive logs to his students after having them read an article related to ecology that was included

with the materials provided at the August training. Afterwards, Tony stated that although he did not do much in terms of implementing reading apprenticeship during 2004-05, he hoped to do more with it in the next school year. Figure 5.3 uses the conceptual framework to illustrate Tony’s sense-making of his implementation of reading apprenticeship in his science classes.

Figure 5.3. Tony London’s Sense of SCLI Implementation in his Science Classroom



*Secondary Participants’ Sense of Reading Apprenticeship*

Tara Fields Grades 7 and 8 Teacher

Tara Fields grew up in Baltimore and graduated from a historically black college in the Mid-Atlantic region with a teaching certification in biology. She started her career in a neighboring district as a middle school science teacher for four

years before coming to Center County and James Madison Middle School in 2001. For the 2004-05 school year Tara taught three sections of Grade 7 Science standard level and two sections of Grade 8 Science standard level. The Grade 8 curriculum immersed the students in one semester of chemistry and one semester of physics.

Tara was an active participant in the Reading Apprenticeship program and attended every meeting at the school offered for science teachers. When interviewed about Reading Apprenticeship, Tara reported that during the summer training she did not quite understand what the trainers were trying to accomplish and had a hard time connecting it to her position as a science teacher. She remarked, “It just wasn’t geared to science to me. They just never actually showed me a lesson. This is how you use this (Reading Apprenticeship) in a middle school science class.”

In addition, she found the terminology confusing at first, making her reluctant to try activities.

I didn’t find it (Reading Apprenticeship) useful for science at first. Talking to the text is an example of where I got my terms mixed up. When I saw later on that it was an activity where you leave the students a little more room to write notes in the margin, well that was wonderful.

Tara also indicated that she was relieved to find that she did not have to try to use activities that the trainers used to teach the participants about metacognition and unpacking students’ thinking. “I don’t have to do exactly what Mr. Brown did with the pick-up sticks. I can manipulate it and make it my own. It took awhile for me to get that.”

Tara's sense of Reading Apprenticeship was that it is a program that is filled with a lot of resources that she could choose and appropriate for her classes. She categorized her early implementation efforts in the following manner: "I flipped through the book (*Reading for Understanding*), and I mainly used the strategies that were in that book and that I liked."

Tara professed her belief that the purpose of schools is to "educate all children, no matter what their background." She stated, "All children can learn, no matter, whether they have an IEP or whether they speak another language. Our purpose is to educate the whole child—their character, and their academics."

She also believed that teachers needed to do what it takes to make students lifelong learners.

The amount of content covered depends on them (the students). If they need help with reading, then I might have to backtrack a little bit and not get as far as with the content that we wanted to cover. A lot depends on their level of reading and whether they are getting it (understanding content).

Tara reported that working with her colleagues in a community of practice around Reading Apprenticeship was rewarding.

To me, learning from everyone else has been the most beneficial thing. When we met every other week (at James Madison Middle School), that has been the most positive thing about the program—learning strategies that other people use, or how they kind of tweaked what they learned in the book."

Tara provided an example of this learning from her peers: “Kathy created a booklet with her students but I had my kids create a booklet summarizing the water cycle. We created a children’s booklet.”

Tara also reported that when she heard of student resistance to the use of Reading Apprenticeship, she adjusted her instruction.

Well we had a slight revolt—sort to speak—in Jill’s class. Some of the kids said, ‘we get this over and over and over.’ They were wearing signs. They didn’t want reading apprenticeship. I had to kind of sneak it (reading apprenticeship activities) in on them.

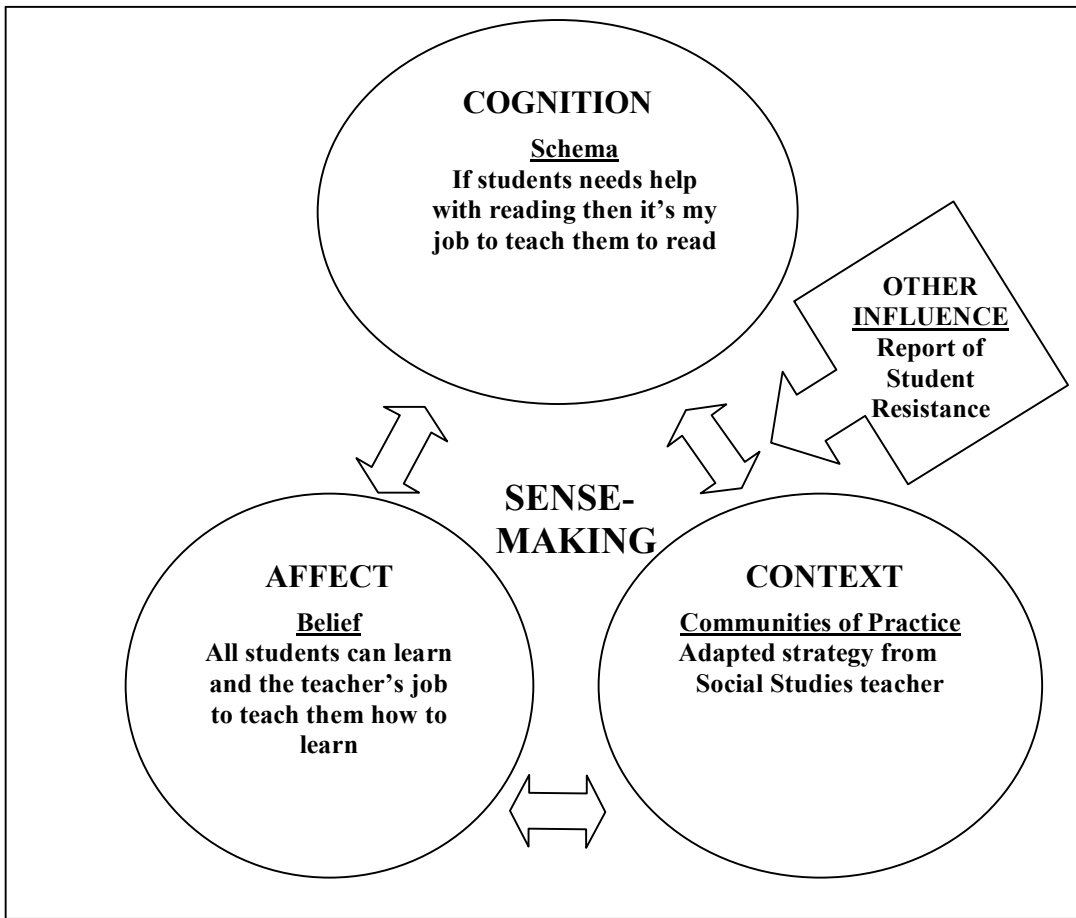
Tara stated that her students knew they were learning a new strategy, but they didn’t necessarily know it was related to reading apprenticeship.

I just didn’t call it Reading Apprenticeship. I would say, ‘You will become better readers, better note takers.’ I just didn’t choose to say it (was Reading Apprenticeship) because I was thinking to myself—well the social studies teacher already did this—and I didn’t want them to hear the same thing again.

For her future use of Reading Apprenticeship, Tara reported, “I’ll definitely use some of the strategies next year.” In addition, she indicated that because her assignment was being changed to a sixth-grade schedule, she anticipated using Reading Apprenticeship more with the students who were new to middle school and were in a science class for the first time.

Figure 5.4 uses the conceptual framework to illustrate aspects of Tara’s sense-making of her implementation of Reading Apprenticeship in her science classes.

Figure 5.4. Tara Field’s Sense of SCLI Implementation in her Science Classroom



Sharon Steele—Grade 8 Teacher

Sharon Steele came to James Madison Middle School in 1999, the same year that Tony London arrived. Sharon was a career changer. She had previously worked in another field, and after taking off time to raise her children, went back to college to obtain her teaching certification. She then taught in another district for several years before coming to Center County. During the 2004-2005 school year Sharon taught two sections of Grade 8 Science G/T and three sections of Grade 8 Science standard level.

Sharon was trained in Reading Apprenticeship as a participant in the 2003-04 SCLI Institute. As part of a group of four teachers, she followed a different training protocol than the teachers in the 2004-05 Institute.

Sometimes we met in different interdisciplinary groups, and sometimes in the meetings we met as a discipline. I did a whole complete week (of training).

But there was nothing here at the school. It was once a month that we met.

In June 2004, I saw Sharon present at the end-of-the-year reflection meeting for the 2003-04 Institute. Sharon distributed copies of her PowerPoint presentation that explained her implementation of a SCLI strategy designed to help students understand lab directions. Titled *Student Instructions for Labs* (Schoenbach et al., 1999, p. 126), this was the same activity that was later used by John. Sharon however did not modify the activity implemented it exactly as described.

John Murphy reported that he felt that Sharon's activity was effective because it reduced the amount of time that was needed to spend on reviewing procedures once a lab activity got underway. As a result, John adopted the activity and modified it. Sharon explained how and why she chose this strategy for implementation:

We were asked to formulate what we wanted to do, for the next year. Charles (Brown) just wanted us to pick one or two major goals. So I went through all the things about Reading Apprenticeship and just played around a little bit. So I asked, what is it that I would like to really see improve? And what my feeling was, and I have said this for a long time, they get a lab and they just read it in a second and they don't notice any of the details. And I was finding myself every year opening up the lab and saying, "This is what we're going to

do here, and this is what we're doing there, and no, this a problem that you might come up to when you get to this part" and I was upset. I was really literally spoon-feeding the labs to them. And when we discussed it as a group of science teachers, it sounded like everybody else was feeling the same kind of things. This Reading Apprenticeship activity addressed this problem.

When I saw Sharon present in 2004, it appeared to me that her use of reading apprenticeship was very similar to the MSPAP emphasis on helping students to read to perform a task—a recommended strategy that was in many of CCPS' science curriculum guides. I asked Sharon whether what she was doing was really addressing a MSPAP goal. Sharon agreed. "Yeah, that was reading to perform a task." She reflected,

That was one of big stances and science was always a good place to do that because you had real tasks that you were always doing. I always felt like not only the reading, but the group responsibility—you could see it deteriorating. There would be one kid—the person who always focused—basically one or two kids were doing the lab and the others were just fooling around, and copying the information. So, it looked like a good opportunity to get each member of the group to really be part of a group, as opposed to just an outsider.

Sharon believed that the teacher should provide structure to student ideas and foster an atmosphere of mutual respect. She described an ideal classroom as a "learning community, everybody is taking in, they are learning from each other and



are allowing each other the space to learn. So there's got to be some give and take between the teacher and the students.”

In terms of implementing reading apprenticeship for 2004–2005, Sharon reported that she still uses the lab strategy because it is useful but cautioned that it takes a lot of time. “In the beginning, every single lab takes 2 days instead of 1 day because you have got to hand out the material, give them the stuff, have them get together, and do the visualization. By the time I go through, you know, six or seven groups, the period is over.”

I asked whether the lab activity remained her main form of implementing reading apprenticeship and whether she had tried other strategies. Sharon professed,

That really is the major use that I've done. I did some talking to the text but for me, that has not been my focus. We've done it, but not in the same kind of consistent manner over the year.

Sharon indicated that, although she received the training in the previous year, she had attended three meetings related to Reading Apprenticeship at James Madison in 2005–2006. However, she confessed that the meetings did not motivate her to do more with Reading Apprenticeship and that overall it was not a good year for her in terms of her enthusiasm for the initiative.

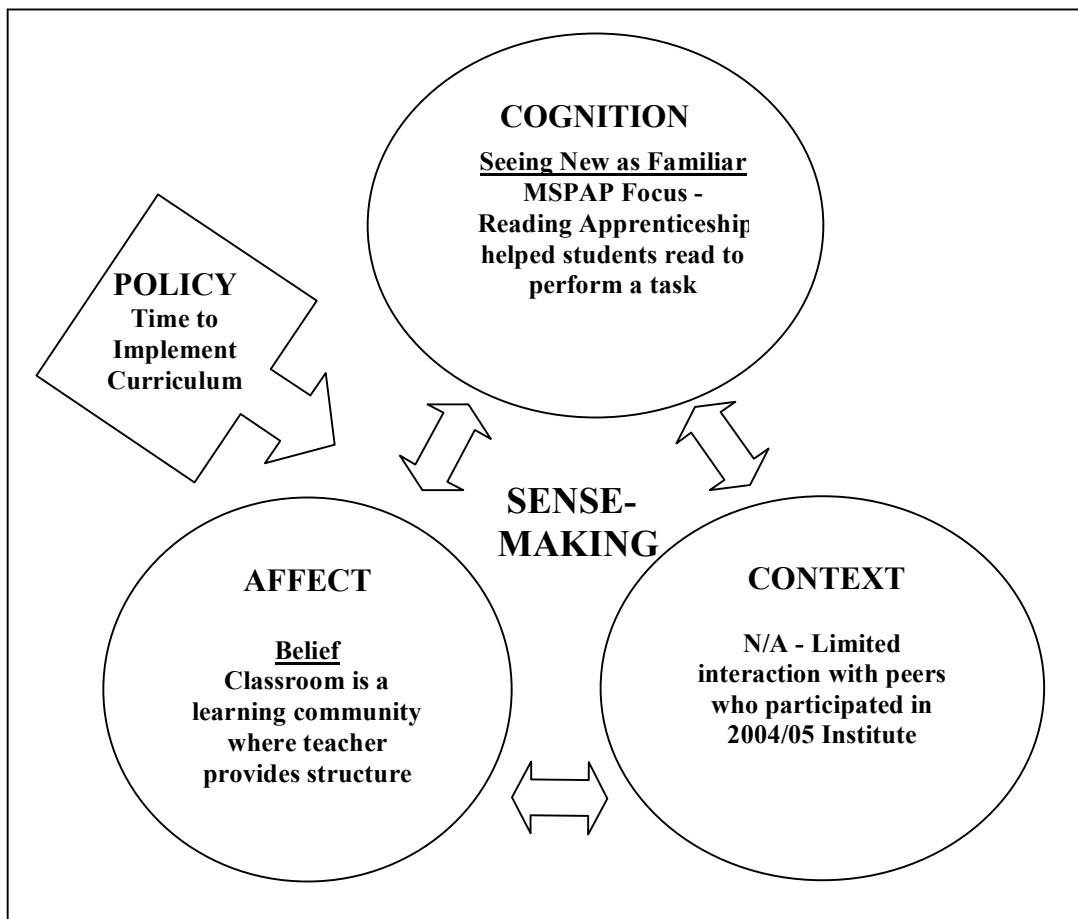
I was so excited last year. But this year for some reason I just felt overwhelmed with a lot of other things. And I think that although I've incorporated it in doing the labs, I'm not thinking about it in the same kind of way. The way I was thinking about it last year.

Sharon had a hard time identifying why she felt this way.

I don't know what it is. I don't know if there is one overwhelming thing. It is terrible that I just lost that real zing or enthusiasm for it. And that is not a problem with Reading Apprenticeship itself. I still think it is useful.

Figure 5.5 uses the conceptual framework to illustrate aspects of Sharon's sense-making of her implementation of Reading Apprenticeship in her science classes.

Figure 5.5. Sharon Steele's Sense of SCLI Implementation in her Science Classes



## Chapter 6: Cross-Case Analysis of Participants' Sense-Making

After interviewing each member of the science team at James Madison about their use of reading apprenticeship, watching three teachers implement lessons they had described during the interview, and observing the activities, conversations, interactions, and reflections of the team members at meetings held throughout the year related to the initiative, it became clear that each member of the team had a different sense of what reading apprenticeship was and how it should be implemented in a science classroom. At the same time, there were areas of agreement among the team members about the policies and events that affected their implementation and on the aspects of the initiative that they enjoyed. Although the conceptual framework was a useful tool for guiding an exploration of the factors that appeared to influence each participant's sense-making around the initiative, performing a cross-case analysis has provided an avenue for deeper understandings, as well as a means to identify themes and pattern matches.

Finally, my critical friends—Ms. Green and Ms. Jones—who served as trainers in the initiative, expressed their thoughts about the initiative and their role in shaping its outcomes. These views included their expectations regarding what implementation should look like, where they saw the participants in terms of their understanding and use of Reading Apprenticeship, and what they could do to improve their role in shaping participant sense-making.

In this chapter I present findings that resulted from multiple queries across cases and that address implementation, influencing factors, confusion about the initiative, and how the leaders addressed some of the implementation issues.

Implementation

During the course of the year, the participants reported a variety of activities that they had tried. Several of these were activities observed and/or had artifacts that verified that they were implemented. Each member of the team reported that he or she had tried it. Table 6.1 summarizes the strategies that the science team implemented during the 2004–2005 school year.

Table 6.1  
*Implementation of Reading Apprenticeship (RA) by the Science Team*

Strategy Attempted	RA Area	John	Jill	Tony	Tara	Sharon
Talk to text	MC	X	X	X	X	X
Think-aloud	MC	X	X			
Metacognitive log	MC			X-O		
FQIP	RPA		X-O			
Group reading	SD				X	
Lab visualization	CD	X-O				
Reading lab instructions	CD					X-A
Note-taking strategies	CD				X	
Vocabulary building	CD		X		X	
Two-column notes	CD		X		X	
Color sentence strips reading activity	CD		X-A			
Drawing images from text	CD		X		X-A	
25-word abstract	CD		X			
Graphic organizers related to passages	KBD				X	
Children’s booklet	KBD				X	

*Note.* X = reported implementation; XO = observed; X-A = artifacts re.; SD = social dimension; PD = personal dimension; CD = cognitive dimension; MC = metacognitive conversations; KBD = knowledge-building dimension; RPA = reading process analysis.

A review of implementation efforts by the science team shows that the one activity that everyone in the team had implemented was talk to the text. At the start of the year, John reported that he ran off a reading passage for the entire team to complete to practice this metacognitive strategy. In addition, the team did not do much in terms of implementing strategies for either the personal or social dimensions of the Reading Apprenticeship framework, two areas that the SCI literature suggested should be addressed early on in establishing classroom climate and engaging the learners. Also missing almost entirely from the teams' implementation efforts was the use of reading process analyses—strategies that are designed to help students unpack their own reading processes and appropriate new strategies to become better readers. Implementation by the team tended to be concentrated in the cognitive dimension, a domain that utilizes specific strategies to increase reading comprehension.

#### Implementation Patterns

Jill and Tara clearly did more with implementing Reading Apprenticeship than their peers. Analyses comparing the participants' attributes and beliefs with their level of implementation revealed some interesting findings.

Once established, a schema or worldview is difficult to restructure (Spillane et al., 2002). It is safe to assume that older and more experienced teachers are more likely to have formed a more deeply set worldview on some instructional matters by virtue of the fact that their experience has provided them with the opportunity to develop a deeper knowledge base. Jill and Tara had not been teaching at James

Madison Middle School as long as their colleagues, and they started their careers in Center County as the MSPAP test disappeared as the state's assessment instrument. With the knowledge that the MSPAP would soon be gone, CCPS had stopped providing professional development related to supporting reading by using Directed Reading Activities (DRAs). Thus, it is unlikely that their schema on supporting reading in a science classroom would have been influenced much by the strategies that CCPS had advocated—DRAs. John, Tony, and Sharon, in contrast, had been at James Madison Middle School long enough to have received a much greater exposure to DRAs through district or school workshops that identified how science teachers could assist students in becoming better strategic readers to successfully perform MSPAP tasks. It is possible that their schema toward reading in science classes had been more highly influenced by CCPS' DRA reading focus in its curriculum documents and professional development offerings.

Sharon admitted that her implementation of a cognitive strategy from *Reading for Understanding*, which helped students better comprehend and remember lab instructions, was probably influenced by the DRA emphasis on reading to perform a task. This admission supports a conclusion that her schema toward reading and science was formed from earlier trainings and that the activity she implemented was superficially similar to DRAs that she implemented before. John's willingness to adopt and implement Sharon's lab strategy could also be explained the same way.

In short, Jill and Tara had less exposure to CCPS' training and curricula materials related to reading than did John, Tony, and Sharon, making it possible that

their worldviews were not as formed and they were more open to implementing new ideas.

Another influencing factor could have been the teachers' schedules. Jill and Tara had teaching schedules that were split between two grade levels and were all standard-level classes. In contrast, John, Tony, and Sharon each only taught one grade level and had the opportunity to teach several sections of GT students. Because Jill and Tara faced greater planning demands (i.e., planning for two different curricula) and were likely to have a larger caseload of students who needed instructional support in reading, they may have been more motivated to find and utilize instructional ideas that would help their students read and learn better (motivated reasoning).

At the same time, it was reported that the school's GT students, many of whom were already strong readers, did not embrace the Reading Apprenticeship activities. After participating in a discussion activity with the John, Jill, and Tara at the June 2 end-of-the-year meeting, a special education supervisor reported that by using Reading Apprenticeship, the James Madison Middle School science team had learned to "take the fear out of reading" for their students in standard classes by breaking things down. At the same time, they had also discovered that "GT kids didn't gravitate to the strategies as well." For John, Tony, and Sharon, a smaller caseload of struggling readers, coupled with several sections of advanced readers, may have lessened the urgency to implement new approaches to reading and reduced their motivation to implement SCLI activities.

A final influencing factor may have been basic differences in belief systems regarding the mission of education and the role that teachers play. Jill and Tara were more closely aligned in their beliefs on the purpose of education, the content of a curriculum, the optimal classroom environment, proper conditions for learning, and student–teacher relationships. They emphasized that all students can learn and that education should focus on preparing students for productive futures. Both Jill and Tara professed that teachers and students co-create the learning environment, and they asserted that classroom-learning activities should be more driven by the learning needs of their students than by a body of knowledge that students need to learn. Finally, Jill and Tara both envisioned the student–teacher relationship as one where teachers guide students through their learning experiences and help create conditions where it is safe for the students to take risks.

Figure 6.1 summarizes the factors that may have predisposed Jill and Tara toward implementation. The diagram includes the activities that they implemented that were not directly covered in the SCLI training sessions but were found in some of SCLI’s resources and/or were shared by some of their non-science colleagues at James Madison Middle School. In Jill’s case this was the color sentence strip activity that she had reported on at the June reflection meeting. For Tara, this included the creation of a children’s book related to scientific information.



Figure 6.1. Influences that Predisposed Jill And Tara Toward Implementation

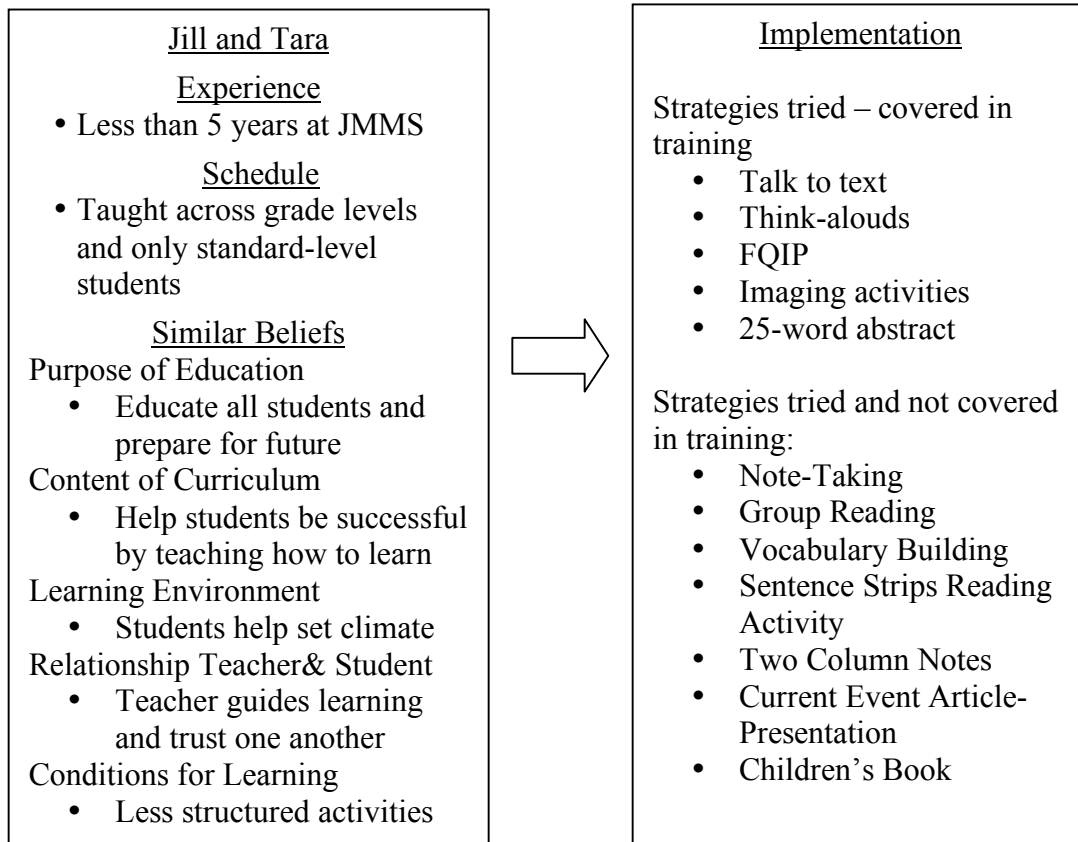
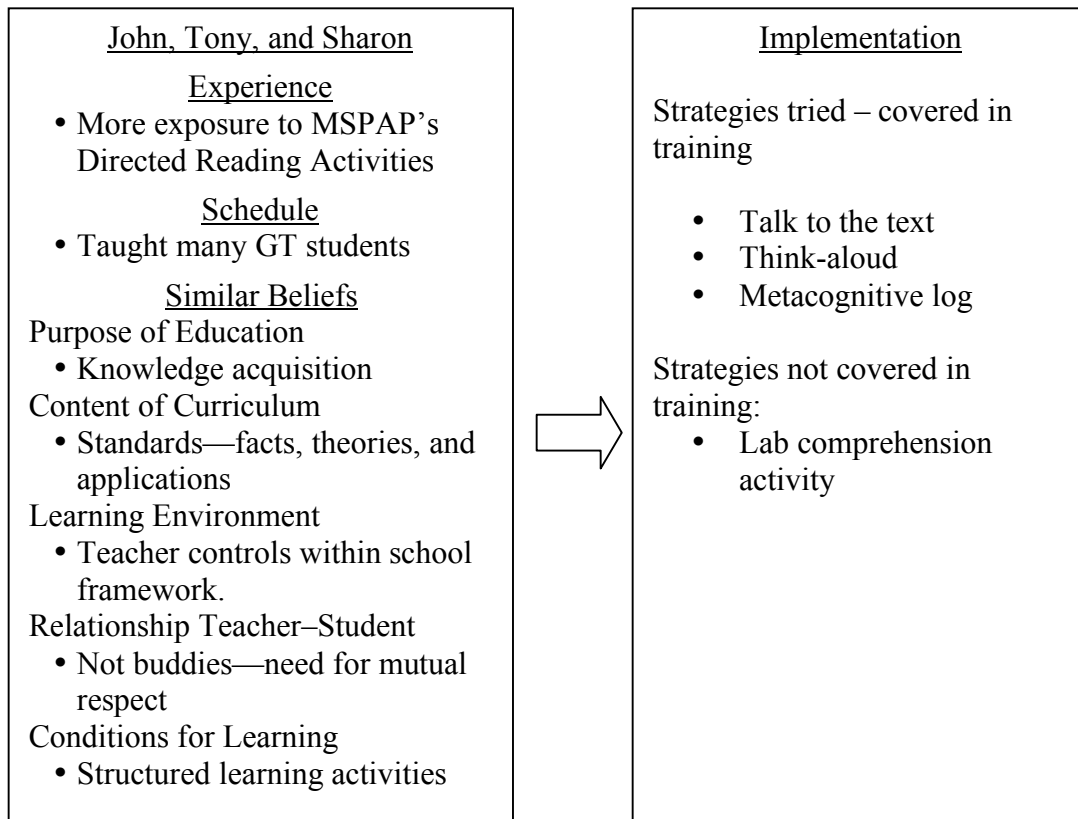


Figure 6.2 illustrates the experience, schedule, and belief systems about teaching and learning that John, Tony, and Sharon shared. In their worldview, the teacher is clearly in charge, structure and knowledge acquisition are important, and teachers are the ones who are responsible for creating a classroom environment that is built on mutual respect. These factors may have contributed to their being less disposed towards implementation, as well as the factors cited earlier—multiple sections of classes with advanced level readers who on the surface don’t need much reading assistance, and a greater amount of exposure to training and curriculum materials for supporting reading in science through the use of Directed Reading Activities.

Figure 6.2. Influences on John, Tony, and Sharon’s Implementation.



*Influence of Communities of Practice*

One aspect of the Reading Apprenticeship initiative that received positive reports from all of the participants and had a direct influence on implementation were the communities of practice established around the initiative—particularly the meetings that were conducted at James Madison Middle School. The participants reported that sharing sessions were an integral part of each school-based meeting and helped stimulate ideas about implementation. Several members of the science team were motivated by others to try something new. Table 6.2 shows the influences that resulted for each member of the science team from the communities of practice.

Table 6.2

*Influence of Communities of Practice on Implementation*

Participant	Example of Influence Community of Practice	Stated Significance
John	Adopted and modified strategy that Sharon had used with her students.	“The meetings have been very helpful. If it weren’t for those meetings I’m fairly certain I would have let it (Reading Apprenticeship) die out.”
Jill	Was influenced by Tara to use a Reading Apprenticeship activity that had students illustrate what they were reading.	“I’d given them a lot of group work this quarter but there were some complaints and some were checking out. Tara said something about illustrating, so I have them do a lot of illustrating. Read this and draw me a picture, draw me a picture of the change. And they’ve done well!”
Tony	Did not implement a shared strategy but took notes and filed away strategies for future use.	“I have found the meetings pretty useful. I always enjoy getting ideas from other teachers.”
Tara	Used an activity by a social studies teacher and modified it for her students.	“Working with other teachers has made me think about how I teach and how kids think.”
Sharon	Tried talk to the text with the rest of team at the start of the year.	“When I’ve gone to SCLI meetings, I’ve now come out with more specifics.”

Little Use of the Collaborative Learning Community

One aspect of SCLI’s communities of practice that did not fare as well as the school-based meetings was the planned use of the school district’s online collaborative learning community. A conference site for SCLI participants was established for each of the participants in the 2004-05, and Mr. Brown and Ms. Green had initially encouraged the participants to use it as a forum for asking questions and

sharing implementation activities. It was hoped that the online conference site would become a repository of lessons that the participants could reference when planning and looking for implementation ideas.

After a few initial posts by teachers—one by a high school science teacher—the conference posts slowed down and were eventually limited to communications by Mr. Brown and Ms. Green. Most of their posts were to remind the participants of meetings or to send out agendas and training materials. None of the members of James Madison’s science team made any contributions to the conference site and it was not clear if any of them bothered to read the posts.

#### Changing Interaction Patterns Within the Science Team

As the science team began to interact around the Reading Apprenticeship initiative, a change in their intercommunications was evident. At the first science team meeting in September, when all five team members were present, John asserted his leadership role and provided both the vision and materials that the team could use in its initial steps toward implementing Reading Apprenticeship. John printed out a reading passage for all of the team members to try in practicing talk the text, and he controlled the flow and focus of the team’s discussion throughout the meeting. However, John admitted that his attention to SCLI during team meetings soon began to change. “In our team meetings, I had to focus more on assessment results, the other part of our SIT Plan, and because of that, less on Reading Apprenticeship.”

What was later observed at the meetings during the spring of 2005—the end-of-the-year meeting, the training sessions conducted by Ms. Green, and the school meeting led by Ms. Jones—painted a much different pattern of communication and

interaction within the team. John took a back seat in almost all of the spring meetings and ceded much of the discussion related to Reading Apprenticeship to Jill and Tara. Tony sat with other participants and never interacted directly with his James Madison science colleagues. Sharon, who was not a 2004-05 SCLI participant, only attended a few of the school-based meetings.

The meetings/trainings set up by Ms. Jones and Ms Green around Reading Apprenticeship clearly had a much different pattern of interaction within the science team than the meeting James had set up at the beginning of the year. Jill and Tara shared the leadership role with James by virtue of their experiences with implementation. They tended to control the direction and nature of the conversations that occurred within the team. It was evident that there was a difference between the interactions that occurred with the science team meeting and the interactions that happened within the communities of practice established around SCLI.

#### *Policy and Other Influences on Implementation*

Jill and Tara had the highest degree of implementation of Reading Apprenticeship. Jill reported that the initiative had given her the confidence to try a new strategy with her students that she would never have attempted—the sentence coloring strip activity that she showcased at the end-of-the-year reflection meeting. Tara indicated that, although she did not quite understand some aspects of the training for initiative, she grabbed strategies that had worked for other teachers and tried them with her students, such as the children’s booklet.

John, Sharon, and Tony, in contrast, all reported influences that inhibited their implementation of Reading Apprenticeship strategies during the 2004–2005 school

year. John reported that his implementation of Reading Apprenticeship for the third quarter had “taken a back seat to the time and the business of the year.” Sharon admitted that her implementation was influenced by the fact that she had lost her enthusiasm for the initiative, despite that more teachers were using it at the school and it had become a school improvement strategy. Tony confessed that his graduate studies had prevented him from devoting the time that was needed for planning and using Reading Apprenticeship activities.

Besides the reasons listed earlier, the participants reported other influences that they felt adversely affected their implementation. Time was one that was mentioned frequently and in different contexts. It also appeared to be directly linked to other policy initiatives—the county curriculum, district assessments, and the MSA tests. Tracy Jones reflected on issues related to time from her perspective as the school-based leader of the initiative. “Yeah that’s really what I heard the most (complaints about time). The lessons took a long time and teachers felt like they were sacrificing their curricula.” One example to illustrate Ms. Jones’ assertion was Sharon’s use of a Reading Apprenticeship strategy to help students comprehend lab instructions better. Sharon reported that a tradeoff was the loss of instructional time: “Every single lab takes two days instead of one day.”

John also remarked about time from another perspective (i.e., the time that was needed by teachers for planning Reading Apprenticeship activities to be implemented). He pondered, “One of the questions I had, in thinking of all this (Reading Apprenticeship implementation) is how are we going to find time to alter, change lesson and incorporate new strategies and teach what we are supposed to

teach?” He stressed, “Yeah for myself at least I know it is a busy job. It is hard to try to learn more techniques and ways of doing things. It is a very busy job!”

Covering the curriculum adequately so that students could perform well on the district quarterly assessments was another area mentioned by some of the participants as influencing implementation. These assessments were in place for sixth graders for the second year and were being launched for seventh graders for the first time. They were scheduled for eighth graders in 2005–2006. Tony, a Grade 7 teacher facing the assessments for the first time, addressed the multiple demands now being placed on teachers:

We feel a lot pressure from our administration to perform well on these assessments, so that has been a major thrust. And that takes a lot of time. And doing things like putting together a study guide and spending a class period on it—at least one class period on it—are all things that take time. We have more to do and less time than we had to do it.

Jill discussed how the need to focus on covering the curriculum and preparing students for assessments made her focus for a period on BCR writing instead of Reading Apprenticeship strategies:

I was teaching them science content, and I was hoping it would carry over to their BCR writing. It didn't, so I spent a ton of time preparing for the second quarter BCRs, and on BCR writing strategies and everything. I just ran out of time!

Jill also recalled how MSA testing affected Reading Apprenticeship implementation

I was not only running out of time because I had all days cut out for MSA testing, but I found that the last thing the students wanted to do after they had been in a morning test for reading was to come here and read some more.

An unexpected influence that affected implementation and was reported by several members of the science team was the resistance to Reading Apprenticeship by some students. Jill reported that she experienced an active protest in her seventh-grade class when students entered her room and wore signs that read “No more talking to the text!” She recalled that this protest of a Reading Apprenticeship strategy that was being used in several disciplines soon spread to other students in the seventh grade. John recalled that this was also somewhat of an issue in the sixth grade, especially early in the year. Tara subsequently felt compelled to “sneak” Reading Apprenticeship activities into her instruction to counter anticipated resistance. Tony reflected,

I noticed one of the negatives of Reading Apprenticeship is that kids are kind of tired of being told about it. Some of them are like, ‘Oh gee, another talking to the text, another think aloud.’ I hope that they’ll get over that as they become aware that this is here to stay.

A final policy influence reported by two of the participants had to do with their understanding of the science standards and the nature of science instruction. John was the most vocal about this factor. He asserted his understanding that science is best learned through hands-on activities and concluded that if he focused too much on Reading Apprenticeship, his classroom would become textbook driven and he would stray from how science should be taught. Tara warned that Reading



Apprenticeship should not be the major focus of every science class. “For some kids I think it is too much.” Tara also remarked,

Because I always taught hands-on, and want kids to think about what they do prior to doing it, it (Reading Apprenticeship) helps a little bit in the beginning just to see where they were with reading and what they understand.

Table 6.3 summarizes the reported influences that the science team indicated had an adverse effect on their implementation efforts.

Table 6.3

*Policy and Other Influences Reported to Have Affected Implementation*

Factor	John	Jill	Tony	Tara	Sharon
Time needed to cover the curriculum	X	X	X		X
Time needed to plan SCLI activities	X		X		
District assessments	X	X	X	X	N/A
MSA testing	X	X	X		
Student resistance	X	X	X	X	
Loss of enthusiasm					X
Teacher certification requirements—graduate school			X		

An interesting finding that was produced through query searches of the data was that the participants never considered looking to Reading Apprenticeship literature to address some of the challenges that they were facing in trying to implement content literacy. For example, Jill discussed how she had to get away from implementing Reading Apprenticeship to ensure that her students understood how to answer BCR prompts, and Tony discussed how the district assessment forced

him to spend a lot of class time on test review activities. *Reading for Understanding*, however, addressed the topic of test pressures and advocated that “teachers think of tests as a unique genre” and work with students to “demystify their purpose, formats and expected responses” (Schoenbach et al., 1999, p. 146). This appeared to be a lost opportunity for SCLI implementation.

### *Confusion About Aspects of the SCLI Framework*

At the June 2<sup>nd</sup> end-of-the-year reflection meeting, John, Jill, and Tara demonstrated an apparent lack of awareness about parts of the Reading Apprenticeship framework and confusion over what actually constituted implementation of a Reading Apprenticeship strategy. In addition, based on my understanding of SCLI from my observations of related events at two Reading Apprenticeship meetings, and the participants’ responses to several of my questions during interviews, there was evidence that the science team did not fully comprehend aspects of an essential tenet of Reading Apprenticeship—the use of metacognition. The next two subsections address these findings.

#### Social and Personal Dimensions

During the end-of-the-year meeting, the attendees were given the task of charting out the Reading Apprenticeship strategies they had implemented during the year. Charles Brown stopped by the table occupied by James Madison’s science team and examined the chart they had used to list their implementation activities for the year. Mr. Brown interrupted the team’s conversation and remarked,

I think you may be doing more strategies (than you listed). Isn't it possible you are using Reading Apprenticeship all the time because you are attending to domains such as increasing their (students) knowledge in science (knowledge building dimension), and maintaining an environment where kids are collaborating and learning from each other (social dimension)? Maybe you are giving yourself too little credit! You are focusing on cognitive, strategic things, that it is just one aspect of that framework. To a certain extent when you internalize the framework—personal and social dimension, cognitive, and knowledge building, with metacognitive conversation running between them all—and maybe you may only be doing metacognitive conversations once a week—the Reading Apprenticeship is always there.

When Mr. Brown walked away, the three science team members in attendance appeared confused and briefly discussed among themselves what Mr. Brown meant. John wondered if everything they do in their class to help students learn could be considered to be reading apprenticeship? Tara and Jill shrugged their shoulders and proceeded to list some other strategies.

Following the charting session, John was charged with reporting out to the other participants what his team had listed for implementation. Mr. Brown interrupted John when he mentioned that he and the team had used foldables. Mr. Brown informed John and the other participants, “Reading Apprentice is a framework for learning and not a set of strategies or procedures.” Mr. Brown cautioned all of the participants that groups should not get in the habit of listing all the things that they do as learning strategies and regard them as Reading Apprenticeship.

Table 6.4 uses the participants' words as evidence for their confusion about the Reading Apprenticeship framework.

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Table 6.4

*Participant Confusion About the Reading Apprenticeship Framework*

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Participant	Evidence of Confusion – Participant Quotes
John	<p data-bbox="548 562 1341 709">It almost sounds like he (Mr. Brown) is going to the extreme where just about anything you do—even by someone who has never heard of Reading Apprenticeship before—is doing Reading Apprenticeship.</p> <p data-bbox="548 747 1341 961">The Reading Apprentice program could claim credit to Venn diagrams, claim credit to you know even a Jeopardy type of game for review? That is, if it somehow fits into this (John pointed to a diagram of with dimensions of the Reading Apprenticeship framework) it could count as Reading Apprenticeship?</p>
Jill	<p data-bbox="548 1003 1328 1073">I can see where he (Mr. Brown) is going. And I am not there every day. But I am probably there a lot more than I realize.</p>
Tara	<p data-bbox="548 1115 1373 1184">We may be doing Reading Apprenticeship when we teach our content areas?</p> <p data-bbox="548 1222 1373 1329">We have strategies (on the chart) that are not in the book that help students retain concepts but are not necessarily Reading Apprenticeship strategies. I guess if you dig deep they might be.</p>

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The point that Mr. Brown made that resonated with me but not with the James Madison Middle School science team was that when teachers do normal classroom activities that help establish some of the dimensions of the Reading Apprenticeship framework (e.g., conduct a survey to determine their students' interests [personal dimension] or review rules for group behavior and social discourse), then these activities also help the students later perform more complex tasks. In such a case,

they are considered Reading Apprenticeship activities because they are setting the table for such students activities as unpacking how they think (metacognition), diagnosing their strengths and weaknesses (reading process analyses), and appropriating strategies that will help them become better strategic readers (knowledge building). This process is quite different from selecting a learning strategy that may help students better retain information (e.g., creating a foldable or a crossword puzzle) but is not related to the more complex aspects of Reading Apprenticeship.

#### Metacognition

The central tenet of the Reading Apprenticeship program was the use of metacognitive conversations by teachers to become “cognitive coaches” who model their thinking and ultimately help students unpack their own thought processes so they can develop strategies to better comprehend text. The importance of metacognition was strongly supported by Ms. Green, who remarked,

I think that it (metacognitive conversations) is the absolute key to the entire program. I think that if what you’re doing is not working toward kids understanding what should be going on in their heads, then a lot of kids just don’t get it and they will get frustrated because they don’t know why they don’t get it. Really what we’re trying to do is apprentice these kids in metacognitive practices.

In addition, it was my contention that this effort could support an overarching goal for science education in Maryland—helping students master the ways of thinking and acting that are inherent in the practice of science.

Although each participant reported to have tried techniques that utilized metacognitive processes—primarily think-alouds and talking to the text—there was little evidence that these were recurring activities in their classrooms or that the goal when they were used was to ultimately foster the students’ self-discovery of their own thinking and reading processes.

When asked whether she engaged in metacognitive conversations related to the techniques that she introduced, Tara responded that at first she did not understand aspects of the training. She reported, “I haven’t done too much with it.” Sharon indicated that she had tried talk to the text but was vague about its application: “I tried it in the beginning (of the year), let’s look at this lab, does this lab make sense?” John reported that he liked to occasionally model his thinking for his students but did not do much with getting the students to unpack their thinking. “Yeah the thing that I have done, kind of sprinkled throughout, is the think aloud. Presenting it in a way where I am kind of pretending that I am reading it the first time, or I am actually seeing an activity for the first time and I am reading it out loud and sharing my thoughts as I proceed.” Jill used think-alouds and talk to the text more frequently than her peers. In addition, she was the only member of the team to attempt the reading process analysis strategy—the FQIP. However, when queried about her discussions about thinking and how she modeled her thinking as the “expert” working with a class of apprentices, Jill responded curiously that she did not play the role of an expert. “No I always put myself up as the dummy. I usually do it (a metacognitive activity) on the overhead, and I always put myself at the lowest level to catch everybody. And sometimes they laugh at me, and that’s fine.” Tony reported that he

tried talk to the text and a think-aloud early on, but, as with the rest of the initiative, he did not get around to doing much more in terms of implementation due to her graduate school commitments. Table 6.5 lists the participants' reported use of metacognitive strategies, the frequency with which they were used, and the purpose for strategy use.

Table 6.5

*Participants' Reported Use of Metacognitive Strategies*

Participant	Strategies Reported	Frequency (Rated by Researcher)	Purpose of Strategy Use
John	Talk to the text Think-alouds	Occasional	Instructor modeled his thinking
Jill	Talk to the text Think-alouds FQIP	Frequent	Got students to think about their reading processes
Tony	Talk to the text Think-alouds Metacognitive log	Infrequent	Helped students explore "basics" of metacognition
Tara	Talk to the text	Infrequent	Used to see where students were with reading and how they felt
Sharon	Talk to the text	Infrequent	Determined whether lab protocol made sense to students

*Leader-Shaping Actions*

Following the two-day August in-service, the James Madison Middle School science team participated with other science teachers from Center County in further training sessions led by Ms. Green. At the same time, they participated in meetings at James Madison Middle School led by Ms. Jones and to support their implementation efforts. As the designated trainers/facilitators of the initiative, Ms. Green and Ms.

Jones helped shape the policy message while trying to create conditions that were conducive for implementing Reading Apprenticeship. The following subsections examine how the leaders attempted to address some of the reported impediments to implementation and some of the most important aspects of the initiative. These included time, the district assessments, metacognition, and the nature of professional development that was offered.

#### Time Needed to Cover the Curriculum

The concern about time was voiced by science teachers as far back as the August training, when, near the close of the 2-day session, a teacher asked Mr. Brown, "How are we supposed to find time to cover the curriculum if we have to spend time on these doing these reading activities?" The response from Mr. Brown, who facilitated the training, was that "You have to go slow" (i.e., introduce and teach students to use Reading Apprenticeship strategies to help them master science related text) "in order to go fast" (i.e., get through the curriculum faster as students developing better skills for reading science material). The rationale was that when students became better strategic readers, they would learn science content easier and faster and could make up the time spent on Reading Apprenticeship strategies.

Ms. Green later tackled the question of time and covering the curriculum at the science teacher training for Reading Apprenticeship on March 22. She remarked, "There is content time devoted to content coverage and content time where what you to get from the kids is their understanding. So, if I stand up in front of my class and lecture for 50 minutes a day for 180 days a year, I will cover a lot of content. But we know that my kids are probably not going to learn a



whole lot. So the question is how do I balance content with using strategies that I know will build understanding?

Ms. Green pondered,

The corollary question to this is, if we have to use other strategies to make sure that our kids understand it, do we have too much content? We can say that we have the content covered but if the kids don't get it, what good does that do us? So there is a balance that has to be made between strategies that will help make the kids understand and the content that we have to cover."

Ms. Green concluded, "Ultimately that is something that has to be taken up with the state—are they asking us to cover too much?"

Ms. Jones admitted that she did not deal directly with the concerns about time to cover the curriculum but was aware that it was a dilemma that the teachers faced. "I think early on teachers got into lessons that took longer than they had anticipated, and then they dealt with 'well do I sacrifice my curriculum to implement Reading Apprenticeship?' These teachers were definitely pressed for time because of their curriculum." Ms. Jones indicated this was one reason that she did not push the teachers hard regarding implementation and told teachers to just try some strategies.

I didn't want to turn any teachers off the first year. I wanted to keep it (implementation) small and manageable with the most support I could give it, so that eventually we can get it there so there is that seamless transition between curriculum and Reading Apprenticeship, and they kind of work for each other.

As the year progressed, both Ms. Jones and Ms. Green encouraged the participants with whom they worked to try at least one strategy before the year ended so they could share what they had done at the end-of-the-year meeting.

#### District Assessments

Ms. Jones asserted that district assessments for middle schools, another new central office initiative, had a profound effect on the implementation of Reading Apprenticeship.

I think that teachers are feeling an inordinate amount of pressure to cover the curriculum for the quarterly assessments and here is this new initiative on top of it (Reading Apprenticeship), and although they are seeing results, there is still a newness with it.

She concluded that the teachers trained in Reading Apprenticeship faced the daily dilemma of time spent on implementation versus time to cover the curriculum for the quarterly assessments. Ms. Jones noted, “I think that’s the biggest roadblock that they have found.” Ms. Jones also posited, “I think that it (implementation) comes over time. I think that this is a new initiative, and I don’t think that the teachers are grounded in it yet.”

Ms. Jones described the vision that she and Mr. Sellers held for the use of Reading Apprenticeship:

Well, we really wanted teachers, the teachers that were being trained in content literacy, to get the most bang for their buck when working with our struggling reading population. And the thought was that if we could give them more tools for their box then they could really attack

their reading across the curriculum. And that in turn could help with the MSAs, the HSAs and district assessments. So ultimately we just wanted to boost the reading proficiency of our students across the curriculum.

Ms. Jones described how she and Mr. Sellers would use the district assessments to help measure the merit of Reading Apprenticeship:

Well, what we did specifically, we took one class from each teacher who was working with Reading Apprenticeship, and used that class to collect quarterly assessment data on. We really thought that would be the most succinct way to collect the data to measure effectiveness.

Using one class as a data class certainly doesn't mean that he (a Reading Apprenticeship teacher) hasn't been exposing all of his classes to Reading Apprenticeship. But we just thought for this year, "let's start with one class that is manageable for the teachers because there are so many other things that go into achievement." We are very busy school and there are so many other things. We just thought let's keep it manageable, let's see the results and let's get a starting point for the teachers.

At their school meeting in November 2004, James Madison Middle School teachers questioned the issue of using district assessments to measure the effectiveness of Reading Apprenticeship. A teacher from the social studies department submitted several questions about measuring Reading Apprenticeship's effectiveness with district assessment scores. They included:

Are reading assessments seen as a magic bullet to pull up assessment scores? Is this realistic? What is the purpose of data collection using assessments? Is it to inform instruction? Or is it to measure Reading Apprenticeship? Or is it to put a feather in Reading Apprenticeship's cap?

Ms. Jones acknowledged that these were good questions but she did not give a detailed response. She asserted that the administration's feeling was that Reading Apprenticeship is a high-leverage strategy and that it should have a positive effect on assessment scores if students become better readers. However, Ms. Jones also stated that a determination of how much the assessment scores would be attributed to Reading Apprenticeship remained to be seen. She indicated that she and Mr. Sellers would be examining the program and would use the assessments scores at the end of the year to make a final determination. The teacher did not appear to be pleased with Ms. Jones' response.

#### Use of Meta-Cognitive Conversations

Both Mr. Jones and Ms. Green attempted to discuss the use of metacognition and assess where the participants were with its use in their implementation of Reading Apprenticeship. Ms. Green initiated a discussion about metacognitive conversations at the training meeting on March 22. She asked the assembled science teachers, "How many people find they are doing more demonstrating of what is going on in their heads for their students" (modeling thought processes)? No one raised their hands, so she elaborated: "Like when you are doing talking to the text for the first time, where you just kind of make what is going on in your head—the metacognitive processes in your head—more visible to your students?" Again, there

were no responses. Jill nodded her head while John and Tara simply sat there. Ms. Green asked, “What have you been learning about your students from this?” Ms. Green used wait time, and there was a long pause. When it was clear that none of the participants wanted to discuss metacognition, Ms. Green moved on to another part of the agenda after summarizing:

I see some people shaking their head yes. I think it (the use of metacognitive conversations) is very powerful. They (students) don’t know how to use their brains well—just like anything else and they need to be taught. They need to be taught by example as much as anything else, and that should be a really interesting sort of thing. I didn’t do that often for my students (when she was a classroom teacher). I assumed that they could figure it out.

Ms. Jones also attempted to explore the use of metacognitive conversations with the Reading Apprenticeship teachers at James Madison Middle. At the April 11 meeting, she reviewed two agenda items that she wanted to cover. One was, “What can we do in our classrooms to get that metacognitive angle in there?” She elaborated, “I think that it is a tough skill to teach. And there are some definite strategies that focus on that more than others.” She concluded, “My goal is that we must be more cognizant that whatever strategy we use, we will put a metacognitive spin on it so we can enhance and extend the knowledge that is going on in our classrooms.”

When the meeting moved to the topic of metacognitive conversations, Ms. Jones told the teachers that she first wanted them to discuss, “How can we take Reading Apprenticeship to the next level? What activity might you try and put a

metacognitive spin on it?” The teachers sat together in groups and began a discussion. I sat with Sharon, Tara, John, and Jill. Tony sat with teachers from another discipline. Tara and Jill first discussed carrying out a possible portfolio activity for the end of the year with the students that had them research current events. Jill next moved the discussion to her use of a 25-word abstract on chemistry. She indicated that the students cannot seem to find right thing—that perhaps the assignment is too hard and she worried that she might lose them.

The conversation among the other science teachers soon shifted to the activities that they might do. However, they never addressed the use of metacognition. Sharon summarized her lab-summarizing activity with Jill and how she had modified it with white boards, poster paper, and other products. The conversation soon shifted to lab activities and other assignments where a similar approach might be useful.

In the end, the science teachers never addressed the use of metacognition. Ms. Jones circulated around the room during the discussion and listened in briefly, but she never brought the whole group back together to summarize what the members had discussed about the use of metacognition. Instead, Ms. Jones concluded the meeting by briefly addressing the group and noting that since there was a lot of great discussion going on, and that she did not want to interrupt the flow of ideas.

When asked in an interview about metacognition and its importance to Reading Apprenticeship, Ms. Jones reported,

I really grappled with the whole concept of metacognitive conversations with sixth graders. I just didn’t know if they were developmentally there. Because

the whole concept of metacognitive thinking is tricky, it is really tough. So, I would say that there are some teachers that are better. Shannon, our social studies teacher, she nailed it. She nailed all four domains (dimensions of Reading Apprenticeship) all the time. She really bought into this. She made it her classroom. She made it her way of doing business. I don't know, there are some teachers, especially with the interpersonal, that they don't necessarily have that to begin with. So bringing it into their classroom, regardless of the strategy, I think is a little tricky. But I think that the sixth graders got it more than I thought they would in terms of their cognitive thinking. I definitely think that's a higher-level skill, but I think if presented properly, the teachers can really buy into it and model it. I think modeling is perhaps the most important thing in Reading Apprenticeship.

#### Nature of the Professional Development

Ms. Jones and Ms. Green demonstrated that they had different perspectives on their roles as leaders in the Reading Apprenticeship initiative, how Reading Apprenticeship should be woven into their classes, and the strengths and weaknesses of the professional development that had been established around the initiative in 2004–2005.

Ms. Jones described her leadership role as one where she was a facilitator of the initiative and a supporter of the teachers' efforts.

I really saw myself as truly more on the administrative end of things—reminding people when the meetings were, here are the topics we are going to talk about, do you need anything, here's some coffee and

muffins, let's get your day started. So I was more of like the cheerleader behind all of it, because I didn't feel as though I was the expert on it. I felt if anything they knew more. I went to the training with them but they were the ones really on the front lines implementing it. They are really the experts.

Ms. Jones also reported that events related her role in the 2004-05 Institute had changed her perspective on Reading Apprenticeship implementation.

When I was trained in content literacy, I really thought reading apprenticeship would be something you could infuse into your daily curriculum, into your daily lessons. What I found in speaking with the teachers a lot is that some of the Reading Apprenticeship stuff and some of the strategies are too time consuming. They can't be used every day.

Ms. Jones concluded that she was happy with how the professional development was structured in terms of her role and what went on at James Madison Middle School.

I really wanted our meetings to be comfortable. I didn't want it to be dreaded—you know how some teachers are about professional development, “Oh my goodness we have another meeting.” I really wanted them (the meetings) to be something personal for them. And Mr. Sellers didn't even attend the meetings. It was just something we did and I think was beneficial. I'm glad that we did it that way and I want to continue doing it that way. And I certainly don't think it could



hurt having a third year Reading Apprenticeship teacher kind of leading or facilitating some of the meetings. Maybe I could then step back a little more.

As a designated trainer of Reading Apprenticeship activities, Ms. Green viewed her leadership role from a different perspective than Ms. Jones.

I was part of the leadership team for Reading Apprenticeship and we figured out a different approach to run the training (from the Year 1 Institute). We would require only two days in the summer from the teachers and over the course of the year, run a series of workshops and I was going to lead the science group for those workshops.

When asked how she thought the science teachers who participated in the 2004-05 SCLI training wove Reading Apprenticeship into their instruction during the year, she categorized their approach as a grab bag of tools to use with kids on an as-needed basis. Ms. Green cited the nature of the professional development and training that they received as a contributing factor. "Each time we met with them we highlighted another tool and there were lovely lessons to go through which were very well developed and very well thought out." Ms. Green asserted that the focus of these sessions was not on establishing the apprenticeship relationship. Rather, the sessions seemed to promote a message of "try this tool, try this technique."

As a result, she concluded that the implementation of Reading Apprenticeship by the science team at James Madison, as well as other schools, was focused toward activities related to the cognitive dimension of the Reading Apprenticeship framework.

Ms. Green described an alternative model for the professional development that was needed to promote meaningful implementation,

I was getting less satisfied with this idea that Reading Apprenticeship was a bunch of tools that you could add to your tool kit, that you could pull out “talk to the text,” or you could pull out a “25-word abstract” and just do it, and that that was really getting to the heart of content literacy.

Ms. Green remarked that a recent Reading Apprenticeship training she had attended at WestEd had changed her perspective:

I’ve just come back from a one-week workshop in California, where I was able to participate a little bit, but was really there just as an observer, and where I met a group of biology teachers. I was meeting with one of the trainers, one of the people who was very deeply involved with this project, who by training was a science teacher. And watching those people go through their training and how the science people interacted, clarified some of the things that I was dissatisfied with this past year.

Ms. Green stated her view of the central importance of metacognition to the initiative:

Every time that kids are asked to read, discuss, asked to do anything ... part of that process should be “What’s going on in your head? Talk about what’s going on in your head such as how you know what you know. What do you think you know? And how did you get to those

things?” So that kids start to be aware of how they think, not just what they think.

Ms. Green described how a new approach to professional development—more training time on allowing teachers to plan their normal classroom activities—could help teachers make connections to how Reading Apprenticeship can be woven into their instruction. Ms. Green first illustrated what she perceived as the mental process that many CCPS teachers had been thinking as they planned Reading Apprenticeship implementation,

So I’m going to stop what I’ve been doing. I’m going to teach them how to do a talk to the text, and bring in something that’s out of their field of expertise and model it since there’s lots of modeling. And this modeling lesson is probably going to take half a class period. And then I’m going have the kids practice it with this article that I’ve pulled out, and then we’re going to go to their textbook.

Ms. Green concluded, “And soon it becomes this thing that is three or four days long and teachers quickly conclude, ‘Wow that’s slowing me down, I have stuff I’ve got to do!’ ”

Ms. Green contrasted this way of planning with the new approach she had learned. This approach asks the teachers to sketch out the first few weeks of the year in terms of what they want to accomplish. During this process, they work with a content literacy trainer who helps the teachers weave Reading Apprenticeship strategies into their normal routines. Ms. Green illustrated what might transpire in a conversation between a trainer and a teacher:

Well, the first day of school you hand out a syllabus and a letter home to parents. Why don't you have the students highlight the letter that you send home to their parents, the things that they think are most important and take two or three minutes in class to think-pair-share on the things they think are most important? These little things along the way are just stuff that are part of Reading Apprenticeship that you are doing already with a different twist to them.

Ms. Green described that by introducing Reading Apprenticeship in small doses and by connecting it to normal classroom routines, you can see that by the time you're three weeks into the year and you just did your first major textbook reading assignment—you've already modeled a lot of what they've already done, you've already introduced a lot of skills without stopping, without making it real obvious, just built in to the flow of the classroom right from day one and you didn't have to say "I am talking to the text." You would just read something aloud and say "I wonder what that means," it becomes just the way that you do things in class.

From her experience in California, Ms. Green discovered,

There were some teachers in the training who were hard to sell on Reading Apprenticeship, very traditional teachers who felt very strongly that their way to teach was the best way to do it, and the kids who weren't getting it just weren't working hard enough. By the end, they were meeting in a large group and discussing their plans,

commenting and offering constructive criticism to one another—which in and of itself was really powerful—to know how other teachers start the year and to get ideas. It started to click for them, and they started to see how seamlessly they could work Reading Apprenticeship into their year.

Ms. Green concluded,

It required a lot of change on their part, on how they were going to approach their classroom and in particular, how they were going to address texts in general—not just textbooks. They were looking at lots more opportunities to ways—instead of just “For homework, you’re going to read these sections and answer these questions.” But, they were also able to see that they weren’t stopping to do Reading Apprenticeship and then picking up to move on.

#### Summary

As two of the leaders of the Reading Apprenticeship initiative who worked with the science team at James Madison Middle School, Ms. Green and Ms. Jones fulfilled different roles in terms of implementation. Part of this was by design, with Ms. Green charged with training science teachers on strategies associated with the program and Ms. Jones tasked with creating conditions to help facilitate school-wide implementation. For the most part, Ms. Jones was satisfied with the school-based component of the SCLI program. In contrast, Ms. Green had strong feelings about how the training could have been improved.

Both Ms. Jones and Ms. Green were confronted with a major implementation issue that emerged from the August training: How do teachers find the time to implement Reading Apprenticeship? For Ms. Jones, this issue was further complicated by James Madison's linking of Reading Apprenticeship to the new district quarterly assessments. Several teachers wanted to know how the assessments measured the efficacy of Reading Apprenticeship, and they asked how they could spend time on implementing Reading Apprenticeship when they were being judged by the assessments? In many of the sessions Ms. Jones, as well as Ms. Green, moved the discussion to a solution that advised the participants to implement whatever they could and when it fit in with what they needed to teach. As the year progressed, they asked the participants to implement at least one strategy.

In addition, Ms. Jones and Ms. Green made attempts to discuss the metacognitive conversations, an essential aspect of the initiative and a complex process, with the participants. In both cases, they received little or no feedback from the participants, and decided to skirt over the question and move the meeting on to other matters, leaving this central component of Reading Apprenticeship largely unaddressed. Table 6.6 summarizes Ms. Green and Ms. Jones' thoughts and/or actions related to some of the key issues related to implementation.

Table 6.6

*Leaders' Thoughts and/or Actions Related to Implementation Issues*

Leader	Roles as Leader	SCLI and Use of District Tests	Time to Cover Curriculum	Importance of Participant Use of Metacognition	View of SCLI Training
Clarisse Green	Expert Trainer of SCLI strategies Technical Advisor	N/A	Advised not to confuse covering the curriculum with teaching for learning. Encouraged staff to try a strategy.	Central tenet of content literacy that must be addressed. Did not follow up during training.	Needs to change so that more time is devoted to planning.
Tracy Jones	Nonexpert Cheerleader Supporter	Supported the link to evaluation of content literacy by district exams, would determine later how they was done.	Encouraged staff to try a strategy whenever they got a chance. Stated belief that teachers should go slow and use as time permits.	Tough skill to teach. Not sure whether it is appropriate for sixth graders. Did not pursue deeply during meeting.	Fine as it was. Goal to make teachers feel okay about meetings.

In short, while providing valuable training and/or helping to create conditions for sharing and reflective practice, Ms. Jones and Ms. Green also did not provide clarity for the questions the participants had.

## Chapter 7: Discussion

### Problem and Purpose of the Study

The \$22.5 billion reauthorization of the Elementary and Secondary School Education Act in 2001, commonly referred to as No Child Left Behind (NCLB), was based on the belief that, by setting standards and measurable goals in reading and mathematics, individual outcomes in education could be improved. To receive federal money, states were required to develop assessments in basic skills in these subjects and to measure these skills each year in Grades 3 through 8 and in Grade 10 of high school. NCLB set off a sequence of events that have had a profound impact on each school district in the state of Maryland.

NCLB has dictated that each state must set targets for overall achievement and for specific categories of students, such as English language learners or students receiving free and reduced meals. The targets that were set have helped determine whether schools make “adequate yearly progress” as measured by state standardized tests. The ultimate goal for NCLB is for every student in public school to be considered proficient in reading and math by 2014. Under NCLB, a school is considered failing if even one of its subcategories of students fails to make substantial progress toward meeting the standards.

For the state of Maryland, the passage of NCLB meant that it had to completely change its K-8 assessment system. The Maryland School Performance Assessment Program that was put in place in 1993 had measured school-level performance and improvement, not individual student performance. To prepare students for MSPAP Reading, Center County’s content teachers were trained on using



Directed Reading Activities (DRAs) that were added to their curriculum resource guides. For its middle school science teachers, the DRAs addressed two MSPAP outcomes—reading to perform a task and reading to be informed.

With the passage of NCLB, however, Maryland was forced to create an assessment system that tested students on an annual basis in reading and mathematics and produced individual student performance data. The result was the Maryland State Assessment (MSA) and a new state curriculum framework for reading and mathematics, known as the Voluntary State Curriculum.

Around the same time that NCLB became federal law, the Maryland legislature (2002) passed a new state law that was designed to bring adequacy and equity to the state in terms of funding schools. Known as the Bridge to Excellence Act, the law required each Maryland school district to develop a comprehensive master plan that described the strategies it would use to improve performance in every segment of the student population. The result was that despite research that has shown that school district strategic plans have poor track records in terms of affecting instruction and improving schools (Fullan, 2003), school improvement planning (i.e., instructional policymaking) had returned to the district level.

In response to the change in the state's assessment system, and the requirements of the Bridge to Excellence Act, the Center County Public School System changed its approach to teaching reading in middle school content classrooms. Instead of emphasizing Directed Reading Activities, the school system now encouraged its content teachers to use Reading Apprenticeship, a program that used cognitive coaching to help students improve their reading performance. The

new program, officially called the Strategic Content Literacy Initiative, was listed in Center County's BTE Plan as a program improvement initiative. SCLI was also framed as a high leverage strategy for school improvement.

In summary, the Strategic Content Literacy Initiative can be considered to be instructional policy. As such, this case study, which focused on the implementation of Reading Apprenticeship at James Madison Middle School—can be considered a study of policy implementation.

The problem that this study addressed was that education policy implementation is an overlooked aspect of policymaking that needs further study. There has been a tendency to assume that once policy is enacted, things change (Cooper et al., 2004) while there is also little evidence on how teachers understand policy while they attempt to connect it to their practice (Spillane, 2004). The study focused on the implementation of Reading Apprenticeship, a program designed to assist secondary content teachers with helping students become more confident, engaged, and strategic readers. CCPS devoted significant resources to this program and adopted a five-year strategic plan to spread Reading Apprenticeship to its secondary schools as a program improvement initiative contained in its BTE Plan.

The purpose of the study was to examine the sense-making of Reading Apprenticeship by a team of science teachers at James Madison Middle School as they received training and attempted implementation of the program. James Madison was an ideal site for the study because the school had adopted SCLI as one of its primary school improvement strategies, sent 18 of its teachers to be trained, and agreed to support the initiative at the school level by organizing and facilitating a

community of practice for the implementers. James Madison's commitment to SCLI helped produce a study that examined the implementation of a top-down strategy that received bottom-up, capacity-building support.

### Major Findings and Conclusions

The research performed in this study examined the sense-making of a team of middle school science teachers implementing Reading Apprenticeship in their instructional practice. Each of these teachers had participated in CCPS' 2004-05 SCLI Institute, a program designed for secondary content teachers to improve the motivation and reading capabilities of their students in their particular disciplines. As a participant observer in the SCLI Institute, I was able to collect data from a variety of sources, including interviews with the participants, observations of meetings related to training and/or support, observation of implementation with students, and documents related to the initiative. The methodology for analyzing the collected data utilized two strategies: (a) a within-case analysis of the sense-making and implementation of each participant, and (b) a cross-case analysis of the entire science team. The cognitive framework for sense-making (Spillane et al., 2002), that was part of the conceptual framework for this study, was useful for the data analysis. It started with the assumption that cognition—an individual's existing worldview or schema—is heavily influenced by prior knowledge and is hard to restructure. This influence often causes an individual to see new ideas as familiar or to confuse superficial similarities with deep understanding. Schema can also be influenced by an individual's beliefs and values and/or by the social context where sense-making occurs. Leaders play a role in sense-making by helping to shape the policy message

and create conditions for social sense-making to occur. The use of the framework and the methodology used in this study produced a set of findings related to the initiative described in the previous two chapters and enabled me to formulate a series of conclusions regarding the study. The following sections are useful in categorizing these findings and conclusions.

#### Different Interpretations of the Same Policy Message

Despite being exposed to the same information and training related to Reading Apprenticeship, the science team at James Madison Middle School demonstrated different understandings and degrees of implementation of the initiative. The teachers' beliefs about science instruction, support of reading, students and learning all contributed to this difference and supports the conclusion that there were different interpretations of the same policy message.

#### Framing the Policy: Finding the Target

One of the fundamental questions that I pondered before enrolling in SCLI's 2004-05 Institute resulted from how the initiative was being depicted and framed in the presentations to school principals from two different curriculum offices. It left me wondering: Who is the intended target of content literacy?

Charles Brown, the Coordinator of the Office of Language Arts and the individual who brought the initiative to Center County, presented SCLI as a program improvement and high-leverage strategy for schools to consider using as part of their school improvement efforts. He described Reading Apprenticeship as a teaching framework that would help all students become better learners. The Center County

Reading Office, however, classified SCLI as one of a series of reading intervention programs that schools could use to assist students who were not proficient in reading and needed “moderate” assistance.

This disparity regarding how the policy (SCLI) was framed (i.e., program initiative for all school vs. a reading intervention program) and who it was ultimately intended to assist (i.e., help all students better readers vs. improve the reading performance of students classified as needing moderate intervention) was never clarified during the SCLI Institute.

James Madison had adopted SCLI as a program initiative that was beneficial to all students and should be implemented by all of its content teachers. As such, it never specified with which classes the program should be used. Implementation data in science, however, hinted that the program may have received greater implementation if it had been more strategically targeted towards students needing reading assistance.

Jill and Tara experimented with Reading Apprenticeship much more than their peers. One plausible explanation was that they were more motivated to try content literacy strategies due to teaching schedules that had them both teaching five sections of standard classes. Although I was unable to obtain a report that verified their students’ reading levels, it was logical to conclude that they were exposed to a far greater number of students who needed reading support and who had difficulty comprehending science texts than their science colleagues.

John, Tony, and Sharon did not experiment as much with Reading Apprenticeship implementation. These teachers all had schedules that contained

several sections of GT students. Their GT students were much more likely to be classified as advanced-level readers who normally do not require the same kinds of reading supports that students from standard classes need. Hence, it was reasonable to conclude that John, Tony, and Sharon did not experience the same need to find strategies that could assist their students with their reading skills as Jill and Tara did. As a result, they may have been far less motivated to experiment with Reading Apprenticeship.

This finding indicates that, in terms of overall implementation, James Madison may have been better served if it had framed Reading Apprenticeship as an intervention program for students with moderate reading difficulties instead of an initiative for all teachers and students. If the science team members had been told by Mr. Sellers or Ms. Jones that the school's leadership team wanted them to focus their implementation efforts for SCLI specifically on their standard-level sections to ensure that any struggling readers in these classes received the benefits of the program, it may have led to a greater motivation on the part of the John, Tony, and Sharon to experiment more with implementation. Without these specific targets for the program, it was easier for the teachers with sections of GT students to conclude that the program was not a priority.

#### Lack of Coherence-Making: SCLI and Other Policies

The members of the science team all reported that their implementation of the initiative was affected by other policy initiatives. These policies included the science standards, the district curriculum for middle school science, and the district assessments. John and Tara both mentioned that science is best learned when

students are exposed to hands-on activities that help them discover concepts, leading John to fear that if he became too focused on implementing Reading Apprenticeship, his course would become textbook driven and change the nature of his instruction. Sharon lamented the time lost from covering the curriculum when she used her lab comprehension activity with the students. Tony felt pressured by the district assessments and devoted more time to creating study guides to help prepare his students. Jill indicated that her implementation efforts were affected by her need to spend a lot of class time on helping her students write proper BCR responses for the district assessments.

The decision to use the new district assessments to evaluate the program's effectiveness led to policy interference and confusion. For instance, questions were raised at a Reading Apprenticeship meeting regarding how the assessments were being used to evaluate the initiative's effectiveness. Several teachers wondered how the scores on the tests could be used to verify that Reading Apprenticeship was an effective program. Ms. Jones did not answer the question directly and indicated that those were details that would be determined at a later time.

There was also little or no evidence in the study of Mr. Brown, Mr. Green, or Ms. Jones helping the participants prioritize what was most important when conflicts arose between implementation and covering the curriculum for the district assessments. Instead of prioritizing which policy was more important, the participants were provided with advice, such as "You need to go slow at first in order to go fast later," or the amount of content "is something that has to be taken up with the state—are they asking us to cover too much?" The result was the teachers in the

study were left to resolve these conflicts on their own and their implementation efforts were affected.

#### Confusion About Policy by Implementers

At the end-of-the-year reflection meeting, it became apparent that three of the members of the science team did not fully grasp several aspects of the SCLI. The team members were unable to list any activities that they did to support the personal and social domains of the Reading Apprenticeship framework. They were also unable to determine what actually constituted a Reading Apprenticeship strategy and subsequently listed several learning strategies that they sometimes used in class that did not relate to the initiative.

In addition, interviews, school-based meetings, and science training meetings led me to conclude that the participants never fully demonstrated their understanding or commitment to metacognitive conversations—the central tenet of the program. When Ms. Jones and Ms. Green addressed implementation of metacognitive conversations at SCLI meetings, the James Madison science teachers either said nothing or discussed other aspects of the program. When I asked about their use of it during interviews, they tended to talk of their early or occasional implementation efforts with talk to the text and/or think-alouds. What was not ascertained from the participants was if they understood that these strategies were to be used in conjunction with metacognitive logs and reading process analyses (RPAs). As Ms. Green confirmed, metacognition was at the heart of the program and required teachers to model their thinking and reading strategies for the students while also helping them discover their own thought processes and appropriate reading strategies



that would help them better understand the text. The James Madison science team seemed to focus primarily on cognitive dimension strategies that they could appropriate and use when it fit. Ms. Green indicated that their confusion may have been exacerbated by the nature of the professional development that they had received.

Another contributing factor to policy confusion that cannot be ignored was CCPS' previous emphasis on the use of Directed Reading Activities to support reading in the content area—an approach that had been heavily emphasized in the middle schools since the mid-1990s. The training and curriculum documents associated with DRAs may have strongly influenced the schema of some of James Madison's teachers, particularly Sharon and John.

When asked whether prior reading training may have influenced the sense-making of some of James Madison's teachers, Ms. Jones concurred. She concluded that for the experienced teachers on the staff, she could see how they could have been searching for a “formula” to use for reading in the content area that they had used previously with DRAs.

#### Efficacy of Training Associated With the Policy

An analysis of implementation pointed to the science team at James Madison primarily using implementing Reading Apprenticeship strategies from the cognitive dimension. In addition, there was confusion at the end of the year about several of the domains of the Reading Apprenticeship framework and the importance of establishing and maintaining metacognitive conversations.

Ms. Green attributed this confusion to the training program that she delivered. She advocated that the training be changed to become more closely aligned with the professional development model that she had later learned in California—where teachers are given extensive time and support to plan their instruction and see how Reading Apprenticeship fits in and supports what they normally do.

During a table discussion portion of the March 22 content session, many of the science team members from James Madison were asking each other questions that appeared to be more appropriate for the beginning of the year. John asked his peers, if they were expected to use the SCLI strategies all of the time for everything? Tara wondered what role students should have in strategy implementation and how does a teacher know when they've had enough?

The participants' confusion about the initiative however was most evident at the end-of-the-year reflection meeting. They had trouble identifying activities related to the personal and social dimensions of the Reading Apprenticeship framework, and focused their discussions on strategies in the cognitive dimension. In addition, they seemed to lost sight of the most important aspects of the initiative (metacognitive conversations and cognitive coaching) and the organizing dimensions of the Reading Apprenticeship framework.

Ms. Jones also indicated that the training related to the program may have been too drawn out and led to a loss of enthusiasm. She reported that after getting off to a good start the initiative lost a considerable amount of steam. It seemed to become another one of those things that had to be done.

### School-Based Communities of Practice Enhance Implementation

Each of the participants indicated that the community of practice established at James Madison Middle School was positive in terms of promoting implementation. John, Jill, and Tara each implemented strategies that they had first learned from other SCLI participants. Ms. Jones facilitated the meetings associated with James Madison's community of practice and reported that she loved the meetings, and I felt the teachers liked the interaction time that was created. Ms. Jones attributed the success of the meetings to the atmosphere that was created—laid back, with no formal agenda, and a place where it was safe for teachers to vent, share and/or celebrate accomplishments.

### Student Resistance—An Unexpected Influence on Implementation

An unexpected development that influenced how Jill and Tara implemented Reading Apprenticeship was organized student resistance to the talk to the text activity in Jill Jennings's Grade 7 class. After the students wore signs pronouncing they were tired of doing this in all of their classes, Jill and Tara started disguising their implementation of Reading Apprenticeship. John, Tony, and Ms. Jones all commented that they became aware of this unexpected development and that became common within the school.

Ms. Jones also confirmed that she was hopeful that it would eventually disappear when the students began to realize that Reading apprenticeship wasn't going away and would remain as a practice that is associated with the school. She attributed the overuse of certain Reading Apprenticeship strategies by teams of teachers across different disciplines as the cause of the resistance.

### Categorizing Team Interactions

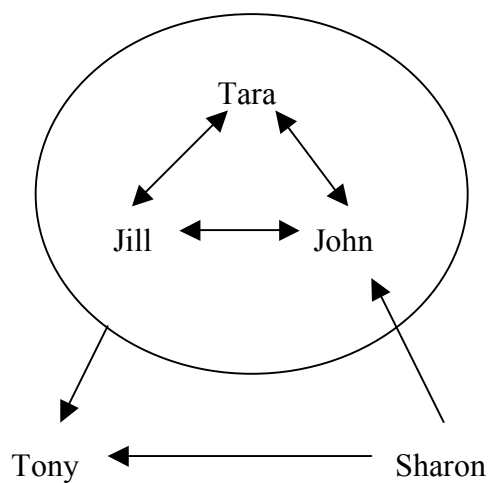
At the start of the school year at James Madison Middle School, John took on a leadership role of setting the agenda and creating activities for the science team to try in terms of implementing Reading Apprenticeship. Soon, however, the nature of the meetings within the team began to change. Due to their embrace of the initiative and their willingness to experiment with the implementation of Reading Apprenticeship strategies, Jill and Tara soon took the lead in discussions that occurred at both the training and school-based meetings. In doing so, the nature of the leadership in regards to Reading Apprenticeship shifted from John directing the initiative to other members of the team becoming equals by virtue of their expertise and sharing in leading the sense-making activities and discussions around the initiative.

While John was present and interacted with Jill and Tara at these meetings, he often deferred to his teammates, especially when it came to reporting on implementation progress. When questioned about how he was doing, John often discussed how Reading Apprenticeship was forced to take a back seat to other activities, and he began to question how much implementation should actually take place in a science classroom and whether the implementation should be gradual. At the same time, while John, Jill, and Tara had numerous conversations about their progress with the SCLI, Tony and Sharon were essentially non-involved in terms of team interactions. Sharon was rarely present, and Tony never sat or interacted with his science teammates at the meetings he attended.

Using the lens of group exchange structures (Seibert et al., 2003) the James Madison science team could best be categorized as unified with isolates. In this structure, a majority of the team's members are unified in their exchange of information on a regular basis. At the same time, teams may exist where one or more team members have limited interaction or may have negative interactions with other group members. These individuals are classified as isolates.

For this study, John, Jill, and Tara met frequently and interacted in a positive and supportive manner in discussions related to Reading Apprenticeship. At the same time, although they never had any perceptible negative interactions, Tony and Sharon did not discuss much with the other members of the science team. By virtue of their non-involvement with their peers, they could be considered to be isolates. Figure 7.1 uses a model (Seibert et al., 2003) to depict the relationships and exchanges that occurred within James Madison's science team around the Reading Apprenticeship initiative.

Figure 7.1. Group Exchange Structure for Science Team: Unified with Isolates.



John, Jill, and Tara are within the circle of shared leadership where they actively exchanged ideas about implementation. Although Sharon did influence John’s selection of an implementation strategy, she admittedly was not an active participant and is outside this circle. Tony simply received information and added little in terms of feedback to his science colleagues. The directional arrows depict that information flowed in both directions for John, Jill, and Tara but were essential one-way arrows for Tony and Sharon.

### Summary

Table 7.1 summarizes the major findings of this study. The table includes a column that categorizes the related policy area and the conclusions that were drawn.

Table 7.1

### *Findings and Conclusions*

Policy Area	Finding(s)	Conclusion
Policy Implementation	Sense-making and implementation related to SCLI was dissimilar for each member of the science team.	There were different interpretations of the same policy message.
Framing of Policy	SCLI was touted as both an overall program improvement strategy and a moderate intervention strategy for reading.	Confusion existed over intent of SCLI—a teaching learning framework to be used with all students or a reform for struggling readers?
Coherence with Other Policies	The loss of instructional time to cover curricula objectives, the time needed to adequately prepare students for district assessments, and the science standards’ emphasis on hands-on learning were reported to be impediments to implementation.	Other policy initiatives conflicted with the implementation of SCLI. Prioritization never occurred, and the implementers were left to resolve conflicts on their own.

	SCLI participants confused by school's linking of Reading Apprenticeship evaluation to student results on assessments.	James Madison's plan for linking SCLI evaluation to district assessments was not adequately explained.
Policy Confusion	<p>Three members of the science team were confused about aspects of the Reading Apprenticeship program. They could not identify activities related to the personal and social dimensions of the framework and were not sure what constituted a Reading Apprenticeship activity. There was little evidence of the participants' awareness of the importance of metacognitive conversations to a Reading Apprenticeship classroom. Two of the participants implemented a strategy that was very similar to a DRA related to reading to perform a task.</p>	<p>Professional development tended to focus on learning new strategies and sharing strategies that were attempted. There was little sustained focus on metacognitive conversations or on the overarching dimensions of the SCLI framework for cognitive coaching. The schema of James Madison's experienced science teachers appeared to have been influenced by Center County's previous emphasis on the use of DRAs. This may have caused two participants to see the new as familiar.</p>
Training Related to Policy	Ms. Green reported that the professional development model used in the SCLI Institute helped foster a "strategy of the month" approach to implementation. She advocated a different training model.	Another training model that incorporated planning time for SCLI could have enhanced implementation and led to a clearer understanding of the most important aspects of the initiative.
Communities of Practice Related to Policy	Science team reported that the school-based meetings around the community of practice for SCLI were useful. There was evidence that several members of the science team implemented strategies that they had learned from their peers.	Community of practice was positive, promoted sharing/experimentation, and enhanced implementation for the science team.
Student Resistance to Implementation	Jill's seventh grade rebelled against talk to the text by wearing signs. Teachers felt compelled to sneak in their use of SCLI.	Overuse of a strategy by a grade-level team of teachers led to student resistance.

Policy Affects Team Interactions	Not all of the science team members contributed equally in terms of their interactions related to Reading Apprenticeship. Shared leadership was evident at SCLI meetings.	The science team group exchange structure around SCLI could be categorized as unified with isolates.
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*Implication for Policy and Practice: Sense-Giving*

Researchers have noted that if districts are to play a meaningful leadership role in instructional reform, they need to develop an integrated understanding of policy implementation by borrowing from organizational and sociocultural theories of learning (Knapp, 2008). In the following section, I will draw from organizational learning theory to highlight some implications that will inform this study and contribute toward policy implementation. In doing so, I use the findings of a sense-giving study (Maitlis & Lawrence, 2007) to describe a condition or “trigger” for organizational sense-making—a critical process for implementing change. If CCPS had responded to this condition and engaged in deliberate sense-giving activities when it introduced Reading Apprenticeship, the leaders of the initiative may have enhanced the sense-making needed to increase implementation of the policy initiative.

Sense-Giving: An Important Aspect of Policy Implementation

The perception or anticipation of a sense-making gap—especially around uncertain or complex issues—has been found to lead organizational actors to engage in sense-giving as an influence strategy (Maitlis & Lawrence, 2007). When school districts attempt to enact policy initiatives that affect classroom practice, they would be wise to consider a cognitive perspective and actively engage in sense-giving



activities. These activities should occur throughout the stages of implementation, but is especially important when a new policy is introduced.

CCPS' leadership could have enhanced the implementation of SCLI if it had anticipated a sense-making gap and more actively attended to sense-giving activities. By its nature, instructional policy that is designed to change or influence teacher practice can be considered uncertain and complex. Reading Apprenticeship certainly qualified on both counts. A focus on sense-giving with more opportunities for dialogue and clarification could have clarified how the new policy was different from the previous approach to content reading, how it meshed with other policies, and how its effectiveness could be measured

If Mr. Brown and the school district's leadership team had incorporated a cognitive perspective toward policy implementation, and if they had pondered in advance the questions or confusion that SCLI might have prompted in its constituents in light of previous reading practice and other policy demands, then CCPS could have used this anticipated sense-making gap to respond strategically by engaging in dialogue and discourse sessions that would have assisted in sense-giving. In addition, as unanticipated areas of concern regarding SCLI and its implementation began to emerge—such as what to do at a school when students start to rebel against the use of SCLI—a precedent for responding to the stakeholders' issues with a goal of sense-making would have already been established.

This is not to say that Mr. Brown did not attempt to shape the sense-making of secondary principals when he presented and introduced SCLI as a program initiative. In addition, Ms. Brown and Ms. Green held numerous reflection sessions at each

district training and school-level meeting. However, they left many unanswered questions and, in some instances, did not address many of the stated concerns surrounding the initiative.

With the hindsight of having been a participant in the 2004-05 SCLI Institute and observing and interacting with a team of middle school teachers who were trying to implement Reading Apprenticeship, I have concluded that opportunities were lost for sense-giving by Mr. Brown and CCPS' leaders. I have formulated a series of questions around policy adoption and policy implementation that would have enhanced the sense-making of the school leaders who were considering whether to consider SCLI as a program for their school improvement plan, as well as the teachers who participated in the training. In addition, SCLI facilitators/trainers such as Ms. Green and Ms. Jones, as well as curriculum coordinators, could have given a more complete representation of the policy (SCLI). Finally, it could have cleared up how SCLI fit in with other reading programs and initiatives, such as the middle school reading curriculum or the numerous reading intervention programs.

The following subsections each list the area of concern, the questions that could have been addressed as part of a deliberate sense-giving effort by CCPS leadership, and the rationale for why these questions needed to be answered.

#### Intended Use of Policy

Why was Reading Apprenticeship listed in the BTE Report as a program improvement initiative for secondary schools and categorized by Mr. Brown and the Office of Curricula Programs as a high-level strategy, whereas the Reading Office labeled it as a reading intervention program? Who was CCPS specifically trying to

target with the SCLI? If a school was to adopt SCLI, should it seek to improve the reading capabilities and scores of all of its students? Or was SCLI an initiative that was intended primarily to assist students in need of moderate reading assistance?

Sense-giving around these questions could have provided a much needed focus for schools such as James Madison, who had incorporated the program into their school improvement plans.

#### Best Method to Improve Reading in Content Areas

Why should content teachers be trained to infuse SCLI—a program with complex instructional processes and activities (metacognition and metacognitive conversations)—into their instruction? Why not continue to let content teachers utilize Directed Reading Activities as they did with the MSPAP while making Reading Apprenticeship a curriculum that is taught by middle school reading teachers during reading class? WestEd used this approach with teachers when it created an academic literacy course for English language learners in California.

Sense-giving for these questions could have clarified the roles that middle school content teacher and reading teachers would play in terms of supporting students with reading. Assuming that Reading Apprenticeship would stay as a program for content teachers, it could have been provided content teachers with a greater sense of perspective, importance, and urgency toward their efforts.

#### How the New Policy Is Different from Previous Policy

For teachers who were trained in implementing Directed Reading Activities, how is Reading Apprenticeship? How are the two reading approaches similar? What

changes in instruction are necessary in terms of planning and implementation to support reading?

Sense-giving related to these questions may have prevented Sharon and John from seeing the new policy (Reading Apprenticeship) as similar to what they have been doing (reading to perform a task) and relying on “DRA-like” strategy for understanding laboratory directions as their major focus for implementation.

#### How to Measure Policy Effectiveness

Because NCLB has pushed district central offices to generate and use student performance data to drive their decisions (Honig & Coburn, 2008), how should Reading Apprenticeship be evaluated to measure and determine its efficacy as a school improvement initiative? Are the district assessments appropriate instruments? If not, why not let SCLI teachers assess their students using instruments such as the Degrees of Reading Power (DRP) test—a test used in CCPS reading classes and also used by WestEd in its evaluation of Reading Apprenticeship? If DRPs are not considered a good tool for measuring SCLI’s effectiveness in content classes, then which new policy initiative should have a higher priority—covering the curriculum in a set period of time and giving the students summative district assessments or devoting additional instructional time toward making students better readers (i.e., apprenticing students)?

Sense-giving around this issue would have prevented schools such as James Madison from using the district assessments as a tool for measuring the effectiveness of Reading Apprenticeship, a factor that negatively impacted the implementation efforts of almost the entire science team. Setting priorities between two new policy

initiatives—implementation of SCLI versus district assessments—could have removed one of the biggest obstacles to implementation by the science teachers at James Madison—the desire to cover the curriculum to get good scores on the district assessments.

#### Policy Implementation

If content teachers were considered to be the best implementers of such a program, how much time should a teacher devote to using Reading Apprenticeship activities? Is it the same for all disciplines? Is it reasonable to expect a science or technology education teacher whose curriculum advocates the frequent use of hands-on learning experiences to devote the same amount time to reading text material as a social studies or language arts teacher? Is fidelity of implementation for Reading Apprenticeship important?

Sense-giving around this question would have helped John and Tara resolve some of their concerns about the standards and the appropriate use of text and reading in a science class. It would have also answered questions related to fidelity of implementation.

#### Strategies for Managing Student Resistance

How should a secondary school manage the implementation of a program initiative that cuts across discipline areas and is used by a host of teachers so that students are not overexposed and grow tired the initiative?

Sense-giving around this question may have led to greater coordination across grade-level teams in terms of who would introduce a strategy and who would use it on any given day.

#### Training Program That Promotes Implementation

What is method for training for this initiative would enhance sense-making and implementation? Would it be better to front-load a lot of the theory work during summer training and focus on the support of implementation during the year? Or, is it better to stretch the training activities out over the course of the year?

Sense-giving in terms of training may have produced a program that better helped the teachers understand the importance of key aspects of the program—such as metacognitive conversations and supporting the dimensions of the content literacy framework—and prevented some teachers from appropriating strategies that fit their existing schema for reading in the science classroom.

#### *Implication for Policy and Practice: Communities of Practice*

A second implication can be drawn from this study about school-level communities of practice established around the implementation of new policy initiatives. That is, when new instructional policies are adopted, schools should strongly consider establishing and supporting these social learning groups.

Both Ms. Jones and the members of the James Madison science team reported that the group benefited from the creation of an environment where they felt free to share their ideas, experiences, successes, and frustrations. Each science team member reported that the school-based sharing sessions were worthwhile, and in John's case,

motivated him to continue on with the initiative. In addition, the discussions and sharing of implementation activities at the community of practice meetings prompted three individuals—John, Jill, and Tara—to implement SCLI strategies that they had not considered at first, but later appropriated from a colleague.

#### Teams and Interaction Patterns for Policy Implementation

The school-based meetings associated with SCLI also produced a change in the interactions within the science team. At the first science team meeting, John played a significant role in setting the agenda and guiding the discussion and activities of the team related to the implementation of Reading Apprenticeship. However, John soon dropped SCLI discussions from the agendas of the science team meetings and focused the team on other matters. Freed from his instructional leadership duties, John assumed a much different role at the SCLI meetings, ceding the science team's leadership on the initiative to Jill and Tara, who controlled much of the discussion around implementation.

Some of the literature surrounding communities of practice and educational policy initiatives has begun to define and differentiate the structures within schools that may constitute a community of practice. One sociocultural theorist (Gallucci, 2003) defined entities such as grade-level teams of teachers and departments (content teams) as potential communities of practice.

Based on the findings in this study, schools should avoid using established meeting structures such as monthly department meetings—when teams of teachers are normally called together by a designated leader to accomplish particular, predefined tasks. Instead, schools would be wise to establish alternative meeting

arrangements as James Madison did. Finally, if using a department chair or instructional team leader to lead a community of practice during established meeting times is the only alternative that a school has, then it is important that the leader be trained in facilitating a different kind of meeting—i.e., one that helps create and nurture an environment that is conducive to meaning-making and shared leadership.

### *Student Resistance to Instructional Policy*

An unexpected development during the study was the report of overt student resistance to Reading Apprenticeship. This caused two of the participants (Jill and Tara) to alter how they would normally try to implement SCLI strategies and instead resort to “sneaking” Reading Apprenticeship activities into their instruction without letting the students know what they were doing. In addition, Ms. Jones became aware of this development but admitted that it was not addressed in the meetings related to the school’s community of practice.

One implication is that the school leadership could have helped shape a response to the student resistance by encouraging the school’s grade-level teams to share and coordinate what they were each doing with Reading Apprenticeship implementation so that no particular strategy was over-utilized and students would not tire of it. The other implication that can be garnered from the discovery of student resistance to policy is that there is a void in both policy implementation and sense-making literature regarding the role that students—the final recipients of policy initiatives—play in policy implementation. Education policy implementation studies that have used a cognitive perspective have focused on the meaning-making of policy messages by teachers and how prior learning and interactions with peers and leaders



have influenced their worldviews. What is missing in the literature is a bottom-up perspective that captures not only what students are experiencing and how they react to a policy initiative but how they ultimately help shape their teachers' sense-making.

### Contributions to Research

A cognitive perspective to characterize teacher sense-making of the implementation of education policy was used in this study as part of a conceptual framework that examined the sense-making of a reading initiative by a team of middle school science teachers. During the study, attempts were made to identify how aspects of the cognitive, affect, and social components of the framework were manifest in each individual participant. In addition, the framework also included context—the situation that an individual is placed in during the time that sense-making occurs. In this case study, the context included other policies that the participants had to consider as they attempted implementation of SCLI.

The study's conceptual framework also borrowed from the work of sociocultural theorists (Coburn, 2002) who stress that meaning is often socially constructed in the communities of practice that surround a new initiative and/or may be developed in formal and informal school practices such as grade-level meetings, faculty meetings, professional development workshops, and lunch room conversations, and that leaders play a significant role in shaping the policy message (Coburn, 2005).

With a theoretical, conceptual framework rooted in previous sense-making research, this study made several contributions to the literature related to a cognitive perspective for policy implementation. This study added to the sparse body of

literature that has focused on the cognition of policy implementers and the factors that affect their implementation of policy. In this area of policy implementation research, this case study was unique in several ways. For one, it was situated in a secondary school, while most sense-making studies related to policy implementation (Beckford-Smart, 2007; Coburn, 2001; Coldren, 2007; Gallucci, 2003; Janger, 2007; Spillane, 2004; Wood, 2007) have been set in elementary schools. This case study also examined an instructional policy (SCLI) that was designated to be implemented across multiple content areas. This study gathered data from two levels—meetings that were facilitated at James Madison Middle School and training meetings conducted at the district level. This study also adopted research from the field of organizational learning to advocate that sense-giving activities be considered by school districts as they introduce new policy initiatives and seek to enhance policy implementation and coherence-making. These proposed sense-giving activities would move beyond the leader-shaping actions building principals to the school district’s central office. This study also uncovered a finding—student resistance to policy—that pointed to a void in the research on educational policy implementation. Lastly, this study contrasted the differences between the interactions that occurred in a content team meeting led by an instructional leader versus the interactions that occurred within a community of practice established around the implementation of a policy initiative.

#### *Recommendations for Further Research*

The findings reported in this study have helped justify the need for further research utilizing a cognitive perspective for policy implementation. Implementation

is not simply about compliance to a policy directive. In addition, implementation shortfalls are not just cases of individual resistance or capability. Rather, implementation involves the process of sense-making (McLaughlin, 2006, p. 215). Research is needed on how policymakers can better present and enact policy initiatives so that there are not different interpretations of the same policy message, so that the new does not seem familiar, and so teachers are challenged to restructure their existing schemas.

With accountability pressures related to NCLB and calls to close the achievement gap between groups of students, school districts are now required to plan and enact system-wide instructional improvement initiatives intended to change the practice of classroom instructors. Because instructional policy initiatives are complex, often difficult, this study advocates that central offices anticipate a gap for sense-making, and make a concerted effort to engage in ongoing sense-giving activities related to policy implementation. Further research on these policy representations and how sense-giving efforts influence sense-making and implementation is needed.

In addition, when school districts begin to engage in sense-giving around policy initiatives, research is needed on what these efforts might look like. One organizational theorist (DuToit, 2007) has suggested sense-giving that utilizes a coaching model. This recommendation needs to be studied.

The study also found that the students at James Madison Middle School had a significant impact on policy implementation. Research should be conducted from a bottom-up perspective to capture the students' voices, explore how policy affects

them, and examine how students influence the sense-making of their teachers in terms of implementation.

Finally, the study found that the science team at James Madison considered the meetings related to the community of practice that had been established around the implementation of SCLI to be positive experiences. However research from the area of sociocultural learning theory remains somewhat murky as to what actually constitutes a community of practice and if leaders can purposefully establish these structures as part of their policy design. Further compounding this issue is confusion with another development from the field of sociocultural learning—the establishment of professional learning communities. Further research is needed to determine the distinctions between learning communities and communities of practice and identify the strengths and use of both types of communities.

### *Reflections and Conclusions*

CCPS responded to the mandates of No Child Left Behind and the Bridge To Excellence Act by offering a host of program initiatives and opportunities for schools that were designed to improve student achievement. The Strategic Content Literacy Initiative, a new reading program for secondary schools, was one such initiative. For middle school content teachers, the program was a dramatic departure from what they had been doing previously in preparing students for the MSPAP. Whereas CCPS had asked content teachers to infuse Directed Reading Activities into their content instruction, SCLI asked that they become a cognitive coach in the essential thinking of their discipline. CCPS' rationale was that SCLI teachers would come to recognize that they were not being asked to become reading teachers; rather, they would serve to apprentice students in the ways to think in their discipline and to construct meaning at a

high level (Center County Public School System, 2005). Due to its focus, SCLI quickly became known as the Reading Apprenticeship program.

James Madison Middle School, a school designated as in need of improvement in reading and mathematics, adopted SCLI as one of its school improvement strategies and supported the initiative for 18 of its teachers who participated in the training. This study focused on the implementation activities of five members of the James Madison science team, one of whom was trained in 2003–2004, whereas the others went through training together in 2004–2005. A cognitive perspective for policy implementation was adopted for this study and was used to determine the sense that the participants made of Reading Apprenticeship as they implemented it as part of their instructional practice.

The study revealed that none of the science team members ever fully embraced or understood the apprenticeship model. Instead, they tended to appropriate and implement reading strategies that in many cases were similar to what they had been doing in preparing students for the MSPAP. This notion supported the assertion of sense-making researchers (Spillane et al., 2002) who theorized that a schema or worldview is hard to restructure and that an obstacle to implementation is the tendency for individuals to see the new as familiar.

This study shows that when school districts introduce new instructional policy initiatives, district central offices and building principals need to engage in deliberate sense-giving activities that serve three purposes: (a) clarify the major aspects and outcomes of the policy; (b) illustrate how the policy is coherent with other policy demands and, if conflict exists, clarify which policy has a higher priority; and (c)

make a concerted effort to show how the new policy differs from previous policy initiatives so that policy trainers and facilitators can begin the difficult work of restructuring existing worldviews.

SCLI had all of the components to become a widely implemented policy initiative in secondary schools: It incorporated a research base, featured a well-supported training program, emphasized experimentation and reflective practice, created an online community for communication and sharing, and included school-based support. Unfortunately, it eventually suffered the sad fate of many well-intentioned initiatives that have their origins in central office strategic plans.

Although summer institutes and training in reading apprenticeship continue to be offered four years after the study, SCLI is no longer considered to be the school district's high leverage strategy for meeting the challenges presented by NCLB. The Center County school district is still discussing ways that content teachers can support reading growth in students and is currently exploring other options and programs to help schools who are in danger of not making AYP.

## Appendices

### Appendix A

#### List Of Abbreviations

##### B

Bridge to Excellence (BTE)

Brief Constructed Responses (BCR)

##### C

Center County Public School System (CCPS)

Comprehensive Test of Basic Skills (CTBS)

##### D

Directed Reading Activities (DRAs)

##### F

Focus, Question, Image, Predict (FQIP)

##### H

Holistic Learner Framework (HLF)

##### M

Maryland Learning Outcomes (MLOs)

Maryland School Assessment (MSA)

Maryland School Performance Assessment Program (MSPAP)

Maryland State Department of Education (MSDE)

##### N

National Science Foundation (NSF)

##### R

Reading Process Analyses (RPAs)

##### S

Stanford Achievement Test (SAT10)

School Improvement Unit (SIU)

Selected Response (SR)

Strategic Content Literacy Initiative (SCLI)

Appendix B

A Summary of the 5E Model for Science Lessons

<b>Lesson Components</b>	<b>Activities</b>
<b>I. Engagement:</b> The activities in this section capture the students' attention, stimulate their thinking, and help them access prior knowledge.	<ul style="list-style-type: none"><li>• Challenge</li><li>• KWL: What Do I Need to Know to Solve This Challenge?</li></ul>
<b>II. Exploration:</b> In this section, students are given time to think, plan, investigate, and organize collected information.	<ul style="list-style-type: none"><li>• Reading to Perform a Task Prompt.</li><li>• Reading to Perform a Task Lab Preview.</li><li>• Reading to Perform a Task Before, During, After Checklist.</li><li>• Reading to Perform a Task Stance Questions.</li><li>• Hands-on Experiment.</li></ul>
<b>III. Explanation:</b> Students are now involved in an analysis of their exploration. Their understanding is clarified and modified because of reflective activities.	<ul style="list-style-type: none"><li>• Teacher leads debriefing of investigation.</li><li>• Students write conclusion to experiment.</li><li>• Teacher presents more "need to know" information through:<ul style="list-style-type: none"><li>○ Reading to Be Informed Prompt.</li><li>○ Reading to Be Informed Preview of Selection.</li><li>○ Reading to Be Informed Before, During, After Checklist.</li><li>○ Reading to Be Informed Stance Questions.</li></ul></li><li>• Teacher directs discussion.</li></ul>
<b>IV. Extension:</b> This section gives students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.	<ul style="list-style-type: none"><li>• Apply the information collected in the exploration and extension to the challenge.</li><li>• Resolve the challenge.</li><li>• Identify additional applications of information.</li></ul>
<b>V. Evaluation:</b> Evaluation occurs throughout the lesson. Scoring tools developed by teachers and students target what students must know and do. Consistent use of scoring tools improves learning.	Teachers and students use the rubric to score: <ul style="list-style-type: none"><li>• Reading to Perform a Task Stance Questions.</li><li>• Reading to Be Informed Stance Questions.</li><li>• Resolution to the Challenge.</li></ul>



## Appendix C

### Major Aspects of a Reading Apprenticeship Classroom

In science classrooms that have successfully implemented Reading Apprenticeship, teachers have created student-centered, constructivist classrooms, where they use modeling and strategies to apprentice the students in the development of their reading of science text. They have strived to produce successful readers who are quite comfortable with passages from scientific texts, periodicals, and/or laboratory activities. Krim (2003) described successful readers of science in the following manner:

Successful readers of science read to fine-tune their understanding of a scientific phenomenon. They may, secondarily, read to understand how this phenomenon is important in either a theoretical or practical sense. They processes. They rely on images both from the text and from their own minds to comprehend scientific phenomenon. They expect definitions of phenomena to change with more and better scientific experimentation and explanation; they therefore expect their own incomplete understandings and misconceptions to be challenged.... Scientific readers read to imagine and understand what must be true. To accept something as true, scientific readers must be convinced that the experiments and explanations given in fact demonstrate what is claimed.

When teachers use the Reading Apprenticeship framework as intended, they have addressed four interactive dimensions for learning—the social, personal,

cognitive, and knowledge building—while also using metacognitive conversations to integrate all four of these dimensions and to help students understand “how we read, why we read in the ways we do, as well as what we read” (WestED, 2003a). Figure A.1 shows the dimensions of Reading Apprenticeship.

#### Meta-Cognitive Conversations

At the center of Reading Apprenticeship is “metacognition, the process of thinking about thinking” and “the key to surfacing the complex, largely invisible mental moves associated with reading” (Jordan et al, 2001, p.22). In Reading Apprenticeship classrooms, teachers model their thinking and their metacognitive processes while guiding students’ explorations of the texts and their own developing thinking processes. Teachers engage the students in metacognitive conversations to “reveal the mental processes readers use, as well as places where comprehension breaks down. These conversations play a crucial role in helping students develop insights about reading and to build a repertoire of strategies to overcome obstacles and deepen comprehension” (WestEd, 2003a)

When using metacognitive conversations with students over the course of the year, teachers should seek to progress from helping students notice their thinking, to having students focus on reading and taking charge of their reading processes, to becoming aware of subject area discourse. By providing students a window into their teacher’s thinking, they can learn to examine their own thinking and take on new comprehension strategies. Figure A.1 shows the dimensions of the reading apprenticeship framework (WestEd 2003a).

Figure A.1. Dimensions of Reading Apprenticeship.

<p><b>Social Dimension</b></p> <p>Creating safety</p> <p>Investigating relationships between literacy and power</p> <p>Share book talk</p> <p>Sharing reading processes, problems, and solutions</p> <p>Noticing and appropriating others' ways of reading</p>	<p><b>Personal Dimension</b></p> <p>Developing reader identity</p> <p>Developing metacognition</p> <p>Developing reader fluency and stamina</p> <p>Developing reader confidence and range</p> <p>Assessing performance and setting goals</p>
<p><b>Cognitive Dimension</b></p> <p>Getting the big picture</p> <p>Breaking it down</p> <p>Monitoring comprehension</p> <p>Using problem-solving strategies to assist and restore comprehension</p> <p>Setting reading purposes and adjusting reading processes.</p>	<p><b>Knowledge-Building Dimension</b></p> <p>Mobilizing and building knowledge structures (schemata)</p> <p>Developing content or topic knowledge</p> <p>Developing knowledge of word construction and vocabulary</p> <p>Developing knowledge and use of text structures</p> <p>Developing discipline and discourse-specific knowledge</p>

Several strategies are useful for fostering metacognitive conversations and supporting the other dimensions of the Reading Apprenticeship framework. The key to successful metacognitive conversations in the classroom “is carefully scaffolded instruction followed by regular, frequent use” (WestEd, 2003a). Table A.1 lists four metacognitive strategies that should be evident in science classrooms and used repeatedly throughout the school year.

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Table A.1 Strategies for Fostering Metacognitive Conversations

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Strategy	Description
Think-alouds	Teachers talk out loud for the class about their own thinking processes as they model a performance task or read text. The teachers in turn encourage the students to notice what is going on in their heads and what mental processes they use to understand. Gradually, the students also participate in the process and state what they are thinking as they read.
Talk to the text	A written version of a think-aloud, students interact with the text and record what is going on in their heads.
Double entry journals	For taking notes, students record ideas from the text in one column and make observations, personal comments, and/or comments about their comprehension process in the other.
Meta-cognitive journals	Students keep a journal of their reading assignments with sentence starters for each assignment that are designed to help them get started writing about their thinking processes.

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#### Dimensions of Reading Apprenticeship

To successfully engage students to become more powerful readers, teachers also needed to “address the four dimensions of classroom life that nurture reading inquiry” (Jordan et al., 2001, p. 16). Addressing these dimensions helped teachers develop “the collaboration, student agency and attention to both the resources students bring and those they need to develop to become more competent readers” (Jordan et al., 2001, p. 16). The rationale for attending to each dimension was described in the following manner:

- Social Dimension: Developing a Community of Readers—“helps students access each other’s reading processes and resources in a safe environment

where they can also acknowledge their confusions and difficulties with texts” (Jordan et al., 2001, p. 16).

- Personal Dimension: Developing a Reader Identity—“focuses on developing and extending students’ individual awareness and self-awareness as readers” (Jordan et al., 2001, p. 18).
- Cognitive Dimension: Developing Students’ Mental Toolbelts—directs students to the “mental processes skilled readers use, including their repertoire of specific comprehension and problem-solving strategies such as re-reading, questioning, paraphrasing, and summarizing” (Jordan et al., 2001, p. 18).
- Knowledge-Building Dimension: Inviting Students Into the Discipline—helps students “draw on and build several interconnecting areas of knowledge: background knowledge about the topic and content that comes from their own lived experiences and reading; knowledge of text structure, genre, and language; and knowledge about the discipline” (Jordan et al., 2001, p. 20).

With metacognitive conversations as a key component to help students dissect the complex act of reading, it was important for teachers to realize that “Reading Apprenticeship was not a neat package of carefully sequenced strategies” (Jordan et al., 2001, p. 16). Instead, it used a varied approach that worked toward engaging and motivating students to develop their competencies. Reading Apprenticeship, however, has tools and strategies that support each dimension and should be considered for implementation. In addition, metacognitive conversations and its supporting strategies (think-alouds, metacognitive journals, etc.) should be used to develop student competencies in each dimension. Table A.2 lists additional tools.

Table A.2

*Tools and Strategies to Support the Dimensions of Reading Apprenticeship*

Dimension	Tools and Strategies
Social	<ul style="list-style-type: none"> <li>Rules for classroom learning</li> <li>Feeling safe to engage in classroom discussions</li> <li>Shared book talk</li> <li>Paired and small-group discussions</li> </ul>
Personal	<ul style="list-style-type: none"> <li>Capturing reading processes with reading strategies lists</li> <li>Student reading surveys</li> <li>Personal reading survey</li> </ul>
Cognitive	<ul style="list-style-type: none"> <li>ReQuest—reciprocal questioning</li> <li>Reciprocal teaching—questioning, clarifying, summarizing, and predicting</li> <li>QAR—question and answer relationships</li> <li>Developing reading strategy lists</li> <li>Chunking the text</li> <li>Visual note-making</li> <li>Note-taking (e.g., two-column notes)</li> </ul>
Knowledge Building	<ul style="list-style-type: none"> <li><u>Accessing prior knowledge</u></li> <li>Analyzing the knowledge demands of text</li> <li>Anticipation guides</li> <li>KWL charts—know, want to know, learned</li> <li>Graphic organizers for text structures and concepts</li> <li><u>Building new schema</u></li> <li>LINK—list, inquire, note, know</li> <li>Features of texts</li> <li>Modeling text structures</li> <li>Test genres</li> </ul>

## Analyzing Reading Processes

Teachers frequently utilized the reading process analysis (RPA) to successfully implement the Reading Apprenticeship program. WestEd (2003b) described an RPA in the following manner:

A Reading Process Analysis helps readers become aware of the demands of different texts and the strategies that they use to meet those demands in their efforts to make meaning as they read. By sharing reflections on their own reading processes in a group, readers learn from each other's processes and appropriate new strategies. They also begin to see reading as a complex activity that requires flexible application of many strategies. This is often an important new awareness for many readers. This is a process that bears repetition, especially as readers encounter different types of text.

When they conduct an RPA, teachers are required to “work with a text that is short (one or two pages) yet difficult enough to challenge all participants (Schoenbach et al., 1999, p. 155). SCI advised that teachers first perform RPAs with their peers to uncover their own reading processes, share any problems that they had with the text, and “discuss problem solving strategies that they used to make sense of what they read” (Schoenbach et al., 1999, p. 155). This analysis would later be modeled for students so they can learn to capture their own reading processes and develop strategies for enhancing their comprehension.

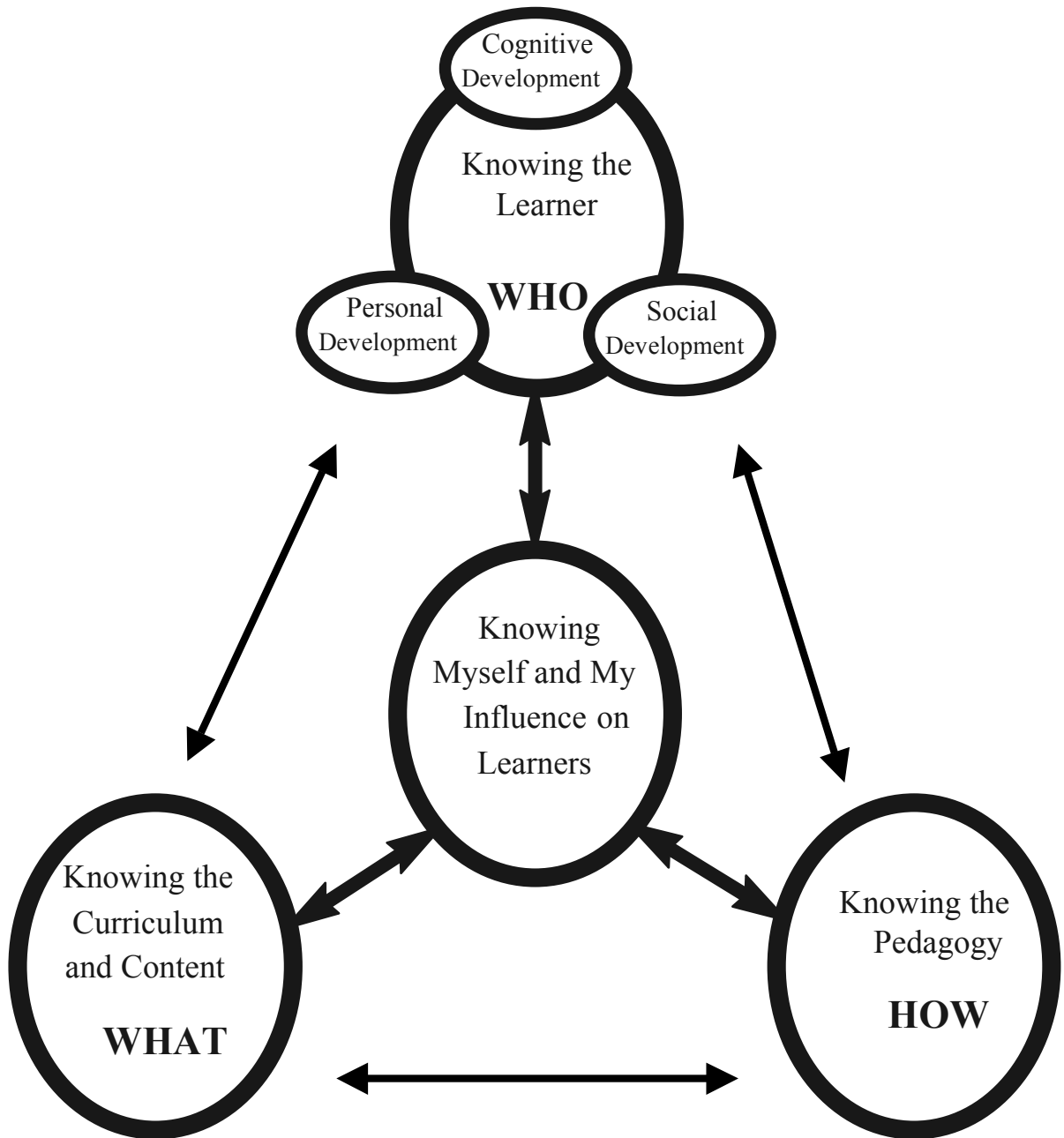
To assist with the implementation of RPAs, SCI also recommended that as teachers or students talk about their internal reading processes, someone chart their comments into one of the following four categories (Schoenbach et al., 1999, p. 155):

1. “Fluency—Using automatic lower-literacy; for example decoding, word recognition and sentence processing.
2. Motivation—Setting purposes and goals; taking a stance as a reader; acknowledging affective responses to the text, task, or situation.
3. Cognition—Monitoring attention; monitoring comprehension; using strategies (questioning, paraphrasing, summarizing, clarifying, rereading, imaging, and so forth) to focus attention and fix comprehension.
4. Knowledge—World knowledge: drawing on and comparing to concepts, facts, or experiences about topics. Text knowledge: drawing on and comparing to knowledge of genre, text structures and features, language patterns and conventions.”

When conducting an RPA, SCI recommended that teachers utilize many of the metacognitive strategies that are essential to establishing an apprenticeship with students: think-alouds, talking to the text, and dual-entry journals. Another strategy that was recommended “to uncover the discipline specific ways of approaching reading that are shared within an academic community” was the FQIP (WestEd, 2004, p. 14). This strategy uses question prompts to help students examine where they focus their attention when reading a piece of text, what questions they were asking themselves, what images they were imagining, and what prediction they have about the remainder of the text.



## Vision of Exemplary Teaching For Student Learning



Appendix E

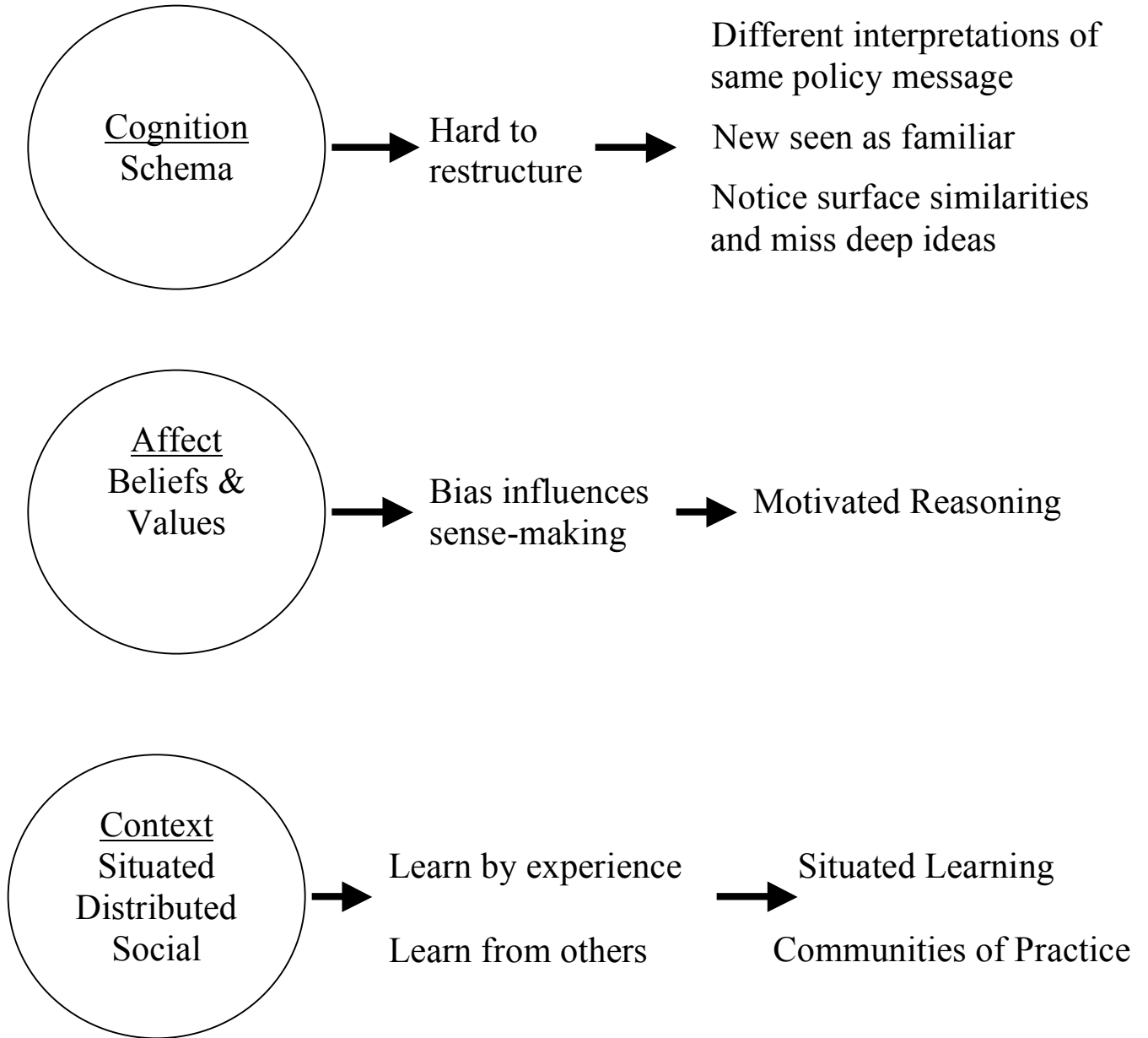
Five-Year Plan for SCLI Strategy

The secondary systemic improvement plan in content literacy aims to improve the content literacy of all students but especially those students in underserved populations in the school system's School Improvement Unit (SIU) schools. CCPS' approach will be to partner with WestEd in building every secondary school in the district, beginning with the seven SIU secondary schools in the 2003–2004 school year. The yearly pattern will include two parts—intensive summer institutes equipping school teams of teachers to implement Reading Apprenticeship and year-long, follow-up projects. Throughout the year, the participants will conduct action research on classroom applications of their summer learnings, followed by professional portfolios.

Year	Objective
2003–2004— SIU schools only	By 2004, each of the seven SIU schools will have at least 70% of their students in all subgroups scoring at or above proficient on the MSA in Grades 8 and 10.
2004–2005— all schools eligible	By 2005, each of the seven SIU schools will have at least 80% of their students in all subgroups scoring at or above proficient on the MSA in Grades 8 and 10.
2005–2006	By 2006, each of the seven SIU schools will have at least 85% of their students in all subgroups scoring at or above proficient on the MSA in Grades 8 and 10.
2006–2007	By 2007, 100% of all schools will have at least 80% of their students in all subgroups scoring at or above proficient on the MSA in Grades 8 and 10.
2007–2008	By 2008, 100% of schools will have at least 90% of their students in all subgroups scoring at or above proficient on the MSA in Grades 8 and 10.

Appendix F

Sense-making Research



Appendix G

Schedule of Continued Professional Development and Assignments

Month	Assignment Due	Expected Topics	Subject Area (date & location)				
			English Reading	ESOL	Social Studies	Math	Science
Sept	RfU Chapters 1-4 Implementation Ideas. Other requirements (see separate sheet)	Promoting Metacognitive Conversation Sharing plans & questions; assessment resources & routines	15 Styx	29 BOE	23 BOE	22 BOE	28 Patuxent
Oct	Cognition Packet Implementation Plan	Cognition: Summarizing (25-word abstract)	13 Linden	27 BOE	21 BOE	27 BOE	26 Chesapeake
Nov/ Dec	Questioning Packet	Cognition: Questioning	10 Styx	Dec 1 BOE	Dec 2 BOE	17 BOE	12/15 Bd Rm
Jan	Copies of student work samples, lesson plan, or video clip; mid year reflection	Sharing Practice; Content area RPA; student case study; reflection, planning	27 (Staff Development Center)				
Mar	Schema Packet	Knowledge-Building (Schema)	9 Styx	23 BOE	23 BOE	16 BOE	22 Chesapeake
April	Reciprocal Teaching Packet	Reciprocal Teaching	13 Styx	27 BOE	20 BOE	13 BOE	26 Chesapeake
May	Extensive Reading Packet	Promoting extensive reading; readability	11 Styx	25 BOE	19 BOE	18 BOE	6/1 Chesapeake
June	Portfolio or Project Reflection	Portfolio publication; evaluation,	2 (Staff Development Center)				
<b>Leader/Location (unless specified above)</b>			Nick	Tom	Mike	Kathy	Clarisse

CCPS (2004)

Appendix H

Educational Platform:  
Interview Questions to Help Determine Beliefs and Motivations

1. What should be the purpose of education?
2. What should be the content of the school curriculum?
3. Who should control the learning environment?
4. What should be the relationship of teacher and students?
5. Under what condition is student learning most successful?
6. What motivates students to do their best in school?
7. What is your definition of effective teaching?
8. What personal characteristics are possessed by a successful teacher?
9. How should the teacher assess student learning?
10. What is your definition of a good school?

(Glickman, Gordon, & Ross-Gordon, 2004, p. 84)

Appendix I

Lesson Form Modified for Analyzing SCLI

<p><b>Unit:</b>  <b>Lesson Title:</b>  <b>Essential Objective(s):</b></p>	<p><b>Content Literacy</b></p> <p><b><u>Social Dimension</u></b>  <input type="checkbox"/> Creating Safety  <input type="checkbox"/> Literacy and Power  <input type="checkbox"/> Book Talk  <input type="checkbox"/> Reading Processes, Problems &amp; Solutions  <input type="checkbox"/> Appropriating reading</p>
<p><b>Materials:</b></p>	<p><b><u>Personal Dimension</u></b></p>
<p><b>Anticipatory Set/Context Setting:</b></p>	<p><input type="checkbox"/> Reader Identity  <input type="checkbox"/> Metacognition  <input type="checkbox"/> Reader Fluency &amp; Stamina  <input type="checkbox"/> Reader confidence  <input type="checkbox"/> Performance &amp; Goals</p>
<p><b>Development/Procedures:</b></p>	<p><b><u>Cognitive Dimension</u></b></p> <p><input type="checkbox"/> Big Picture  <input type="checkbox"/> Breaking it Down  <input type="checkbox"/> Comprehension check  <input type="checkbox"/> Problem solving strategy  <input type="checkbox"/> Setting reading purpose/process</p>
<p><b>Transition:</b></p>	
<p><b>Development/Procedures:</b></p>	<p><b><u>Knowledge-Building</u></b></p> <p><input type="checkbox"/> Schemata  <input type="checkbox"/> Content Knowledge  <input type="checkbox"/> Word Construction  <input type="checkbox"/> Text Structures  <input type="checkbox"/> Discourse Knowledge</p>
<p><b>Transition:</b></p>	
<p><b>Summary/Closure:</b></p>	<p><b><u>Assessment</u></b></p> <p><input type="checkbox"/> Collect and Grade  <input type="checkbox"/> Check for Completion  <input type="checkbox"/> In-Class Check  <input type="checkbox"/> Rubric  <input type="checkbox"/> Checklist  <input type="checkbox"/> Peer/Self Assessment  <input type="checkbox"/> Journal/Learning Log  <input type="checkbox"/> Exit Slip  <input type="checkbox"/> Constructed Response  <input type="checkbox"/> Quiz</p>

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