

Supporting Teacher Learning about Disciplinary Literacy: An Exploration of Professional Development, Social Studies Teachers' Thinking, and Inherent Challenges

by

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ABSTRACT

This dissertation is comprised of three manuscripts that explore aspects of teacher professional development (PD) for disciplinary literacy. These aspects include (1) the ways that five core features of PD – duration, coherence, collective participation, active learning, and content focus – appear in a PD program focused on developing teacher thinking about disciplinary literacy; (2) the conceptions that social studies teachers held about disciplinary literacy while they participated in a PD program focused on disciplinary literacy; and (3) the challenges inherent to disciplinary literacy that impede the enactment of PD focused on disciplinary literacy. Data for this dissertation was collected through a yearlong qualitative study of a county-based PD program that focused on developing teacher thinking about disciplinary literacy. Data collected include observations of PD sessions, interviews with the PD Coordinator, interviews with and observations of four participating social studies teachers, and artifact collection. The analysis of the PD program (Chapter 2), based on an application of Desimone’s (2009) five-feature conceptual framework for studying PD, finds that most of the core features of PD were only partially realized, including the content focus and coherence. The exploration of four social studies teachers’ thinking (Chapter 3) reveals a continuum of disparate conceptions about disciplinary literacy and how it can be taught. A review of the challenges that arose during the enactment of the PD program (Chapter 4) uncovers some challenges inherent to learning about disciplinary literacy, including the disciplinary expertise gap between teachers and disciplinary experts. Taken as a whole, these sets of findings suggest that disciplinary literacy is a particularly

problematic topic for teachers to learn because part of the necessary content focus is the work of disciplinary experts. Since disciplinary expert work takes place outside the settings of schools and traditional PD sites and may not be familiar to teachers, PD programs focused on disciplinary literacy confront the added challenges of bridging the world of the disciplinary expert with the world of the teacher. This, in turn, places higher demands on teacher knowledge development than might be encountered in PD programs that deal exclusively with school-based topics. To assist in meeting these demands, this dissertation proposes a set of design principles for planning and facilitating PD focused on disciplinary literacy (Chapter 5). Based on a translation of the five-feature conceptual framework and the findings of this dissertation, these design principles suggest actionable means for implementing core features of PD focused on disciplinary literacy.

CHAPTER 1

Introduction

In writing this dissertation, I have focused on research that involves my interests (i.e., teacher professional development and social studies education) as well as an education reform effort that proponents see as promoting critical student learning outcomes (i.e., disciplinary literacy). This collection of manuscripts documents findings about the structure of a particular teacher professional development (PD) program, the thinking that social studies teachers exhibit about disciplinary literacy while participating in that PD program, and the challenges that arise when designing a PD program to support teacher thinking about disciplinary literacy. At its core, this dissertation wrestles with the overarching question, What are the important issues to address when supporting teachers to think about and teach disciplinary literacy?

Background

Over the past decade, there has been a notable shift in advocacy within the literature and research on adolescent literacy away from teaching middle school and high school students *content-area literacy* and toward teaching *disciplinary literacy*. Shanahan and Shanahan (2012) summarize these two approaches, writing,

Content area literacy focuses on study skills that can be used to help students learn from subject matter-specific texts. Disciplinary literacy, in contrast, is an emphasis on the knowledge and abilities possessed by those who create, communicate, and use knowledge within the disciplines. (p. 8)

In short, teaching disciplinary literacy necessitates teaching students about disciplinary experts and what they do. And this shift from focusing on helping students access and use school-based texts to teaching students to adopt and reflect the knowledge creation of disciplinary experts has begun to influence various standards documents. References to disciplinary literacy can now be found within the Common Core State Standards (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010), the core dimensions of the C3 Framework for Social Studies State Standards (National Council for the Social Studies, 2013), and the components of the Next Generation Science Standards (NGSS Lead States, 2013).

Yet, in order to make the shift from teaching content-area literacy toward teaching disciplinary literacy, Moje (2008) argues that teachers and students must develop knowledge of disciplines, the discourse and instructional practices aligned to disciplines, and identities within relevant discourse communities. To apply this to teachers of social studies, teaching disciplinary literacy means developing knowledge, practices, and identity in any one of the disciplines that comprise school-based social studies, such as history, geography, or economics. But what exactly is a discipline? And what would teachers need to learn about it in order to effectively teach it?

Hirst (1965) calls disciplines “forms of knowledge” where each has a “distinct way in which our experience becomes structured around the use of accepted public symbols” (p. 128). In other words, a discipline is a manifestation of the creation and expression of knowledge that is specific to its practitioners. In each form of knowledge, the following features are distinguished: (1) central concepts, (2) distinctive logical structure, (3) expressions that are testable against experience, and (4) techniques and skills for exploring experience and testing expressions. Within history, the discipline in social studies on which there is the most education research,

knowledge is created and shared by historians through interpretation of the historical record of documents, artifacts, and relics from the past. Given the gaps that exist in the historical record – that is, what is unknown – historians utilize specialized methods of selecting, questioning, and interpreting evidence when writing accounts of the past (Carr, 1961; Mink, 1987). “Doing” history is a matter of investigation of primary sources (e.g., artifacts that capture an event firsthand) and secondary sources (e.g., what others have written about events) for the purpose of making claims about existence, causality, or change relative to a person, event, or topic under study. Throughout this process, historians employ mental habits that are unique to the discipline, referred to as “thinking historically,” such as interpreting a source of evidence based on the circumstances of its creation relative to time, place, audience, and authorship (Carr, 1961; Collingwood, 1946; Mink, 1987).

However, by the time that students arrive in middle or high school classrooms, most of the process of knowledge creation has already been done for them. School-based history, especially as it appears in textbooks, often treats knowledge as a given set of information that is delivered by teachers and textbooks (Cuban, 1991, 2016; Ravitch & Finn, 1987) with students’ playing the role of passive learner in the classroom (Bain, 2006). Thus, history education researchers often distinguish between learning “school history” that is a fixed body of information and learning “disciplinary history” as an evidence-based exploration of interpretations about the past (Lee, 2005; VanSledright, 2012; Wineburg, 2001). While the facts of “school history” are important components about which thinking takes place in school classrooms, it is “disciplinary history” that is most aligned to the work of disciplinary experts and, thus, provides a more coherent basis for the concept of disciplinary literacy.

In this dissertation, I argue that to teach disciplinary literacy in history, teachers need to develop two specific areas of content knowledge (Shulman, 1986). These include *topical content knowledge* of the facts and events of the past and *disciplinary content knowledge* of the methods and thinking skills that historians or other disciplinary experts employ when investigating the past. In order to build the capacity to develop the latter, teachers must engage in learning opportunities focused on disciplinary aspects of history. However, there is limited research on teacher PD about disciplinary literacy, and the scholarship that does exist trends toward a focus on teacher instructional practice. There is no base of research that focuses exclusively on PD for developing teacher thinking about and instruction of disciplinary literacy.

Considering the knowledge demands placed on teachers who shift toward disciplinary literacy, I undertake a qualitative approach to explore the existence of core features of PD, the conceptions that teachers hold along the way, and the challenges for designing PD aimed at supporting teacher thinking about disciplinary literacy. A qualitative approach to research lends itself to better capturing the phenomena under study within the context of its existence. By observing PD sessions and conducting interviews with both the PD Coordinator who facilitated the program and select teachers who participated in the program, I reveal nuances that are present in the conditions of teacher participation within the PD experience as well as the variations in teacher thinking within this context.

To frame my research, I adopt a conceptual framework that incorporates a theory of change in which participation in PD impacts teacher knowledge and skills, teacher instructional practice, and student learning outcomes. In particular, I adopt Desimone's (2009) conceptual framework of five core features of PD and focus on the connections between teacher participation in PD and the development of teacher knowledge.

Overview of Manuscripts

This dissertation is organized around a collection of three manuscripts (Chapters 2-4) that investigate different research questions. In Chapter 2, I directly utilize Desimone's (2009) conceptual framework by looking for an existence proof of effective PD (Borko, 2004) focused on disciplinary literacy. In Chapters 3 and 4, I seek to explicate a specific feature of this framework – the content focus – through attention to teacher thinking about disciplinary literacy and the challenges faced by the PD Coordinator. In the final chapter (Chapter 5), I synthesize these manuscripts into larger findings and propose a set of design principles for PD on disciplinary literacy. Because the middle three chapters are meant to be stand-alone studies but are also related to the same phenomenon (i.e., developing teacher learning during the PD program), the reader is likely to encounter redundancies concerning central concepts, literature cited, and design of the PD program, among others. Where possible, I have attempted to minimize such redundancies by referring to statements in previous chapters.

Chapter 2 – The Importance of Content and Coherence in PD for Disciplinary Literacy

Chapter 2 is an exploration of the design and enactment of the first year of the Professional Development for Disciplinary Literacy (PDDL) program, a Midwestern county-based PD initiative for local middle school and high school teachers of all subject matter areas. I utilize Desimone's (2009) conceptual framework to analyze this PD program based on five core features: duration, collective participation, content focus, active learning, and coherence. In this study, I ask the question: In what ways did a PD program focused on disciplinary literacy realize Desimone's (2009) five core features of effective PD? I provide working definitions of these core features by consulting relevant research that characterize these features and implement them in other studies. In conducting my analysis of the PDDL program, I look for evidence that these

features existed. In doing so, I determine how disciplinary literacy is represented in the core features of effective PD in the context of a PD program on disciplinary literacy. I base my analysis on data from observations of PD sessions, planning sessions, and webinars as well as interviews with the PD Coordinator before, during, and after the school year. I find that *coherence* and *collective participation* did not exist as much as *duration* and *active learning*. Also, the *content focus* was not always obvious. This article introduces the idea that in this disciplinary literacy-focused PD program there were two content foci: what disciplinary literacy is and how to teach it. This speaks to the problematic nature of disciplinary literacy as a content focus for PD since it highlights the need for teachers to learn about two discrete subjects (i.e., the discipline versus instructional pedagogy) that exists in two separate contexts (i.e., where disciplinary experts work versus where teachers work). In this manuscript, I try to identify what effective PD for disciplinary literacy might look like and involve, since there has been almost no research in this area. Developing an existence proof of what effective PD for disciplinary literacy looks like is an important next step to more broadly studying the impact of such PD.

Chapter 3 – Social Studies Teachers’ Conceptions about Disciplinary Literacy

In Chapter 3, I take up the idea from Chapter 2 that there were two content foci in the PD program: understanding disciplinary literacy and teaching it. To do so, I explore the conceptions that four participating social studies teachers had around definitions of disciplinary literacy, the work of disciplinary experts, and instructional practices for teaching disciplinary literacy in history and social sciences. In this study, I ask the question: How do secondary social studies teachers understand disciplinary literacy while they are involved in the first year of a PD program focused on disciplinary literacy? I base my analysis on interviews at multiple points throughout the school year with four social studies teachers who participated in the PDDL

program. Even though all four teachers participated in the same PD program, I find that the teachers held a range of conceptions about disciplinary literacy and related instructional practices. To make sense of this range, I place these teachers on a continuum of understanding about disciplinary literacy. This manuscript is useful for considering the conceptions that may need to be addressed in PD and the potential for impacting teachers' conceptions of disciplinary literacy through PD.

Chapter 4 – The Challenges of Developing Teacher Thinking about Disciplinary Literacy

In Chapter 4, I explore the PD Coordinator's perceptions of the PDDL program and the challenges that the PD Coordinator faced when planning and implementing it. I do so with specific attention to the difficulties in developing teacher thinking about disciplinary literacy. In this study, I ask the question: What are the challenges for designing PD that supports teachers' thinking about disciplinary literacy? I base my analysis primarily on data from interviews with the PD Coordinator before, during, and after the school year and corroborate the PD Coordinator's perceptions with my observations of PD sessions, planning sessions, and webinars as well as my interviews with four social studies teachers who participated in the PD program. I find that there were four specific challenges to developing teacher knowledge about the work of disciplinary experts, and to developing teacher knowledge around disciplinary instructional practices: (1) bridging the expertise gap between teachers and disciplinary experts, (2) providing sufficient representations of instructional practice focused on disciplinary literacy, (3) managing teacher attrition and lack of participation, and (4) getting teachers from various content areas to participate as much as English Language Arts teachers did. These challenges suggest that there are multiple layers of support needed to effectively develop teacher thinking about disciplinary literacy in PD programs.

Role of the Researcher

Since teaching middle and high school social studies years ago, I have retained a strong interest in the ways that teachers represent the disciplines of history and social science in their instruction. As a graduate student in a doctoral program focused on teacher education and as a pre-service teacher educator, I have added the research interests of teacher learning and PD to my prior interest in social studies education. To pursue these interests in formal study for this dissertation, I inquired with multiple social studies education PD providers, both national and local in scope, about their program's design and appetite for accepting me into their program as a graduate student researcher. After weighing options, I elected to study a program with a local scope in order to better capture potential connections between the PD program and teachers' school experiences, something that seemed more challenging for providers of PD programs with larger regional or national appeal. In addition, this choice allowed me to observe a long-term program rather than a one-week program, which the national programs mostly were.

Given my experiences, I approached this study knowing that I placed value on disciplinary literacy as a worthwhile goal for students, believing that it's possible to teach disciplinary literacy to students, and remaining attentive to the pressures that teachers face. In an attempt to remain objective about the people and events under study, I limited my role as a researcher of the PDDL program to being a passive observer during PD sessions, planning sessions, and webinars. During these times, my activity was to sit among teachers, video record, take field notes, and ask occasional clarifying questions (e.g., what someone meant by the use of a specific phrase). Because I was also attempting to track the experiences of social studies teachers, I often shadowed social studies teachers when they gathered together in a content-area group during breakout sessions in the face-to-face PD sessions. During interviews with the PD

Coordinator and the four social studies focus teachers, I asked questions that inquired into their perceptions and conceptions of a range of topics. In these interviews, I did my best to not express my personal conceptions or definitions and to not pass any evaluation on statements made by participants. In conducting my research in this manner, I sought to emphasize the exploratory orientation of this study.

Research Challenges

This dissertation has shifted in focus since my proposal for the broader study was approved. Initially, I sought to explore (1) the PD program for an existence proof of the core features of PD in Desimone's (2009) conceptual framework, (2) change in teacher knowledge and instructional practices, and (3) the impact that the PD program had on teacher instructional practices. However, once my dissertation study was underway, it became evident that a shift in teacher instructional practice was not an objective of the PD program. Rather, the PD Coordinator anticipated that the first school year of the program (the one I studied) was going to focus on building knowledge and instilling in teachers the willingness to adopt new instructional practice in future years. Given this reality, I reoriented my research questions. Therefore, in Chapter 3, I focus exclusively on teacher thinking and conceptions. However, since I did not find that teacher conceptions changed, I focused on exploring what conceptions existed – and therefore must be addressed in PD program design – rather than the impact that the PD program had on teacher thinking.

Since I did not look at the impact that the PD program had on teachers' instructional practice, I focused Chapter 4 on the challenges of developing teacher thinking in response to an issue that emerged during my data collection, specifically an apparent missed opportunity for teachers to learn about the work that disciplinary experts do. This opportunity took place at a

local university showcase on disciplinary literacy. However, the PD Coordinator felt that the objective – to develop knowledge about what disciplinary experts do and create – was not accomplished. In addition to this, my observations of content-area social studies teachers revealed varying degrees of understanding about disciplinary literacy. In response to this issue that emerged, I decided to focus on the challenge of developing teacher knowledge about disciplinary literacy more broadly and consider what other challenges also existed.

I had initially planned to study aspects of the PD program that aligned with scholarship on teacher learning communities and, in particular, research on teacher networks as a form of PD. Indeed, the PD Coordinator had originally called the PD program a “network” based on the plan for teachers to collaborate with one another outside of the face-to-face sessions. However, the PD program was not carried out in this manner and many aspects of the PD program that I had planned to analyze did not materialize. For example, the PD Coordinator initially planned a “blended learning” experience in which teachers would participate in five face-to-face sessions as well as five online experiences. These online experiences were to take place on a social media platform where teachers could contribute to an on-going discussion within their designated PD-session book clubs. However, the online activity did not become a regular practice and was abandoned early on in the school year.

I also ran into obstacles enrolling teachers to participate in my study. One school district within the two counties served by the PD program would not grant me permission to observe teachers or interview teachers at their schools. Because of this, I was not able to fully enroll social studies teachers from this district in my study. I did, however, interview one teacher from this school district before and after the school year by conducting our interviews at the ISD at the

end of PD sessions. Thanks to the flexibility of this teacher to work with me outside of the school year, I was able to honor the school district's concerns.

I experienced participant attrition with one middle social studies teacher who had enrolled in my study as a focus teacher. I interviewed this teacher on three occasions in the first three months of the PD program. However, this teacher did not attend any PD sessions after the first session. Consequently, I did not include this teacher in my data.

In addition to these difficulties, attendance in the PD sessions became problematic. There were initially 36 teachers at the first PD session. Of these, 21 attended the second session; 18 attended the third PD session at the university literacy showcase; 16 attended the fourth session; and 9 attended the fifth session. Among the four social studies focus teachers I interviewed for this study, all four attended the first and second PD sessions, two attended the third PD session at the university showcase, all four attended the fourth PD session, and one attended the fifth PD session. Given this decline in the participation rates among all teachers in the PD program and the individual participation rates of the four social studies focus teachers, I could not draw conclusions about the impact that the PD program had on teacher thinking. This was especially true for the focus teachers where there was a negative correlation between attending PD sessions and holding more sophisticated conceptions about disciplinary literacy – that is, those who participated in the most PD sessions were more likely to hold content-area literacy conceptions than disciplinary literacy ones. This is why Chapter 3 is an exploration of the conceptions teachers had while participating in the program and not an impact study of a PD program.

Contributions

Despite these extensive challenges, consistent patterns emerged from the data that were helpful in developing my thinking about PD for disciplinary literacy. To those who are interested

in similar areas of practice or research, I am able to make the following contributions. First, in my exploration of a PD program in Chapter 2, I relate ways that the core features of effective PD can be translated for a PD program focused on disciplinary literacy. Such a translation can inform PD program design and studies that seek to analyze the impact of PD on teacher change and student outcomes by identifying potential levers of support for teacher learning. Second, in my study of social studies' teachers' thinking in Chapter 3, I delineate specific conceptions that teachers held while participating in a PD program about disciplinary literacy. By highlighting the knowledge that teachers use when learning about disciplinary literacy, I present potential topics that can be covered in PD programs as well as indicators of teacher knowledge that researchers may want to study as precursors to or in conjunction with teacher development of instructional practices. Finally, in Chapter 5, this dissertation offers a set of design principles for PD focused on disciplinary literacy. This list responds to and addresses the challenges to PD design perceived by the person responsible for leading the PD program that I describe in Chapter 4. Such design principles can inform the priorities of and objectives for the design of teacher learning experiences around disciplinary literacy. Moreover, this list can serve as a guide for studying and identifying more nuanced aspects within the core features of effective PD for disciplinary literacy. Taken as a whole, this dissertation provides the building blocks for stronger program design for and in-depth research on the impact of PD for disciplinary literacy.

CHAPTER 2

The Importance of Content and Coherence in Professional Development for Disciplinary Literacy

With the implementation of the Common Core State Standards, states have identified new and potentially challenging literacy standards that all students are expected meet. Although the Common Core promotes explicit outcomes for language arts, there are no standards in this document that are unique to history and the social sciences. In fact, the only standards oriented toward social studies in the Common Core are a duplication of the language arts standards. The implication is that history and social science teachers can and should meet the new literacy standards, and therefore increase student achievement, through their teaching of subject-specific content. This requires teachers to teach not just literacy skills or just subject matter. Rather, they must skillfully integrate both.

While this is not the first time education reform efforts have focused on integrating literacy into the content areas, this current shift has focused on more specialized reading and writing in the content areas and has been termed “disciplinary literacy.” As stated in the introduction to the Common Core English/Language Arts (ELA) standards, “The disciplinary literacy standards allow teachers of ELA, history/social studies, science, and technical subjects to use their content area expertise to help students meet the particular challenges of reading, writing, speaking, listening, and language in their respective fields” (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010).

Fulfilling this expectation to have and use “content area expertise” places demands on teacher knowledge and instruction. It requires that teachers possess requisite knowledge of a discipline, understand how students think about the discipline, and enact instructional methods to facilitate student learning connected to the discipline’s specialized ways of reading, thinking, and writing. Since not all teachers possess such expertise or, consequently, a repertoire of aligned instructional practices, teacher professional development (PD) programs can play an important role in meeting these demands.

In this manuscript, I review the structure and substance of a locally-based PD program focused on developing teacher knowledge of disciplinary literacy. I analyze the methods and substantive content of the PD program with regard to the opportunities social studies teachers had to learn disciplinary literacy both as a concept and as an instructional practice. To do this, I utilize the five critical features of PD proposed by Desimone (2009). By focusing on aspects of PD design, I seek to understand whether and how it is possible to provide PD focused on disciplinary literacy that has an impact on teacher learning. Before turning my attention to literature and research on PD, I first turn to considerations about the content under study by the teachers in PD: disciplines and the associated disciplinary literacy practices that secondary teachers might take up. Since I am ultimately interested in the experiences of social studies teachers, I focus on the discipline of history here because it is the most researched discipline in education among those that comprise school-based social studies.

Disciplines and Disciplinary Literacy

Before describing disciplinary literacy, it is necessary to consider its basis: that is, the discipline. Therefore, I begin by developing some foundational conception for what a discipline is and how history is distinguished from others. To conceive of what a discipline is, I adopt

Hirst's (1965) definition of a discipline as a "form of knowledge," or a "distinct way of structuring experience," that:

- involves central concepts unique to the form,
- has a distinctive logical structure,
- has distinctive expressions that are testable against experience in accord with criteria unique to the form, and
- has particular techniques and skills for exploring experience and testing expressions. (pp. 128-129)

At its most basic, a discipline is a manifestation of the way knowledge has been created about specific experience through the use of common concepts, language structures, and notions of validity. Based on these criteria, Hirst categorizes the disciplines of mathematics, physical sciences, human (social) sciences, history, religion, literature/fine arts, and philosophy.

History is uniquely positioned among disciplines because the phenomena under study are not empirically observable or replicable in real time (i.e., since these exist in the past). The evidence base of history relies on leftover pieces of the past including documents, artifacts, and relics. These *residua* are never a complete catalog of everything that ever happened since not everything ever created has been preserved and stored in a way that is accessible. Also, not everyone who lived in the past left written records, which place a major role in the study of history. So, when using written records to substantiate the past, we only hear some perspectives. Given the inevitable gaps that exist in the historical record, historians must utilize specialized methods of selecting, questioning, and interpreting evidence when writing accounts of the past (Carr, 1961; Mink, 1987).

To the historian, a variety of sources can be used as evidence for analysis and interpretation. As Collingwood (1946) states, "Everything is evidence which the historian can use as evidence" (p. 246) so long as the historian approaches the evidence with the right problem in mind. Regardless of the problem defined, the historian will ultimately interpret each piece of

evidence by considering the circumstances of its creation relative to time, place, audience, and authorship (Carr, 1961; Mink 1987). Thus, what a historian publishes, while communicated in a form that often conveys fact, is actually a set of accepted judgments that other historians find valid and significant (Carr, 1961). The enterprise of “doing” history is one of investigation of primary sources of (e.g., artifacts that capture an event firsthand) and secondary sources about (e.g., what others have written about events) the past in order to be able to make claims about existence, causality, or change relative to a person, event, or topic under study. Throughout this process, historians employ mental habits that are unique to the discipline (e.g., determining the influence of the historical context on an artifact’s creation, consulting and corroborating multiple sources of evidence). Historians have referred to such habits of mind as “thinking historically” (Carr, 1961; Collingwood, 1946; Mink, 1987).

Unlike historians who review their discipline for the purposes of others within the discipline, education researchers have taken up research on historians for the purpose of developing better school-based history instruction. For example, Wineburg (2001) identifies specific aspects of the thinking by historians and how those compare to high school students. This research has identified ways of reading history, including sourcing (interpreting based on authorship), contextualizing (interpreting based on time and place of creation), and corroborating evidence. Such initiative that crosses the discipline-school divide has been taken up by others (cf. Bain, 2000; Nokes, Dole, & Hacker, 2007; Reisman, 2012b) and has now been extended to the point of identifying what teaching practices support historical inquiry. Fogo (2014) presents a set of core teaching practices for secondary history education taken from a Delphi panel of 26 expert history educators. This set included teaching practices such as using historical questions,

selecting and adapting historical sources, employing historical evidence, and modeling and supporting historical writing.

Since teaching disciplinary literacy means supporting students to understand how knowledge is created and produced in each discipline, teaching disciplinary literacy in history involves teaching students the habits of mind of historians, disciplinary processes for reading and analyzing artifacts, how to deliberate about and discuss interpretive historical questions or problems, and how to develop and communicate written historical arguments. In short, students need to become actively involved in the process of asking questions and finding answers (e.g., Bain, 2006; De La Paz, 2005; Monte-Sano, 2008, 2011; Reisman, 2012b). Learning history in a disciplinary manner should be an investigation that “is devoted to learning how to question a historical account, to understanding the evidentiary base upon which it rests, and to assessing it in relation to competing accounts” (Seixas, 2000, p. 24). Yet, much of history and social science instruction treats knowledge as a given set of information that is delivered by teachers and textbooks (Cuban, 1991, 2016; Ravitch & Finn, 1987) with students’ playing the role of passive learner in the classroom (Bain, 2006).

Professional Development

Teaching students to develop literacy skills aligned to the ways of reading, writing, and thinking in the disciplines necessitates that teachers develop their own knowledge of a discipline, develop discourse and instructional practices aligned to a discipline, and alter their identities within certain discourse communities (Moje, 2008). In order for teachers to develop new knowledge as well as instructional practices and identities, they must have opportunities to learn. Typically, teachers participate in PD programs as a way to meet such demands. Yet, there is still an insufficient research base to empirically establish connections between quality PD and

changes in teacher knowledge and practice (Fishman & Davis, 2006). Furthermore, most studies of local PD programs continue to rely upon teacher reports of change or satisfaction as the dominant method for evaluation (Hill, Beisiegel, & Jacob, 2013).

Within this dearth of research on PD and teacher practice even less is known about how history and social science teachers develop their practice through PD experiences (van Hover, 2008). One of the most recent and major PD initiatives during the last two decades was the now-defunct Teaching American History (TAH) grant program. Yet even though there was extensive participation in the TAH program, a report on the impact of the TAH grant program found that “teacher and student outcome measures remain elusive” (U.S. Department of Education, 2011, p. 40) since local program evaluators did not have the resources needed to carry out robust studies of teacher learning and most states had not developed American history assessments to evaluate what students learned. Instead, evaluations most often focused on teacher self report and added very little to our understanding of teacher learning or the impact of PD (for a critique of the TAH grant program, see a report of Sam Wineburg’s speech to the Organization of American Historians in Shenkman, 2009).

With the current emphasis on disciplinary literacy, momentum has gathered behind PD initiatives in history and social science education, albeit in a less centrally-defined manner than the TAH grant program. Currently, PD programs that link to the Common Core and seek to integrate literacy into history and social sciences exist across a range of independent providers. These include programs delivered by key organizations in the field: Teaching Literacy through History (TLTH) program at the Gilder Lehrman Institute of American History; the College, Career, and Civic Life Literacy Collaborative (C3LC) grant project through the National Council for the Social Studies; and the Teaching with Primary Sources (TPS) program at the Library of

Congress. The aforementioned PD initiatives are all programs with a national focus that typically bring teachers together in a central place removed from school settings. Yet, research on PD has found that the situated nature of a setting is important to teacher learning. Hence, localized PD programs can somewhat more readily connect with teachers' locus of practice (i.e., schools within districts).

In her AERA presidential address and subsequent article in *Educational Researcher*, Borko (2004) mapped the terrain of the study of PD by outlining three phases of research. The first phase, and most pertinent to my study, looks for an "existence proof" (p. 5) of effective PD vis-à-vis teacher learning in order to eventually correlate aspects of teacher learning to student performance. In this phase, research activities focus on an individual PD program at a single site and determine whether a PD program has a positive impact on teacher learning. To do so, researchers focus on evidence that teachers are developing school subject knowledge, guiding student thinking, and working to change instructional practices.

Currently in the field of history and social studies education, there exists no base of quality Phase 1 research. In her review of the PD of social studies teachers, van Hover (2008) claims the majority of Phase 1 research "fails to examine the impact of PD on teacher practice... and relies heavily on teacher self-report through exit interviews, exit surveys, reflective journals, or anecdotal conversations." Stating her imperative, she continues, "Future research in this phase should focus on what happens in the classroom following PD and whether/how PD impacts teacher learning..." (p. 366). This paucity of research on effective PD and a relatively new scholarly emphasis on disciplinary literacy in history and social sciences represent a gap within the collective scholarly understanding of what makes PD effective in supporting social studies teachers' learning of disciplinary literacy.

Conceptualizing Effective Professional Development

More than a decade ago, researchers and scholars in the field of teacher PD began to claim consensus around what makes PD “effective” in relation to positive change in teacher practice and improvement in student learning outcomes (Hawley & Valli, 1999; Putnam & Borko, 1997; Wilson & Berne, 1999). The consensus around these premises has even appeared in literature on the PD of social studies teachers (see Valli & Stout, 2004), though only in generic application. While these lists of characteristics of effective PD varied in length, they all contained the premise that PD should be on-going or continuous over a long term, should recognize teachers as active adult learners, should provide opportunities for collaborative learning, should be embedded in the work that teachers do in schools, and should be rooted in the knowledge base that teachers have about their own work.

Based on the consensus around characteristics of effective PD, conceptual frameworks have emerged that link components of PD to positive change in teacher knowledge and beliefs, teacher practice, and student performance. Authors of such conceptual frameworks have typically included common features like teacher instruction, teacher knowledge, teacher beliefs and attitudes, and student learning, but have mapped interactions among these features differently. Guskey (2002) provides a linear model in which PD may unidirectionally impact teacher classroom practices, which then impacts learning outcomes, which then ultimately impacts teacher beliefs and attitudes. In contrast, Desimone (2009) identifies reciprocal relationships across such components in a framework for studying the impacts of PD on teachers and students (see Figure 2.1). About her framework, she argues that it brings together “a theory of teacher change (e.g., that PD alters teacher knowledge, beliefs, or practice) and a theory of instruction (e.g., that changed practice influences student achievement)” (p. 185), both of which

other researchers have said are necessary to complete an understanding of how PD works.

In this study, I seek to adopt Desimone's orientation toward testing a theory of teacher change. I carry out an analysis of a PD program's potential impact on teacher thinking and knowledge and, in doing so, am concerned with the ways the PD program is consistent with Desimone's critical features of PD and how disciplinary literacy was instantiated in these critical features of PD. By analyzing such features of PD, I am better able to establish how each feature can influence teacher learning about disciplinary literacy.

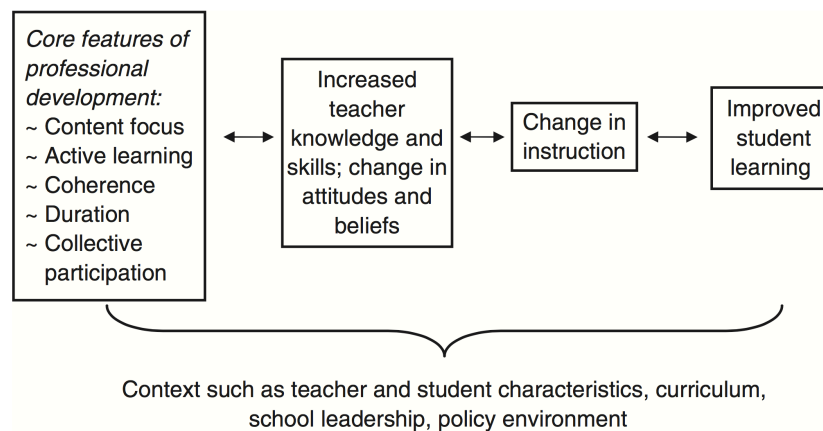


Figure 2.1. Proposed conceptual framework for studying the effects of professional development on teachers. (Desimone, 2009, p. 185)

Taken as a whole, Desimone's (2009) core conceptual framework provides a foundation from which to build "a coherent knowledge base" (p. 186) about the impact that PD has on a variety of teacher and student outcomes. While the model is designed to account for these various impacts, it also functions as a framework for studying effective PD. In fact, Desimone states, "having a core set of characteristics that we know are related to effective PD, and measuring them every time we study PD, would help move the field forward" (p. 186). She continues,

[T]he research consensus is strong enough to warrant the inclusion of a firm set of features that have been shown repeatedly, in case-study as well as large-scale and experimental research, to be related to teacher improvement and tentatively to student achievement... Using a shared conceptual framework as a basis for developing measures of PD would contribute to our building a consistent set of data over time on critical aspects of teachers' learning experiences. (p. 186)

Taking this idea of “critical aspects” a step further, one could argue that researchers who focus on the five core features of PD identified above – content focus, active learning, coherence, duration, collective participation – can more consistently consider the impact that each of these features has on teacher and student outcomes. Below, I explain how these five core features have appeared in recent studies related to PD.

Duration. Desimone (2009) writes that there is no exact “tipping point” (p. 184) for the duration of PD, but that research shows support for a minimum of a one-semester (or an intensive summer institute) span of time including 20 hours or more of contact time. While others have cited other numbers like 40 hours over 12 or more months (Wilson, 2009), what remains important is long-term PD that involves a significant number of hours (Cohen & Hill, 2000). Garet, Porter, Desimone, Birman, and Yoon (2001) identified duration as “contact hours” and “time span” and considered these aspects to be “structural features” of PD design (p. 933) that correlate to stronger content focus, active learning, and coherence.

Collective participation. Desimone (2009) states that this feature can be achieved by teachers who participate as part of a group from the same school, grade within a school, or department within a school. Regardless of the subgroup within which a teacher participates in larger PD, what appears evident in the literature is teachers' participation with colleagues in PD that explicitly accounts for the contexts and experiences of teachers (Little, 1993). Garet et al. (2001) take a similar stance toward collective participation and note that this has a moderate positive effect on other core features of PD that lead to change in teacher knowledge and

instruction. Like “contact hours” and “time span,” Garet et al. (2001) consider collective participation to be a structural feature of PD that impacts the effectiveness of the following three core features.

Content focus. Desimone (2009) writes that the content focus of PD “may be the most influential feature” (p. 184). Citing research from the previous two decades, she argues that there is a case to be made for the “link between activities that focus on subject matter content and how students learn that content with increases in teacher knowledge and skills, improvements in practice, and, to a more limited extent, increases in student achievement” (p. 184). Focusing on both the subject matter and how students learn it has been the focus of researchers who consider the knowledge base of teaching generally (e.g., Shulman, 1986) and those who have studied science teachers (Penuel, Fishman, Yamaguchi, & Gallagher, 2007) and mathematics teachers (Hill, Rowan, & Ball, 2005).

Active learning. Desimone (2009) lists a number of ways that active learning can be present, including “(1) observing expert teachers or being observed, followed by interactive feedback and discussion; (2) reviewing student work in topic areas being covered; and (3) leading discussions” (p. 184, enumeration added). Active learning is contrasted with “passive learning” (p.184) that is typified by direct instruction (e.g., lecture). In their national sampling of science and mathematics teachers, Garet et al. (2001) looked for four specific indicators of active learning, which they showed to have a positive causal relationship to improvements in “enhanced teacher knowledge” and “change in teacher practice” (p. 931). These indicators are: observing and being observed; planning classroom implementation; reviewing student work; and presenting, leading, and writing.

Coherence. Desimone (2009) defines coherence in PD as “the extent to which teacher learning is consistent with teachers’ knowledge and beliefs” (p. 184). Penuel et al. (2007) argue that teachers interpret PD demands through their own interpretive frames and that the social context of schooling impacts the frames that teachers use. Thus, congruence between the demands of the PD and the district’s goals and the social pressures within schools leads to more commitment by teachers to learn it. Garet et al. (2001) looked for connections with goals and other activities, alignment with state and district standards and assessments, communication with others including those not attending and with principals. They found that coherence of PD activities has an “important positive influence on change in teaching practice” (p. 934).

Responses to the Five-Feature Conceptual Framework

While the five-feature conceptual framework represents a consensus model for researching and designing PD programs, there has been some skepticism about how useful the model is. Wilson (2011) notes that most of the studies upon which the five-feature framework relies are mainly correlational studies or studies of teacher self-reporting. Even within the use of more rigorous research methods, results have not always been successful (Desimone & Garet, 2015). This suggests that the features of the conceptual framework may identify surface-level characteristics and not the more impactful levers for developing teacher learning (National Academies of Sciences, Engineering, and Medicine, 2015).

In a review of research with an emphasis on randomized control trials, Desimone and Garet (2015) describe insights that help refine the five-feature conceptual framework. These insights are broad findings the authors have gleaned by looking across research on PD programs (both successful and unsuccessful ones) that have incorporated the five features. These findings are:

1. Discrete teacher behaviors are easier to change than either teacher content knowledge or complex instructional approaches;
2. Teachers vary in response to PD based on their varying levels of experience, knowledge, and context;
3. PD is more successful when linked to classroom lessons;
4. PD must allow for conditions in more urban areas; and
5. Leadership plays a key role in supporting and encouraging teachers to implement the ideas and strategies learned in PD.

In addition to these findings, the authors note specific challenges to PD. These mainly include facets of the fragmented multiplicity of PD providers, but they also include the need for PD providers to be explicit about learning objectives, especially outcomes that are found in classroom instruction.

While the five-feature conceptual framework will likely need to be revised and made more specific in the future, it still currently represents the overarching consensus of researchers on PD. Desimone and Garet (2015) acknowledge the need for more specificity within the model, saying, “work needs to be done to take PD research to the next level, specifically in translating the [five] broad features into specific, effective activities in varying contexts” (p. 260). In this study, I attempt to do part of this work by translating the five features into indicators of analysis specifically for PD on disciplinary literacy.

This Study

Given the recent content focus on disciplinary literacy, there is a need for new "Phase 1" (Borko, 2004) research on PD for disciplinary literacy. In this type of research, researchers typically study “the PD program, teachers as learners, and the relationships between these two elements of the system” (p. 4). Phase 1 research provides evidence that a PD program can have a positive impact on teacher knowing and instruction. Given this focus, I analyze one locally-based effort to use PD to support teachers in this particular area of reform – the Professional Development for Disciplinary Literacy (PDDL) program. In this study, I explore what might be

involved in an “existence proof” of effective PD for developing teacher thinking about disciplinary literacy. This study considers the alignment of the PDDL program with important tenets of PD, which has implications for the design and research of PD focused on disciplinary literacy. Ultimately, I ask: In what ways did a PD program focused on disciplinary literacy realize Desimone’s (2009) five core features of effective PD?

Method

This is a qualitative case study (Yin, 2014) that explores the core features of a PD program focused on developing teachers’ thinking about disciplinary literacy. Data for this study was collected during the first year of this PD program over the course of one academic school year and included interviews, observations, and artifacts. The data was analyzed through an elaborated coding scheme based on five indicators of effective PD.

Context

The PD for Disciplinary Literacy (PDDL) program is a multi-year series of PD sessions and experiences hosted by a county intermediate school district (ISD)¹ in a Midwestern state. I collected data during the first year of the PDDL program, which lasted from September to May and consisted of five face-to-face sessions. A staff member at the ISD formally directed the PD (herein “PD Coordinator”), though the program sessions were generally carried out by or in conjunction with teacher participants and university faculty guests.

Teachers who participated in the PDDL program included 36 middle school and high school teachers of different academic subjects (e.g., math, science, social studies,

¹ An intermediate school district (ISD) is a public education agency that functions outside the parameters of traditional school districts. It operates at the county or multi-county level by providing instructional and administrative services and support for staff and students within the ISD. Among other activities, an intermediate school district can promote regional collaboration and professional learning opportunities.

English/language arts) from 20 different schools across 10 school districts in the two counties served by the ISD. Three of the teachers at the time were full-time instructional leaders and/or curriculum directors in their schools or districts. The 20 different schools from which the teachers came represented a range of suburban, semi-rural, and rural settings. According to state education data, the 10 school districts represented by the 36 teachers serve schools with 8-45% students categorized as “economically disadvantaged” and 55-94% categorized as “white.” Across these districts, “economically disadvantaged” did not correlate to school setting (i.e., suburban versus rural), but did have a slight negative correlation to “white.”

Teachers were invited to participate by the PD Coordinator via email. All teachers had previously participated in other PD programs at the ISD. An email from the PD Coordinator to the prospective participants stated, “Because of your previous work with us in literacy, you are invited to continue this work by becoming part of a group of strong secondary content area teachers and leaders willing to dive into inquiry around literacy and learning in your discipline!”

At the time, the email contained goals and expectations for teachers. These included:

- Teachers will commit to field-testing new strategies and routines in their classrooms and collecting evidence and reflections to share with peers.
- Teachers commit to a blended learning experience throughout the academic year (mix of online and face to face meetings) where new learning, reflection, goal-setting, sharing practice, lesson and unit planning, and planning next-steps will be routine practices.

In actuality, the goal of the first year of PDDL became focused on getting teachers to think about and develop an understanding of disciplinary literacy and not so much on instructional practice.

In a mid-year interview, the PD Coordinator clarified this goal:

I'm hoping the experiences we have this year will open [teachers'] eyes enough to see that instructional practice can be changed... So, this first year will be instrumental in just laying the groundwork and knowledge and then the motivation can kick in. I'm just hoping to get enough models of this work so that teachers feel it's possible [to change]... and that they're willing to jump in and try something new. (Interview 12/17/15, 14:49)

In another revision to the initial goals bulleted above, the “blended learning” approach did not materialize since the online platform did not get utilized by many teachers and the PD Coordinator eventually excluded the online feature from the face-to-face meeting agendas after the second PD session.

Through the PDDL program, all teachers eventually had the opportunity to participate in two days of planning during the summer, one day of planning during the fall, four PD sessions at the ISD throughout the school year, one session of PD at a local university during the middle of the school year, and two webinars with university faculty.

Data Collection

The data for this study was collected over the course of the academic year that PDDL took place, including the summers before and after (see Appendix A for a timeline of data collection). Data consist of:

- two observations of planning sessions that took place in the summer prior to the commencement of the program;
- one observation of a planning session that took place in the fall;
- four observations of PD sessions at the ISD building;
- one observation of a PD session at a local university;
- one observation of a webinar with a university faculty member facilitated by the PD Coordinator; and
- five interviews that I conducted with the PD Coordinator before, during, and after the PD series.

All observations were video recorded and accompanied by artifacts (agendas, posters created, etc.) and field notes taken during the sessions (see Appendix A for the length of time for each PD session or interview). All interviews with the PD Coordinator were audio recorded and transcribed (see Appendix B for a sample protocol of questions during the PD Coordinator interview). Throughout my observations of PD sessions, there were times when I focused exclusively on social studies teachers and their experiences. This was the case when teachers

split up into content-area groups during face-to-face PD sessions. During these activities, my field notes reflected only what I observed among social studies teachers.

Field notes; video recordings of the PD sessions, planning sessions, and the webinar; and collected artifacts provide primary data about the existence of the design, content, and methods of the PD program as enacted. Thus, the data substantiate the activities carried out, the topics and materials referenced, and the conversations that took place. In my field notes, I focused exclusively on documenting the activities facilitators led and what teachers did and said during these activities. Interviews with the PD Coordinator provide evidence of the reasoning behind content selection and establish the underlying rationale behind the PD program design.

Data Analysis

The eventual goal of the first year of the PDDL program was to build teachers' conceptions of disciplinary literacy and motivation for teaching it. This idea, therefore, frames my analysis of the PD program, since it represents the aspect of teacher learning that the PD Coordinator sought to impact. Namely, the emphasis here is on teacher "knowledge" about disciplinary literacy and being "willing" and having "motivation" to eventually change instructional practice (Interview 12/17/15,14:49). My analysis of the PD program, therefore, is guided by a review of the features of the PD program in relation to potential impact on teacher thinking.

After I collected data, I broke each data source down into episodes in order to more easily manage the data. I chunked PD sessions into component episodes based on change in facilitator and topic (see Appendix C for a list of all episodes from the PD sessions). I delineated episodes within the interviews by categorizing sets of questions based on topics (e.g., conceptions of disciplinary literacy, personal philosophy on teacher learning, etc.). Most of these episodes were

already separated in the interview guides that I had designed prior to the study (for example, see the PD Coordinator interview protocol in Appendix B and the headings under which questions are categorized).

After breaking data sources down into episodes, I reviewed the observation field notes and accompanying artifacts for indications of the five core features of PD listed by Desimone (2009) as basic codes: sustained duration, active learning, content focus, coherence, and collective participation. I used these features as first-level codes (Miles & Huberman, 1994) in order to attribute “a class of phenomena to a segment of text” (p. 57). After this, I conducted the same analysis of the interviews with the PD Coordinator. I applied these codes to interviews and observation field notes in order to cluster data together that could reveal patterns (Miles & Huberman, 1994) in the design of the PDDL program and the manner in which it was carried out. After reviewing each data source, I wrote a memo to document my initial impressions of any content related to the five core features of PD.

Using these memos as a guide, I read over the transcripts and field notes and began applying a series of second-level codes. Miles and Huberman (1994) state that the aim of second-level coding is to mark regularities or patterns in the data. To do this secondary analysis, I conducted a series of readings of transcripts and field notes and identified more specific aspects of themes that emerged from the data (see Appendix D for the application of the coding scheme).

After coding the transcripts of the interviews and episodes from the PD sessions, I was able to take all coded segments and review them as a list of relevant data. This allowed me to conduct an analysis by consolidating my propositions and claims about what had taken place throughout the PDDL program. I challenged these claims over multiple passes of the data and

remained attentive to evidence that could contradict my claims. I revised my claims to be more consistent with the data as necessary during this analysis.

Findings

To determine whether and how the PDDL program exemplified the core features of PD described by Desimone (2009), I cite the statements of the PD Coordinator from interviews, the activities (and respective topics) enacted during PD sessions and planning sessions, and statements or dialogue from teacher participants during these sessions. Overall, the PDDL exhibited some features of effective PD more than others (see Table 2.1). I found that the PD program had sufficient duration to qualify as effective based on a measurement of time spent in activities over the course of a school year. Collective participation was not a structural feature of the PD design insofar as it has been typically described in the literature (i.e., teacher participation in groups from schools or school departments). During some PD activities, there was an explicit emphasis on disciplinary literacy as a content focus and on teaching disciplinary literacy. However, attempts to demonstrate disciplinary literacy were particularly limited and problematic. While all PD session had activities that provided opportunities for teachers to participate as active learners (e.g., peer facilitation, group discussions), there was little attention paid to teachers' incoming beliefs or the demands of district and stated district reform efforts (i.e., coherence).

Table 2.1
Findings based on the Five-Feature Conceptual Framework

Feature	Findings
Duration	<ul style="list-style-type: none"> • Teachers were offered 29 hours of contact time within face-to-face PD sessions and interactive webinars. Teachers could have spent an additional 18 hours if they elected to attend planning meetings. A majority of teachers (19 of 36) met the 20-hour mark. • The PDDL program lasted for one school year.
Collective Participation	<ul style="list-style-type: none"> • Though their colleagues may have also attended, teachers did not formally participate in the PD program as part of a cohort from the same department, school, or district. No activities were geared toward working with colleagues from the same school unit. • Teachers did participate in content-area groups with other teachers within the ISD. However, since the ISD is only a service-providing agency, teachers did not collectively participate, as they would be if they were from the same local school district.
Content Focus	<ul style="list-style-type: none"> • There were two distinguishable content foci: (1) disciplinary literacy and (2) teaching disciplinary literacy. • Teachers had opportunities to learn about what disciplinary literacy is by reading scholarly articles about the topic and participating in small- and whole-group discussions. • Teachers participated in activities meant to convey how disciplinary literacy could be taught. These activities included presentations by fellow teachers and university faculty, webinars with university researchers, and manuscripts for reading. These activities were problematic since teacher and university faculty demonstrations did not reflect or explicitly connect to disciplinary literacy or were poorly attended.
Active Learning	<ul style="list-style-type: none"> • Teachers could participate in the planning of PD sessions and facilitation of activities during the sessions. All teachers participated in small- and whole-group discussions. • Teachers did not review student work, participate in observations of instructional practice, or collaboratively plan for implementation.
Coherence	<ul style="list-style-type: none"> • Teachers were asked about their prior beliefs of disciplinary literacy at the outset of the PD program. However, these beliefs were not revisited. • Teachers were not expected to conduct formal discussions with others outside of the PD program. • There were no activities that explicitly addressed the demands of district or state reform efforts.

Duration

I view sustained duration as the total amount of time that a teacher had the opportunity to participate in a planned activity formally facilitated by someone in the PD program. These activities included any planning sessions for the PD program, PD sessions at the ISD, the PD

session at the local university, and the two online webinars. In describing these activities below, I measure duration as the total number of hours teachers *could have* spent in the PD program as well as how much time individual teachers *actually* spent.

The PDDL program took place over the course of one academic year. Any teacher who attended all five PD sessions would have had 26 hours of contact time with other teachers, the PD Coordinator, and/or university faculty. These took place at five different times, every-other-month between September and May (see Appendix A for the PD timeline). Four of the sessions were held at the ISD building and a mid-year session was held in conjunction with a local university's literacy showcase. While 36 teachers participated in the initial PD session of the year at the ISD, only 21 teachers continued to participate by the second PD session. At the university showcase, 18 teachers took part. During the other two PD sessions at the ISD, 16 attended the next one and only nine attended the final session. Each session lasted for 6 hours, with the exception of the fourth session, which was shortened due to a power outage. Given this, the number of face-to-face, PD-session hours over the course of the school year for individual teachers ranged from 6-27 hours, depending on the amount of individual participation.

In addition to contact time during the PD sessions, teachers could elect to participate in planning sessions during the summer before and the fall of the program. In doing so, teachers could have participated in an additional 15 hours of face-to-face time in small groups with the PD Coordinator and other teachers. In total, seven teachers participated in the first planning session during the summer, six of these seven and an additional teacher participated in the second day of summer planning, and then one of these teachers later participated in the fall planning day. The teachers who participated in planning sessions spent an additional 6-18 hours involved in the design of the PD program.

At two different points in the school year, once in the fall and once in spring, the PD Coordinator held an online discussion with university faculty in which teachers could participate. These *webinars* were designed as “book chats” with university faculty – one a professor of English who focuses on digital literacy and another a professor of education who focuses on disciplinary literacy in history – who each authored a book used in book-club groups during the PD sessions. Even though these one-hour webinars were content-specific, all teachers were invited to attend. However, teacher participation in the webinars was minimal. As the PD Coordinator noted in one of our interviews, “I had two teachers show up to the first one and only one for the second” (Interview 07/01/16, 18:37). Regardless of participation rates, the webinars offered another two hours for teachers to interact with other PD members, albeit virtually.

There was an initial plan by the PD Coordinator to have teachers participate in an online forum in the time between the PD sessions. This activity was an attempt to supplement time spent in face-to-face sessions and connect teachers to one another virtually. It would have been based on the book club each teacher joined during the face-to-face sessions. However, this online forum did not materialize beyond the initial registering of teachers on a website. When I asked the PD Coordinator midway through the school year to reflect on activity around the online component of the program, she noted that there “wasn’t any activity” (Interview 12/17/15, 18:37) by teachers on the website.

In total, teachers who participated in the PDDL program had an opportunity to experience 44 hours of contact time in a variety of settings, both virtual and face-to-face, with fellow teachers, the PD Coordinator, and faculty members of various universities. (This figure does not include the potential that could have been added had the online forum worked out.) In actuality, there was a large range of participation hours across teachers. Some teachers only participated in

the 6 hours of the first PD session and did not return while others took part in nearly 40 hours over the school year (see Appendix E for participation rates of individual teachers, the PD Coordinator, and university faculty guests).

There were numerous opportunities for teachers to participate in the PD program over the school year. Given that Desimone (2009) qualifies sustained duration as lasting more than 20 hours over more than a semester, the PDDL met this threshold: 19 of the 36 teachers who participated in the first PD session – encompassing almost all of the teachers who continued to participate beyond the first session – reached the 20-hour mark in contact time. Since this contact lasted throughout a school year, the design of the PDDL program demonstrated the feature of duration in terms of strictly quantitative measures. Of course, this rudimentary measure of duration is likely to be superficial if other features are not also aligned (e.g., whether the content focus is clear) and may not capture the difference of participation that is clustered at the beginning of the year versus participation that is sustained evenly over a period of time.

Collective Participation

Desimone (2009) characterizes collective participation as teachers who participate as part of a group from the same school, grade, or department. In contrast, the PDDL program was open to any teachers within the 14 school districts in the two counties served by the ISD who had participated in certain prior PD programs. This meant that teachers signed up for the PDDL program individually. Simply put, it was not part of the PD design to have teachers participate in the PD program in a cohort with other teachers from their school or district.

What the PDDL program did attempt to provide teachers was the opportunity to work with other teachers who taught similar subjects and grade levels within the same two counties. During three of the five PD sessions, teachers had an opportunity to work in dedicated content

area groups. When all teachers attended, these groups could include 18 teachers in two groups for English language arts, eight teachers in a science group, eight teachers in a social studies group, and two teachers in a mathematics group.

For example, during PD session 1 (episode 7), a teacher facilitated an activity whereby teachers were asked to consider what it meant to “get smart” in their respective disciplines. While there were some small-group and whole-group conversations, these mainly revolved around teachers’ current conceptions of doing well in their classrooms (see Chapter 4 for more about this activity). While this activity solicited teacher thinking in content-area groups (there were eight social studies teachers during this group activity), the ideas gathered were not referenced in future PD sessions.

During PD session 3 (episodes 3 and 5), teachers had opportunities to again meet in content-area groups (there were five social studies teachers present for these activities). This time, the purpose was to interact with university professors in related fields about the type of writing that takes place in both the secondary and undergraduate classroom (see a fuller description of these activities in the subsection on demonstrations by university faculty in the Content Focus section below). While this gave teachers an opportunity to discuss teaching disciplinary literacy, the discussions that took place focused exclusively on assignments and not about the work of disciplinary experts or its relation to student literacy.

During PD session 5 (episode 3), teachers once again had an opportunity to meet in content-area groups. This time, teachers were provided discipline-specific and pedagogy-focused articles. However, the numbers of teachers participating in the PDDL program had precipitously declined to the extent that only one social studies teacher was present during this last PD session. Likewise, the book clubs, which should have been obvious focal points for disciplinary

discussion, dissolved relatively soon during the program with the online portion never gaining traction (see the subsection on book clubs in the Content Focus section below).

In all, the “collective participation” of teachers within content-area groups could have been leveraged for teachers’ thinking and discourse about disciplinary literacy. Had these content-area groups fostered relationships outside of the PD sessions, there would have been a greater promise of impact. For instance, having teachers collaborate within one another at their schools would have located the “collective” aspect of participation back in teachers’ practice – the purpose of collective participation – rather than in attendance at PD sessions. As it happened, the PD program did not utilize the pre-existing relationships that teachers came with (i.e., those with colleagues in their schools or districts or colleagues who teach the same subject) for the purpose of building teacher thinking about disciplinary literacy and the teaching of it. Moreover, although one could argue that teachers were participating within the larger ISD in the same way teachers may participate within a larger “set of schools” (Garet et al., 2001), the structure of the ISD as a service-providing agency is much different than the operation and policy-mandating activities of a district or school. Thus, while teachers did *collaboratively* participate with colleagues within the ISD, they did not collectively participate with such colleagues.

Content Focus

The theory of change mentioned earlier that informs this study includes the notion that PD that has a strong content focus, or, “activities that focus on subject matter content and how students learn that content” (Desimone, 2009, p. 184), is linked to increased teacher knowledge and skills and change in teacher instruction. Therefore, in analyzing the PDDL program for content focus, I looked for data that focused on or referenced either of two things: the subject matter content of the PD program (i.e., disciplinary literacy as a topic) and instructional methods

for teaching students to learn the subject matter content (i.e., how to teach disciplinary literacy). In the two sections that follow, I explore each of these aspects of content separately as they were represented in the PDDL program. While I found substantial opportunity for teachers to learn about disciplinary literacy as a topic, I did not find any clear representations of teaching disciplinary literacy to students.

Disciplinary literacy as content. On two different occasions, teachers had an opportunity to explicitly read about and discuss conceptions of disciplinary literacy as a topic. In each instance – PD session 1 (episode 4) and PD session 2 (episode 3) – teacher participants were asked to read two practitioner-oriented articles that included sections in each article entitled, *What is Disciplinary Literacy?* (International Literacy Association, 2015; Pytash & Ciecierski, 2015). These articles contained the most explicit references to the meaning of disciplinary literacy.

On each occasion, a teacher participant facilitated a whole-group activity using a protocol for reading along with the text of the article as reference for whole-group discussion. Teacher dialogue during the whole-group discussions revealed burgeoning definitions of disciplinary literacy mixed with apprehension by teachers about developing their knowledge of methods of disciplinary thinking and practices.

The article used during PD session 1 was a position statement by the International Literacy Association (ILA). It defines disciplinary literacy as “various specialized forms of reading and writing that are needed to participate successfully in the various disciplines” (ILA, 2015, p. 2). According to this text, since “the ways in which knowledge is created and evaluated differs across subjects... readers need the specialized skills required to make sense of

disciplinary texts” (ILA, 2015, p. 3). This idea of specialized skills became a theme in the whole-group conversation that followed. One teacher summed up her sentiments saying,

I’m not a scientist, and I don’t necessarily have those skills to teach my students... We can bring [disciplinary experts] in to the classroom and explore what they do, but then we need to help [these disciplinary experts] understand what happens in our classroom... We would almost need daily opportunities to share with them to learn how they read, write, and listen... I don’t have that toolbox of skills. (Session 1, Episode 4, 20:00-30:00)

This feeling was repeated by other teachers in the next session’s whole-group discussion on conceptions of disciplinary literacy, which I describe below.

Meanwhile, throughout the rest of the whole-group discussion, the conversation revolved around teachers wanting to know more about specialized skills across disciplines. It started when one teacher said,

As I was reading, what seemed to really make [the concept of disciplinary literacy] different was how these [disciplinary experts] professionals notice different patterns as they read. Like scientists look for patterns in a different way than historians look for patterns... This makes me want to know more about other disciplines as well as my own. (Session 1, Episode 4)

Another teacher took this a step further and questioned how it could be applied to student learning, asking, “How can we get students to notice these skills across disciplines?” Though no teacher or PD Coordinator provided definitive answers to these ponderings, none should have been expected since the purpose was to simply introduce teachers to the concept. Nevertheless, in the next PD session, teachers seemed to continue to collectively demonstrate some grasp of the concept of disciplinary literacy and question its implications.

The article used during PD session 2 was an article by two professors of education published in *Voices in the Middle*, the journal of the National Council of Teachers of English. In this article, the authors define disciplinary literacy as “a nuanced examination of the literacy practices of the discipline” requiring “a conceptual shift in how educators approach literacy

instruction in content area classrooms” (Pytash & Ciecierski, 2015, pp. 14-15). The authors cite Moje (2008) and Shanahan and Shanahan (2008) to explain the concept at length:

Moje (2008) outlines three major components of disciplinary literacy: (1) discourses and practices in the discipline and in literacy, (2) identities and identification in the discipline and in literacy, and (3) knowledge of the discipline and literacy within the discipline. There are two important points with Moje’s (2008) first component. First, from a disciplinary literacy stance, students should not only investigate the practices valued by the discipline, but also examine why these particular practices are valued. Second, students should explore the way experts use language. Shanahan and Shanahan (2008) explored this point during a study of experts’ reading processes... Understanding the practices and the language supporting those practices allows [secondary] school students to gain insight into how knowledge is produced and disseminated. (Pytash & Ciecierski, 2015, p. 15)

This excerpt presented teachers with both components of disciplinary literacy as well as applications for classroom instruction and student learning, specifically investigation into the discourses and practices of disciplinary experts. As with the article in the first PD session, this article was used as a basis for whole-group discussion in which some teachers appeared to grasp the definition of disciplinary literacy as well as express concern over the demands this would place on them.

The teacher who facilitated the discussion led with the question, “What is the difference between content area and disciplinary literacy?” Nearly all of the responses that teachers voiced were consistent with an idea of thinking and literacy skills aligned to the work of disciplinary experts. One teacher described content-area literacy as “basic reading strategies” like “text-comprehension skills” and disciplinary literacy as “focusing on the reading, writing, and communication skills authentic of someone in the discipline” (Session 2, Episode 2, 3:00).

Another teacher explained these terms in relation to mathematics. She said,

One is about subject matter and the other is about what an expert might do... Content area reading and writing in mathematics is just whether someone can do those things in a classroom, whereas disciplinary literacy is whether someone can read and write as a mathematician in mathematics.

She then extended this thinking to disciplinary literacy's application. She said,

Teaching disciplinary literacy is kind of elusive, right? I think once I see it clearly, I'm going to understand it. But on the way, it's going to stay fuzzy for me. Especially, if I don't know how a mathematician reads for real.

This suggestion of not knowing how a disciplinary expert reads (or writes or thinks) mirrored some of the dialogue from the first PD session.

Other teachers also mentioned similar thoughts about knowing what a disciplinary expert does or thinks. One social studies teacher said, "I don't know how a historian reads or how a political scientist reads." Another social studies teacher described ways to approach this issue, but also an additional obstacle. She said,

I don't know how to be a psychologist or teach my students to be psychologists. I could bring psychologists in, but when they come in they're not teachers. So how do I help them engage my students in the psychology when they may not know how to break it down for [students]?

Finally, a third teacher, who teaches math, wondered aloud, "Where can I go to read authentic things – a journal of mathematics? But that still wouldn't make it clear how mathematicians go about creating those [articles]."

At the very least, all teacher participants who elected to read the PD articles and/or listened during these two PD sessions were exposed to foundational conceptions and definitions of disciplinary literacy. Based on some of the comments that were made by teachers in whole-group discussions, teachers had an opportunity to realize the basic tenets of disciplinary literacy – that content area teachers should incorporate into their instruction ways of reading, writing, and thinking that align to the work done by disciplinary experts in their respective disciplines. However, teachers also mentioned that they do not all know how these disciplinary experts do their "specialized" reading, writing, and thinking. While the latter is taken up in the next

subsection, suffice to say the PDDL program exhibited a direct content focus on the idea of disciplinary literacy in the first two PD sessions but not necessarily on what disciplinary literacy means in context of specific subject matter or disciplines.

Teaching disciplinary literacy as content. In addition to supporting teachers to develop conceptions about disciplinary literacy and the work disciplinary experts do, the PD program also addressed ways of teaching disciplinary literacy in the classroom. There were two significant ways that the PDDL program attempted to provide opportunities for the teachers to develop their conceptions about disciplinary literacy teaching. First, teachers had opportunities to learn from demonstrations by fellow teachers during recurring PD-session demonstrations called *From the Classroom* that took place on three occasions and by university faculty during the mid-year literacy showcase at a local university. Second, teachers had opportunities to learn from practitioner-oriented books, webinars with authors of two of the books, and practitioner-oriented articles for teaching disciplinary reading and writing. While these activities all captured some aspect of teaching disciplinary literacy either implicitly or explicitly, all were limited representations in some way.

Demonstrations by teacher participants or university faculty. During the three *From the Classroom* segments from various PD sessions, teacher participants presented model lessons to their fellow teachers that they had previously taught in their own classrooms. During the university showcase, professors presented forms of undergraduate writing they have their students complete. However, none of these demonstrations directly referenced alignment to the work of disciplinary experts.

The first *From the Classroom* segment took place during PD session 2 (episode 6). A social studies teacher presented a method for gathering background information in order to take a

position on an issue. The topic was the “Syrian refugee crisis” and the intended purpose, as displayed in this teacher’s presentation, was for participants to understand the topic well enough to be able to defend or refute a claim in response to the question, “Should the United States open its borders to house Syrian refugees?” The teacher who was presenting gave all teachers four different sources of information with a variety of perspectives on the topic. In explaining the activity, the teacher described an additional purpose of the lesson as developing argument skills for “an authentic purpose.” She defined this “authentic purpose” as “something that students in her debate class would do to prepare for a debate.” To teachers who participated in this activity, they were exposed to the idea of “authentic purpose,” but not one that directly stemmed from the work of disciplinary experts. While consulting multiple source of information is something that a social scientist might do, this was never stated. Rather, the overall purpose was limited to a function of schooling and a possible extracurricular one at that. The issue of using the word “authentic” without connection to disciplinary expert work emerged as a consistent pattern.

The second *From the Classroom* segment took place during PD session 4 (episode 3). During this presentation of a model lesson, a teacher demonstrated the use of a website called *Genius*. This website is a publicly accessible site that allows users to annotate anything they choose to upload. This lesson was presented as a way to teach students about “authentic audiences” in English Language Arts classes by annotating songs, poems, or excerpts of literature for the public. To teachers who participated in this activity, they were exposed to the idea of “authentic audience” in a manner that suggested that a live, public audience of any kind was authentic. And while disciplinary experts do write with specific audiences in mind, this activity did not clarify what qualifies as a disciplinary audience (e.g., other disciplinary experts in a field). Instead, the audience of *Genius* is the public at large and, therefore, does not indicate

how disciplinary experts may communicate to an actual audience that is likely to read their conclusions.

The third *From the Classroom* segment focused on “critical vocabulary” during PD session 5 (episode 2). A teacher participant presented an excerpted math reading titled *Chaos and Fractals*. She led teachers through a previewing and text access instructional method focused on ways to approach unfamiliar and challenging vocabulary. Initially, teachers were to identify any language they did not understand yet thought was critical to understanding the whole piece. Next, teachers were asked to think through metacognitive strategies for developing possible definitions of words. To teachers who participated in this activity, they were not exposed to any explicit disciplinary practices. One could argue that there was an underlying implication that disciplinary experts (mathematicians in particular) use specific vocabulary to communicate in their field. However, the emphasis of the activity was a method for students to figure out the meaning of words rather than developing the thinking of disciplinary experts.

On the occasion that teachers did have to interact with disciplinary experts, these meetings seemed to miss the larger idea of connecting disciplinary expert work with literacy in schools. During the mid-year literacy showcase at a local university, I observed two discussions among university faculty and social studies teachers. What became of the discussions were presentations by two university faculty members – a professor of political science and a professor of geography – of the type of writing they assign to their undergraduate students. For the political scientist, she had her students write “This I Believe” statements in order to eventually connect their lives’ passions to some apparatus of government in order to demonstrate how government affects their lives (PD session 3, episode 3). While such a writing task might engage students in thinking about government, it did not make any reference to the actual writing

of a political scientist. In fact, the professor described the genre of writing as similar to “the radio segments on National Public Radio.”

Later in that day’s session, a geographer presented on a cultural landscape assignment she gives her students (PD session 3, episode 5). In this assignment, student were asked to take a photo of a place that is meaningful to them, describe ways in which humans have transformed the landscape, and analyze how such transformations reflect culture. While this assignment appeared engaging and focused on core concepts of geography, the professor never directly correlated the assignment to the type of work she does as a geographer. In fact, when I asked the professor if this type of assignment has any connection to the work she does as a geographer, she replied, “I never thought about that before.”

These face-to-face interactions among teacher participants, teacher facilitators, and university faculty reveal a missing feature of the PD program with regard to content. Specifically, teachers did not have much of an opportunity to see disciplinary literacy being taught in action. There were, however, materials that teachers could have read and conversations with disciplinary experts who created those materials that teachers could have had to fill in some of this understanding.

Books, webinars, and article. At the outset of the PD program, teachers were asked to join one of five book groups for the entire year. Each of the books was selected because they had some connection to disciplinary teaching. For example, those interested in teaching history in a disciplinary manner could elect to join a group that would read *Reading, Thinking, and Writing about History* (Monte-Sano, De La Paz, & Felton, 2014), which emphasizes developing student argument writing through investigation of historical primary sources. During the first PD session (episode 8), these social studies teachers previewed the book and decided to read the first two

chapters of the books by the next PD session. Then during the second PD session, these teachers discussed what they read. However, at that point, teachers had only read the introductory chapters of the book and not yet the chapters on historical investigation of primary sources. Since the third PD session was held at the literacy showcase at a local university and the fourth PD session was shortened due to a power outage, the only other book group meeting took place at the fifth and final PD session. During this session, which only 9 teachers attended in total, only one social studies teacher attended. That social studies teacher mentioned that she had not picked up the book since the second PD session.

In addition to these book groups, the PD Coordinator planned and facilitated two online webinars billed as conversations with authors of some of the books used in the book groups. Two university faculty members – a professor of English focused on digital literacy and a professor of education focused on history and social studies education – each presented background and methods described in books. Attendance at these webinars was extremely low. Two teachers attended the English professor’s webinar and one teacher attended the social studies-focused webinar. Regardless, teachers were afforded the opportunity to attend a virtual PD session where classroom pedagogy was discussed and education-oriented university faculty members could suggest methods for disciplinary approaches to teaching and learning.

During the final PD session, four different pedagogy articles were presented to teachers for consideration of teaching disciplinary literacy, one for each content area group (PD session 5, episode 3). In each article, there was some description of an instructional lesson or unit that exemplified the teaching of disciplinary literacy in a related field. The article that was selected for social studies teachers was *Researching and Writing History through Community Collaboration* (Leer, 2015), which profiled an activity where 8th-grade students regularly met

with staff from a local historical society in order to document and write a book about their town. As noted before, only 9 teachers attended this PD session and only one social studies teacher attended. As with the webinars, had more teachers attended the final PD session, there may have been rich discussion about teaching disciplinary literacy methods in the classroom. As it happened, the PD program provided the opportunity for teachers to learn about instructional methods, but attendance rates effectively meant that few teachers were exposed to these ideas.

Ultimately, teachers who participated in the PDDL program were afforded some limited opportunities to talk about how disciplinary literacy might look in the school classroom. While no demonstrations of teaching (whether by teacher facilitators or university faculty at the showcase) actually made explicit connections to the work of disciplinary experts, the books, webinars, and pedagogy articles did make this clear. Of course, the books, webinars, and pedagogy articles did include actual modeling of this type of teaching. Thus, the content focus of teaching disciplinary literacy as the subject matter was extremely limited during this PD program.

Active Learning

The PDDL program did provide teachers with some active learning experiences. These included the numerous opportunities teachers had to participate in planning sessions, facilitate activities during the PD session, and participate in small- and whole-group discussions during PD sessions. However, there were also indicators of active learning that were not found.

Eight of 36 teachers participated in at least one planning session during the two planning sessions in the summer before the PDDL program began. Six of these teachers participated in both days. And one of these six teachers then participated in the fall planning session. The planning sessions were open to everyone who signed up for the PDDL program. The summer

sessions in particular were billed as a general planning session for the school year and offered a \$25 per hour stipend. The participation rates show that more than one-quarter of all the teachers who participated in the PDDL program took an active role in planning out the program.

Eight different teachers facilitated activities throughout the four PD sessions that took place at the ISD building. The activities that teachers facilitated included recurring segments like *Social Dimension*, which were short “ice breaker” activities focused on building collegiality and community. These typically took place at the beginning of the morning and afternoon parts of the PD sessions (PD session 1, episodes 1 and 5; PD session 2, episode 4; PD session 4, episode 1; PD session 5, episode 1). They were often short (i.e., 5-10 minutes) and did not possess any connection to the content focus (e.g., “Reading Bingo” where everyone walks around with a card looking for colleagues who have read certain types of books). Another recurring segment that teacher participants facilitated included the *From the Classroom* demonstrations of lesson activities that teachers had taught previously in their classrooms (PD session 2, episode 6; PD session 4, episode 3; PD session 5, episode 2) and are described in the section above on content focus.

In addition to these recurring segments, one teacher facilitated an activity during the first PD session that focused on personal reflective writing (PD session 1, episode 2) and what it takes someone to become “smart in the discipline” (PD session 1, episode 7). Across the four PD sessions that took place at the ISD, there were 15 activity segments that had a facilitator or facilitators for the entire assembled group. In each of these activities, teachers were provided opportunities to participate in discussions with partners, small groups, and all the teachers assembled. Of the 15 segments that had a whole-group facilitator, one or multiple teacher participants facilitated 12 of these segments with the remaining three facilitated by the PD

Coordinator or a university faculty member. Of the eight teachers who participated in planning sessions, four of these teachers also facilitated activities during PD sessions. In sum, twelve different teachers played some active role in planning or facilitating PD sessions. That means that nearly one third of all the teachers who participated in the PDDL program participated in the structural design or implementation of the program.

In addition to the teachers who helped to plan PD sessions or facilitate activities, all teachers had a chance to participate in activities that were centered on teacher discussion. In fact, 21 of the 31 episodes within the five PD sessions consisted of small- and/or whole-group discussion. The remaining episodes were comprised of *Social Dimension* activities (five episodes), individual planning time (two episodes), reflection writing on teacher beliefs about disciplinary literacy (one episode), background on the PD program (one episode), and a panel presentation by current undergraduates on their perceptions of readiness for college-level writing at the mid-year literacy showcase (one episode).

Overall, the PDDL program demonstrated some orientation toward active learning. Considering that nearly one-third of the teachers participated in planning the structure of the PD or carried out portions of the sessions, the PDDL program can be identified as, partly, a teacher-led initiative. Given that nearly two-thirds of activities in the PD sessions contained opportunities for teachers to participate in small- and whole-group discussion, I see the PDDL program as containing some emphasis on teachers as active social learners.

On the other hand, there are indicators of active learning identified in literature and research on PD that were not present in the PDDL program. These include having teachers (a) review student work whether for planning or evaluating instruction, (b) observe other teachers teaching or be observed by other teachers while teaching, and (c) collaborate with other teachers

or instructional leaders in a formal manner in order to plan for classroom implementation of the PD objectives. It could be argued that the PDDL program did offer some type of “observing/being observed” and “planning” since teachers did present lessons from their classrooms in the *From the Classroom* presentations (PD session 2, episode 6; PD session 4, episode 3; PD session 5, episode 2) and teachers were afforded planning time on two occasions (PD session 2, episode 7; PD session 5, episode 5). However, both of these sets of activities are not actual examples of active learning. In the case of the former (observing/being observed), teachers were not presenting representations of their actual instruction (e.g., a video recording) but rather presentations of school-based lessons to colleagues. Moreover, as described in the Content Focus section above, these lesson presentations were not explicitly aligned to any disciplinary work. In the case of the latter (planning), teachers were often left to plan at the end of a session without any formal collaboration with or feedback from colleagues. Therefore, neither of these indicators of active learning was present.

Coherence

One view of coherence is the extent to which a PD program is consistent with teachers’ knowledge and beliefs. Given that one of the main objectives that the PD Coordinator mentioned was the need to support teachers to shift their mindsets away from the content-area literacy focus of previous PD programs, one can view the PDDL program as designed to build coherence around conceptions of disciplinary literacy. Prior to participating in the PDDL program, all of the teacher participants had attended a nationally sponsored multi-day PD program on reading in the content area program and an in-house multi-day collaborative writing seminar. Both of these programs typify content-area literacy. During an interview in the middle of the year, the PD Coordinator made this clear when she said,

I think they do see disciplinary literacy as something different than what they've been doing, and I think they see it as something difficult to achieve for themselves because I've heard several times like, 'Well, I'm not a scientist so how would I know that?' Or, 'How do I get access to scientists? How would I know how to read and write?' So, they do see literacy differently now... But they don't yet see themselves as someone who would be able to have the same reading and writing practices as a scientist or historian... [T]hey're starting to understand that difference and starting to question what it might mean for their instruction, but just beginning to." (Interview 12/17/15, 4:56)

The coordinator spoke her desire for teachers to see the topic of disciplinary literacy as different than their previous conceptions of content-area literacy. While she believes that some teachers were able to conceive of differences in the two approaches after the first two PD sessions, she still wondered what those differences might mean for classroom practice.

While the PD Coordinator did consider that teachers are actively developing their thinking about disciplinary literacy and how they might eventually teach disciplinary literacy to their students, this notion of coherence (i.e., building on teacher beliefs) was not present in PD-session activities except on one occasion early in the first PD session when initial teacher ideas about literacy were solicited. During this activity, a teacher facilitator began by saying,

What we would like you to do next is some reflective writing. You can think of this as a baseline. Like, what is our current understanding now within the umbrella of disciplinary literacy? What does it mean to you? Take a few minutes to capture some thought on where you are right now.... What does it mean to be literate in your discipline? What does it look like at your classroom? Then we might compare what we have written now to something at the end of the year. (PD session 1, episode 2, 19:00)

After these instructions, teachers began writing their reflections and uploaded these reflections to an online platform. There was no group discussion about these reflections. While this activity is consistent with an attempt to build coherence, it does not qualify the entire PDDL program as having coherence, especially since there was never a follow up activity to again solicit teacher thinking. Moreover, the reflections teachers wrote were never referenced in later sessions.

Along with aligning to teacher beliefs, PD programs can demonstrate coherence when teachers formally take up discussions about the PD with colleagues and administrators, who did not attend the PD, as a way to reinforce and motivate the learning from the PD. Additionally, coherence can be established when PD programs foster teacher learning that is consistent with the demands of state or district reform efforts – such as efforts to align PD to frameworks, standards, and assessments. In neither of these two ways did the PDDL program demonstrate coherence as a feature of the program design or enactment. While disciplinary literacy as a topic can surely be a reform effort in response to which the PDDL program sought to support teachers, there were no formal activities that made it clear that disciplinary literacy was actually being taken up in specific districts or schools in which the teachers work. Given all of this, coherence was not an identifiable feature of the PDDL program based on the descriptions provided in literature or research.

Discussion

The purpose of this study is to determine whether and how certain core features of PD were present in the PDDL program in order to determine an “existence proof” (Borko, 2004) of effective PD for developing teacher thinking about disciplinary literacy. Without the presence of such features, researchers and practitioners cannot expect teachers to develop the knowledge of disciplinary literacy and the skills associated with teaching disciplinary literacy.

Of the five features of PD in Desimone’s (2009) framework, two of them – duration and collective participation – have been framed as foundationally impacting the remaining three (Garet et al., 2001). That is, duration and collective participation are almost necessary for the other features of active learning, content focus, and coherence to be present and effective in any

way. Between duration and collective participation, only duration existed within the PDDL program.

Duration was established in the PD design since all teachers had an opportunity to participate in multiple PD activities that spanned an entire school year. Though overall participation rates of teachers varied drastically, most teachers reached the tipping point of 20 hours. Yet, one could argue that while duration was achieved by counting hours, such a calculation does not fully reveal the feature of duration if the actual activities that teachers participate in are not focused on the content targets of the PD. For instance, given the limitations of the activities meant to teach disciplinary literacy as content (e.g., teacher demonstrations in the *From the Classroom* activities), it is reasonable to question whether there was sufficient duration if there was not a truly disciplinary literacy focus.

Collective participation was not a structural feature of the PDDL program design as it is typically defined in research – participation of teachers in cohorts from the same school or district (Desimone, 2009; Garet et al., 2001). Though there was a focus on having teachers participate in content-area groups during the PD sessions, this achieved a notion of *collaborative* participation that only took place at the PD sessions (or virtually in the case of a webinar) and was not connected back to the community of colleagues that teachers knew in their departments, schools, or districts. This is critically important to mention because without *collective* participation, teachers are not able to discuss concepts, curriculum materials, or student needs which can serve as a basis for integrating professional development with instructional contexts and sustaining changes in teacher practice over time (Garet et al., 2001).

Of the remaining three core concepts, two (active learning and content focus) were partially established in the design of the PD program and the other (coherence) was nearly

absent. Active learning was generally present throughout the entire PD program since more than two-thirds of all activities provided opportunities for teachers to engage in small- and/or whole-group discussion. In a more specific manner, the PD program incorporated active learning since all teacher participants were invited to attend planning meetings or to facilitate individual activities during PD sessions. However, as noted in the findings, there are other ways that active learning can be measured that were not present in the PDDL program. One way is to provide teachers with opportunities to analyze student work (Ball & Cohen, 1999; Wilson, 2009) for the purposes of deepening teacher knowledge or generating commitment to reform (Little, 2004). Studies have reported benefits when teachers analyze student work, including teachers learning to attend to student thinking (Kazemi & Franke, 2004; van Es & Sherin, 2008) as well as higher student learning gains, observed change in teacher practice, and growth in teacher knowledge (Little, 2004). Other ways to provide active learning in professional development include collaborative lesson planning and observing colleagues' teaching. Such focus on planning, carrying out, and improving individual lessons can result in deeper teacher understanding of core practice and instructional routines (Hiebert & Morris, 2012) as well as increased teacher knowledge of subject matter, stronger connections of daily practice to long-term goals, and stronger sense of efficacy (Lewis, 2005).

My analysis of content focus was the most elaborate of any of the features given that the particular focus on disciplinary literacy is a complex content focus that has been understudied. I found that the PDDL program actually contained two discrete content foci: disciplinary literacy and the teaching of disciplinary literacy. However, these two foci did not exist to the same extent. The former (disciplinary literacy as content) was present in meaningful ways throughout the first two PD sessions where teachers read foundational articles that directly addressed what

disciplinary literacy is and how it differs from content-area literacy. However, this content was only somewhat realized by teachers in the midst of the PD session as many expressed reservations about the adequacy of the knowledge they possessed and whether they understood what disciplinary experts in their respective fields or disciplines do and think about. The latter (teaching disciplinary literacy as content focus) was not present in face-to-face demonstrations about teaching in the classroom either from fellow teacher presenters or from university faculty at the literacy showcase. The best representations of teaching disciplinary literacy seemed to come in forms that were offered to, but not really taken up by teachers. These included the book clubs that did not continue beyond the second PD session, the webinars with two book authors that were poorly attended, and the PD session where the pedagogy articles were read that only had nine teachers attend (only one of which was a social studies teacher).

Finally, coherence did not exist as a feature of the PD design. While the PD Coordinator was cognizant of the beliefs teachers may have had from their prior content-area literacy PD programs and attempted to solicit teachers' initial thinking around disciplinary literacy at the outset of the PD program, teachers' ideas did not become an actionable part of the PD program over time. There was no other activity that referenced back to these beliefs about disciplinary literacy nor were any decisions about PD design made based on the reflections teachers recorded. Additionally, when viewing coherence as a link between the PD program and the context of teachers' work – whether by promoting discussion with colleagues outside the PD or aligning to demands placed on teachers in their schools and districts – I also found no examples. This contrasts with a PD initiative focused on disciplinary literacy in history where teachers participated in school-based groups to learn to use curriculum their district had adopted (Monte-Sano et al., in press). That I did not find coherence to be a feature of the PD program vis-à-vis

aligning to demands placed on teachers in schools and districts was a surprise, since I chose to study a local PD program rather than a national one hoping to see coherence between PD experiences and teachers' professional work. This demonstrated that local PD opportunities do not guarantee coherence.

Given the absence of the core features of collective participation and coherence plus the partial treatment of the content focus, I conclude that the PD program I have reviewed does not qualify as an existence proof of the five features of effective PD in this particular disciplinary literacy-focused PD. This means that there is still a need to document what an effective PD program focused on disciplinary literacy looks like. Doing so is a necessary next step in developing an understanding about the impact PD has on teacher learning about disciplinary literacy.

Content Focus and Coherence of PD about Disciplinary Literacy

Although the PD Coordinator did not establish teacher instructional change as one of the objectives of the first year of the PDDL program, one might question whether such change would have been likely, let alone possible, given that the content focus of activities was not always clear and that aspects of coherence were nearly absent. Such doubt about change seems strengthened by Desimone and Garet's (2015) conclusion that even programs that do exhibit all five features are not always successful at attaining their stated outcomes. Regardless of the limited implementation of content focus and coherence in the PDDL program, there exist nuances worth examining and considering in future study.

First, the content focus or "target" of the PD must be cogent, explicitly communicated to participants, and directly taken up during PD activities. For PD on disciplinary literacy, this means PD activities need to provide opportunities for teachers to investigate and learn about the

work of disciplinary experts, the disciplinary literacy work students can do, and the teaching practices that support disciplinary literacy in their classrooms. Achieving complex instructional change with teachers is extremely difficult relative to changing procedural behaviors (Desimone and Garet, 2015). This may be, in part, due to such high demands placed on teacher knowledge and skill. For teacher learning of disciplinary literacy, these knowledge demands include knowledge of disciplines and development of discourse and aligned instructional skills (Moje, 2008). Without solid content knowledge, regardless of whether that content knowledge is understood to be knowledge of simple facts or knowledge of disciplinary practices, it's reasonable to conclude that teachers will struggle to develop new ambitious instructional skills. After all, teachers are likely to appropriate any new reform approach or material through the lens of older frameworks of policy or practice (Cohen & Ball, 1990).

Second, more programmatic connectivity between the PD program experience and the daily work of experience of teachers likely forms a stronger opportunity for teacher learning because “it forms a coherent part of a wider set of opportunities for teacher learning and development” (Garet et al., 2001, p. 297). Without “support, guidance, and practice for teachers to integrate the knowledge or pedagogy into their daily instruction” (Desimone & Garet, 2015, p. 256), teachers bear the burden of bridging multiple contexts of learning and practice on their own. For teacher learning in disciplinary literacy, there will always be a foreign locus to the content focus insofar as teachers need to learn about what disciplinary experts do and think when they take up work in the academy or in the field.

In all, my analysis of the PDDL program raises questions about the design and research of PD for disciplinary literacy. In terms of design, these questions relate to how to increase attendance by teachers, how teachers can collectively participate in PD beyond attending PD

sessions, and how to build coherence between PD design and teachers' work. In terms of research, these questions relate to how the five core features used in this study can directly impact teacher learning.

Implications for PD design. First, there is a need to question how to get teachers to simply attend PD sessions, either through incentives for participation, more input on scheduling from teachers, or selecting intensive periods of PD during a shorter time span. Of course, there will always be external factors that impact attrition (e.g., parent conferences, school reorganization). But, since collective participation by teachers in cohorts from the same schools or districts was absent, I can hypothesize that teachers might attend more often if they were to do so in groups of teachers with whom they already work.

Second, since collective participation is a structural feature of PD that has an impact on the way that content and learning get carried out in a PD program (Garet et al., 2001), PD leaders should dedicate attention to developing the structures of a network that can exist in meaningful and actionable ways both inside and outside the setting of the PD sessions. For instance, part of PD design can be teachers formally visiting other teachers' classes and having conversations about practice in school settings. In that way, teachers are able to participate in PD in which the "collective" aspects of participation exist in the setting of teacher's work: the classroom, the school, and the district.

Third, there are ways that coherence can be addressed and more readily be incorporated into PD design. While the PDDL program provided opportunities for teachers to express initial beliefs about disciplinary literacy, these ideas did not become any type of focal point for later learning or conversation. PD programs might do well to consider how concept formation activities (cf. Parker, 2008) could be utilized with teachers as adult learners. For either the

concept of disciplinary literacy or the concept of teaching disciplinary literacy, this would place a demand on teacher leaders or PD leaders to collect examples of disciplinary expert work to exemplify the disciplinary aspects and examples of instruction to represent this teaching. While finding these may be tough, overcoming this obstacle would later set up teacher participants to inductively form concepts around content foci. Also, addressing coherence could potential impact teacher attendance in a positive manner because it could make the PD experience seem more relevant and meaningful.

Implications for research. The first implication this study might have on research is to promote a deeper consideration of the usefulness of the five core features identified by Desimone (2009). While these features have been selected based on a general consensus within the larger base of research on PD, I have applied them specifically to PD for disciplinary literacy. Based on my findings, it appears that the features of coherence and content focus are worthy of special attention as they are made actionable in PD on disciplinary literacy. In terms of coherence, studies should begin to focus on the manner in which teachers shift from prior dispositions on literacy toward those focused on disciplinary literacy. For the teachers in the PD program I have reviewed, this may have been more of an issue given their extensive participation in PD programs focused on content-area literacy. In terms of content focus, the PDDL program demonstrated that it effectively had two content foci. Both were meant to build teachers' conceptions, but one was more definitional (What is disciplinary literacy?) and the other was more actionable (How do we teach it?). Given the differing demands on knowledge, it would seem plausible that the manner in which teachers participate in PD and the ways in which teacher thinking is solicited should be reflective of these different content foci.

The second implication this study has is a continuation of the emphasis in other research on the need to develop studies that determine the impact that PD actually has on teacher and student outcomes related to disciplinary literacy. That is, do PD programs that incorporate all five features of Desimone's (2009) framework have a positive impact? And if so, how would we know? Given the importance of developing teacher knowledge as part of the process of teacher learning, one place to start with this might be to figure out whether teachers come away with different thinking after the PD program than compared to when they started. Considering my comments above about the content focus of PD on disciplinary literacy being twofold, this would necessitate looking at components of teacher thinking regarding what disciplinary literacy is and the specific instructional practices for teaching students.

In all, the fact that the core features of coherence and content focus were not fully realized in the PDDL program may be a reason that the PD program experienced specific challenges. For instance, had the PD program focused on building coherence with the demands teachers experience in their schools every day and been more focused on developing teachers' disciplinary literacy instructional skills rather than just understanding what disciplinary literacy is, then this may have reduced the attrition of teacher participation because the PD program may have connected more deeply with teachers' needs and contexts of practice. Thus, future research should continue to establish connections among core features of PD in disciplinary literacy and the impact such features have on teacher participation and learning.

CHAPTER 3

Social Studies Teachers' Conceptions about Disciplinary Literacy

In recent years, there has been advocacy for a shift away from teaching so-called “content area literacy” toward teaching “disciplinary literacy” in secondary classrooms. Shanahan and Shanahan (2012) summarize these two approaches as ends of a spectrum whereby teachers either approach literacy in a general manner with methods that can be applied regardless of subject matter or in a discipline-specific manner with methods that are derived based on an understanding of what corresponding disciplinary experts think and do. The trend toward supporting a disciplinary approach to reading and writing in schools has been established in literature and research with foci both across disciplines (e.g., Moje, 2008; Shanahan & Shanahan, 2008) and within them. Within history education, specifically, disciplinary literacy has become a basis for research on student reading and writing (Monte-Sano, 2010; Reisman, 2012a) and a foundation for developing teachers (Bain, 2012).

Given this emphasis on the specialized knowledge and practices of those who create, communicate, and use knowledge within the disciplines, many questions arise about whether and how this approach can make its way into secondary classrooms. Since the shift toward disciplinary literacy is meant to improve student literacy skills and disciplinary understandings, the following practical questions arise: What type of schoolwork should students do? What texts should students read? What assignments should they be asked to complete? These questions, in turn, spur further questions about how teachers can or should teach students to engage in such

activities. The most obvious question in this vein is: What instructional practices support students to learn discipline-specific literacy skills? That is, what should teachers *do* to guide students in their development? And then since this kind of teaching is new to many: What do teachers need to *know* in order to be able to teach students disciplinary literacy?

Assuming that teachers and students approach disciplinary literacy as something new, all answers to the above questions suggest that teachers and students have a need to learn something they have not already. Students would be asked to read, write, and think about their subject matter differently. Teachers would be asked to develop instructional practices that they may not already demonstrate as well as new knowledge about what disciplinary literacy is and the rationale for its place in schools. This “newness” alludes to the need for change, and professional development (PD) has been the traditional setting where teachers can discover something new and work toward change.

This study explores the conceptions of four social studies teachers as they participate in a PD program focused on disciplinary literacy. The purpose of this exploration is to uncover teachers’ conceptions about the focus of their learning—in this case, disciplinary literacy. This analysis highlights key components of knowledge about disciplinary literacy that teachers may need to develop, and leads to suggestions for improvements in the design of PD as well as directions for research on teacher thinking and capacity as it relates to the push for disciplinary literacy in classrooms.

Background

Disciplinary Literacy

The specificities and nuances of academic disciplines become more prevalent in K-12 classrooms as students matriculate through middle school and high school, even if these aspects

are not pronounced or made explicit. Understanding the specificities of an academic domain may aid students in not only comprehending what is being communicated in a discipline but may also support them in thinking critically about such information and constructing new knowledge.

Each academic discipline has its own ways of communicating based on the nature of the given discipline. These ways of communicating may manifest in key concepts, language, vocabulary, common text structures, text features, purposes, and audiences for reading and writing relevant to the discipline. According to Hirst (1965), a discipline is a “form of knowledge” or “a distinct way in which our experience becomes structured round the use of accepted public symbols” (p. 128). Based on a set of four distinguishing features – concepts, logical structure, testable expressions, and techniques and skills for testing expressions, Hirst lists the disciplines of mathematics, physical sciences, human (social) sciences, history, religion, literature/fine arts, and philosophy.

When approaching history as a discipline, the enterprise of “doing” history becomes one of investigation of primary sources (e.g., artifacts that capture an event firsthand) and secondary sources (e.g., what others have written about events) about the past in order to be able to make some claim about existence, causality, or change relative to a person, event, or topic under study. Since historians work with an incomplete set of documents and artifacts from the past, they must question and interrogate the evidence they do have. The process is done by locating events and actors within circumstances of time and place (Mink, 1987); selecting, questioning, and interpreting sources (Carr, 1961); and weighing the importance of historical facts (Collingwood, 1946). Additionally, historians must account for bias, corroborate sometimes-conflicting sources, and acknowledge evidentiary limits in order to substantiate their interpretations (Carr, 1961;

Collingwood, 1946; Mink, 1987). Throughout this process, historians employ mental habits that are unique to the discipline (i.e., thinking historically).

Researchers in history and social studies education have made the case for the benefits of teaching students to employ disciplinary historical thinking when reading and writing in the classroom. These benefits include understanding history content (i.e., events, actors), thinking in an interpretive manner, and developing argument writing skills (De La Paz & Felton, 2010; Monte-Sano, 2011). Such thinking has been incorporated into the central tenets of the C3 Framework for Social Studies State Standards (National Council for the Social Studies, 2013). Shanahan and Shanahan (2012) make the argument that “students would make greater progress in reading the texts of history... if instruction provided more explicit guidance that helped them to understand the specialized ways that literacy works in those disciplines” (p. 16). This idea of explicitly teaching students “specialized ways” to approach literacy is supported by several research studies in classrooms (De La Paz, 2005; De La Paz et al., 2017; Monte-Sano, 2008; Nokes, Dole, & Hacker, 2007; Reisman, 2012a).

Rather than integrating general-purpose literacy strategies into subject content, teaching disciplinary literacy involves attention to how knowledge is constructed in a specific discipline and how reading, writing, and thinking are part of that construction of knowledge. In history, for example, teaching disciplinary literacy means teaching students the habits of mind of historians, the process of reading and analyzing artifacts, how to deliberate about and discuss interpretive questions, and how to develop and communicate written arguments. In short, students need to become actively involved in the process of asking questions and finding answers (e.g., De La Paz, 2005; Monte-Sano, 2008, 2011; Reisman, 2012b). Such a process translates into classroom teaching practices associated with “disciplinary history,” including using historical questions,

selecting and adapting historical sources, employing historical evidence, and modeling and supporting historical writing (Fogo, 2014).

Yet, much of history and social studies instruction treats knowledge as a given set of information that is delivered by teachers and textbooks (Cuban, 1991; Ravitch & Finn, 1987) with students' defaulting to the role of passive and accepting learners in the classroom (Bain, 2006), all of which has remained unchanged over decades (Cuban, 2016). History education researchers often distinguish between learning "school history" that is a fixed body of information versus learning disciplinary history as an evidence-based exploration of interpretations about the past (Lee, 2005; VanSledright, 2010; Wineburg, 2001). While a school history approach requires knowledge of facts, a disciplinary history approach requires disciplinary knowledge as well as factual/topical knowledge. Given the prevalence of school history, approximating the work of historians through discipline-specific literacy practices is a stark contrast to the way teachers and students have conventionally approached their work in the classroom. And given higher demands that disciplinary history places on teacher knowledge, most teachers need support to make the transition to teaching disciplinary history. Supporting such a transition necessitates consideration of how teachers might begin to make this departure.

Teacher Learning

The development of an individual's learning orientation can be understood as "the interaction and intersection of knowledge, beliefs, practices, and experiences" (Opfer & Pedder, 2011, p. 388). For teacher learning to occur, there must be change in all of these areas of influence (Clarke & Hollingsworth, 2002). With regard to beliefs, Richardson (2003) has noted that the beliefs that teachers bring to their work is shaped by the kind of experiences they had as students. Moreover, the tendency of teachers to default to teaching methods they observed as

students exerts a limiting influence on the teaching profession (Lortie, 1975). Based on past experiences (as both teachers and students), teachers bring to their teaching and learning “attitudes, values, theories, and images in the guise of beliefs” that affect their own decisions about learning (Opfer & Pedder, p. 387). Green (1971) has argued that teaching involves the forming of beliefs, both in terms of *what* is believed and also *how* something is believed. Thus, teaching is itself influenced by beliefs, but the act of teaching can also lead to the modification and formation of further beliefs.

As complex as the relationship between beliefs and practice is, so too is the relationship between knowledge and practice. In PD for disciplinary literacy, there is a need to support teachers to think about how disciplinary experts approach their work and what instructional practices can support students to take up reading, writing, and thinking skills that reflect the work of disciplinary experts. To do this, there is a need to first investigate how teachers think about the disciplinary work of experts and the disciplinary literacy practices in the classroom. Shulman’s (1986) notions of content knowledge and pedagogical content knowledge (PCK) are useful concepts for framing the thinking of teachers.

To Shulman (1986), content knowledge is subject matter knowledge that is not limited to just “facts or concepts” (p. 9) but also includes “understanding the structures of the subject matter” (p. 9). In discussing these “structures,” Shulman references Joseph Schwab’s (1978) essays, which delineate two structures of subject matter. These include substantive structures (i.e., conceptual ways of organizing facts) and syntactic structures (i.e., ways to determine validity within a discipline or ways of constructing new knowledge). Applying this, while summarizing his concept of content knowledge, Shulman (1986) writes, “The teacher need not

only understand *that* something is so; the teacher must further understand *why* it is so” (p. 9, emphasis original).

In adopting Shulman’s (1986) notions that teachers must understand both *that* something is so and *why* it is so, I find it necessary to label these as two different subdomains of content knowledge. The first, what I refer to as *topical content knowledge*, emphasizes the facts or basic concepts of the subject matter. In history, this might involve knowing the fact that Ida B. Wells was a founding member of the NAACP in 1909 or that “civil rights” is a concept that involves efforts to advance equality for people regardless of race or other characteristics. The latter, what I refer to as *disciplinary content knowledge*, emphasizes the structural features of conducting disciplinary work. In history, this involves knowledge of how historical inquiry is undertaken and the tenets of historical thinking. This knowledge may include how historians select or interpret relevant and reliable evidence, how historians determine causation, or how historians create accounts or judge the accounts of other historians. Taken together, *topical content knowledge* and *disciplinary content knowledge* involve two different ways for thinking about the content knowledge that teachers need when teaching disciplinary literacy.

Inherent within Shulman’s (1986) conception of PCK – what he calls “subject matter for teaching” – are “aspects of content most germane to its teachability” (p. 9). These aspects include useful representations of ideas, powerful explanations and demonstrations, ways of formulating the subject that make it comprehensible to students, and anticipating the conceptions and misconceptions that students might have about the content. To Shulman, these blend together to form a base of knowledge that allows teachers to represent and teach content in ways that make sense for students based on tendencies in student thinking. Since Shulman’s initial

specification, other researchers have elaborated what PCK entails in specific subject matter areas.

Ball, Thames, and Phelps (2008) have applied the concept of PCK in math and combined it with aspects of subject matter knowledge on which teachers rely in order to define broader *content knowledge for teaching* mathematics. As part of their studies, Ball et al. have identified two “subdomains” within PCK that they name *knowledge of content and students* (knowledge of the conceptions students hold about subject matter) and *knowledge of content and teaching* (knowledge of strategies for best representing subject matter to students).

These authors have also uncovered another domain that they do not see as part of PCK but – they hypothesize – is essential to teaching. They refer to this as *specialized content knowledge*. This domain contains knowledge that is only needed in teaching – for instance, knowledge of the multitude of differing interpretations, which places unique demands on teachers’ understanding and reasoning requiring knowledge “beyond that being taught to students” (Ball, Thames, & Phelps, 2008, p. 400).

Relatedly, Monte-Sano and Budano (2013) focus on teaching practices that indicate content knowledge for teaching history. Using Shulman’s (1987) definition of PCK and Ball et al.’s (2008) math-specific framework as a basis, they analyze history education literature and synthesize aspects of PCK for teaching history into four components: representing history, transforming history, attending to students’ ideas about history, and framing history. Monte-Sano and Budano then describe how two novice teachers draw on these aspects of PCK as they teach and show how this knowledge arises in practice. While these authors describe their work as an application of Shulman’s broad conception, they also see their work as mapping onto the subdomains that Ball et al. identify. Monte-Sano and Budano ultimately question whether PCK

is fundamentally different in each component or whether the display of such knowledge just looks different in practice across domains.

Having a conception of the knowledge teachers need to develop in order to teach disciplinary literacy in history and the social sciences can shape the design of PD as well as support teachers to understand and teach disciplinary literacy in history and the social sciences. More than a decade ago, researchers and scholars in the field of teacher PD began to claim consensus around what makes PD “effective” in relation to positive change in teacher practice and improvement in student learning outcomes (Hawley & Valli, 1999; Putnam & Borko, 1997; Wilson & Berne, 1999). While these lists of characteristics of effective PD varied in style and length, they all contained a common premise that PD should be rooted in the knowledge that teachers have about their own work. The consensus around this premise has appeared in literature specific to the PD of social studies teachers (Valli & Stout, 2004) as well as frameworks for understanding effective change (i.e., change in teacher practice or student outcome). Desimone (2009) has applied this idea in her conceptual framework for researching PD through the feature called, “coherence.” Given this orientation, this study situates teachers’ thinking at the nexus between participation in PD and teaching in the classroom. In doing so, I draw out the thinking of teachers in order to inform the types of support teachers may need when developing knowledge for teaching disciplinary literacy in history and the social sciences.

This Study

There has been deliberate and considerable work done by researchers and scholars to demonstrate the benefits that a discipline-specific approach to literacy in history has on student learning (De La Paz, 2005; De La Paz et al., 2017; Monte-Sano, 2008; Nokes, Dole, & Hacker, 2007; Reisman, 2012a). Meanwhile, there is a general consensus that teachers can develop new

ways of teaching through PD that directly addresses the knowledge teachers possess and create. Yet, little has been defined with regard to the knowledge necessary for teaching disciplinary literacy in history or the social sciences. In this study, through interviews with teachers involved in a PD program, I seek to identify what social studies teachers think disciplinary literacy is and how it is taught as a way of contributing to an understanding of what knowledge is needed to teach disciplinary literacy. The study is guided by the question: How do secondary social studies teachers understand disciplinary literacy while they are involved in the first year of a PD program focused on disciplinary literacy?

Method

This is a descriptive, comparative case study (Yin, 2014) of how four secondary social studies teachers think about disciplinary literacy while participating in a one-year PD experience focused on disciplinary literacy. This type of case study is appropriate since I seek to reveal, analyze, and synthesize the similarities, differences, and patterns across multiple teachers' thinking as they are engaged in a common focus. The conceptions that these teachers espoused regarding the definition of disciplinary literacy, types of text used, the role of expertise, and teaching practices associated with disciplinary literacy serve as indicators of their thinking.

Participants

All four teachers profiled in this study are veteran teachers who teach in suburban or rural areas of the same county (see Table 3.1). I selected these participants for two reasons. First, they are all secondary education teachers. By the nature of subject matter in secondary education, these teachers have higher demands on the specificity of their thinking and knowledge of content than elementary teachers. Moreover, since disciplinary literacy is mainly a literacy reform effort focused on middle school and high school classrooms, by studying these teachers' thinking, I

could gain insight into their thinking about disciplinary literacy in history and/or social sciences and how this thinking connects to their instructional practice. Second, these teachers not only agreed to participate in my study but also took part in the PD program at their local intermediate school district (ISD) in their Midwest state for the entire school year. This PD program took place over the course of one academic year and focused on developing teachers' understanding of disciplinary literacy. Prior to taking part in this program, all teachers in the PD, including those not enrolled in this study, had participated for multiple years in two other PD programs, one focused on reading and one focused on writing in the content areas.

Table 3.1
Participants' Teaching Experience

	Years of teaching	Years of teaching social studies	Grade(s) teaching	Subjects teaching	School locale	Undergraduate work/ Teaching licensure	Graduate work
Alex	8	3	Middle School Grade 7	World history, geography, economics	Semi-rural	B.A., Education Teaching certificates in elementary education and social studies	M.A., Educational Leadership
Lisa	15	15	High School Grade 10	U.S. History and English Language Arts	Rural	B.A. English major, History minor Teaching certificates in history and English	M.A., Educational Leadership M.A., Teaching English as a Second Language
Taylor	15	15	Middle School Grade 6	All middle school subjects (including Western Hemisphere history and geography)	Semi-rural	B.A., Home Economics/ Business Teaching certificate in social studies and elementary education	M.A., Middle - Level Curriculum
Ryan	10	10	High School Grades 9, 12	U.S. History	Suburban	B.A., English Teaching certificate in history	M.A., English Studies

Context

At the time of the interviews, all of the participants in this study were taking part in the first year of a multiyear PD program called Professional Development on Disciplinary Literacy (PDDL). The focus of this year's program was meant to build on teachers' already-existing thinking about general approaches to teaching literacy (referred to here as *content-area literacy*) and promote thinking about approaches focused on teaching literacy in a manner aligned to the work of experts of specific disciplines (hence, *disciplinary literacy*). Throughout the PDDL program, all teachers had the opportunity to participate in five face-to-face sessions throughout the school year. Lisa and Ryan attended three of the sessions, Taylor attended four, and Alex attended all five. A literacy director at the ISD formally directed the overall PDDL program (herein "PD Coordinator"), though the individual meeting sessions were generally carried out by or in conjunction with teacher participants and university faculty guests.

In a mid-year interview, the PD Coordinator stated that her goal for the first year was to get teachers to consider the possibility of teaching disciplinary literacy. She hoped that the first year provide teachers with enough knowledge to be motivated and willing to try new approaches in their teaching. Given that the orientation of the PD was to develop teachers' thinking, I sought to examine what it was that teachers were actually thinking about disciplinary literacy. Since teacher thinking is a core component of teacher practice, I intended to describe and clarify teachers' conceptions that could form the foundation for potential change in instruction in the future.

Data Collection

My analysis in this study is based on semi-structured interviews conducted with each teacher at multiple times throughout the school year (see Appendix F for an example of a teacher

interview protocol). I collected the data for this study during the academic year of the first year of the PDDL program. I interviewed each participant at the start of the PD program and attempted to continue interviewing every two months following a PD session as well as after the conclusion of the school year. I interviewed three of the teachers between five and seven times during the year, based on their availability. While I interviewed Ryan at the beginning of the program along with everyone else, I only interviewed him one more time after the end of the PDDL experience, because, after the first interview, it turned out that he was unable to participate in the study during the school year. As a result, I have fewer points of contact with Ryan. I was less concerned about the discrepancy in the number of interviews with Ryan since I did not find the conceptions of the other three teachers to change very much from interview to interview. Although a more rigorous design would include the same number of interviews at the same points in time for each teacher, I had to work within the parameters of the availability of the participants for this study. All interviews were audio recorded and transcribed.

Among questions about their thoughts on the PD program's activities, I consistently asked teachers for their thinking about what disciplinary literacy is. I sometimes posed this as a question of "a definition of disciplinary literacy," "their conception of disciplinary literacy," or "their idea of disciplinary literacy." Depending on responses, I followed up with questions asking what "disciplinary literacy looks like in the classroom" or what "teaching practices or activities qualify as disciplinary literacy." Together, these questions encouraged teachers to consider aspects of theory and practice associated with the exact content focus of their PD.

In addition to interviewing these teachers, I collected artifacts from their instruction that were related to statements made in interviews or observed them teach a lesson. I analyzed these

artifacts and observations in order to triangulate data and confirm the existence of the ideas teachers described in their teaching practice.

Data Analysis

I culled through the interviews that I conducted with teachers with the direct purpose of identifying teachers' conceptions of disciplinary literacy vis-à-vis content-area literacy. I reviewed each participant's interview transcripts and looked for patterns and nuances within and across teachers' thinking. After this review, I developed a list of codes and sub-codes and then systematically applied these to all of the transcripts (see Appendix G for the application of the coding scheme). Since I was looking for teachers' conceptions of disciplinary literacy as they differed from content-area literacy, I utilized two base codes of *disciplinary literacy* and *content-area literacy*. Within each of these codes, I delineated four sub-codes, including *definition*, *texts used*, *thinking skills involved*, and *instructional practice around reading and writing*. In addition to these sub-codes, I also added one further sub-code to the *disciplinary literacy* code: *teaching about the work of disciplinary experts*. In doing so, I was able to reveal which teachers specifically taught their students about disciplinary experts. Moreover, given how two different teachers talked about approaching their teaching of the work of disciplinary experts, I separated this sub-code into *idiosyncratic* and *explicit*.

After coding, I used additional rounds of review to look for and identify recurring themes within each teacher's series of interviews. After identifying these themes, I compared them to the artifacts or observation notes that I collected. I then repeated this process of looking for and identifying recurring themes across all teachers as well as compared statements to artifacts or observations to teachers' respective statements. During this analysis, I wrote a memo for each teacher noting repeated patterns across the teacher's thinking at different points in the year. In

these memos, I included quotes from the teachers, coded the quotes as indicators of specific conceptions, and began to make claims to describe each teacher's thinking. I challenged these claims over subsequent passes of the data and remained attentive to evidence that contradicted my claims. I revised my claims as necessary throughout this analysis.

After applying codes and identifying patterns, I was able to determine whether each individual teacher mentioned more disciplinary literacy concepts than content-area literacy concepts. I was also able to compare individual teachers based on the proportion of disciplinary literacy codes to content-area literacy codes (i.e., whether one teacher had a significantly higher proportion of disciplinary literacy conceptions than another teacher). From this analysis, I eventually created a continuum of teacher thinking to depict the range of conceptions among the four focus teachers, whereby teachers on the right side showed evidence of more of the disciplinary literacy codes. Conversely, teachers on the left side of the continuum demonstrated showed evidence of more of the content-area literacy codes.

Limitations

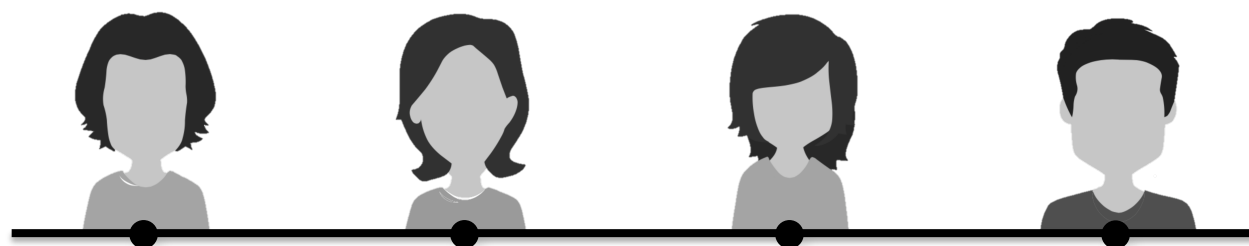
The major limitation of this study's design is that I am not able to draw conclusions about the impact of the PD program that the teachers attended on teacher thinking. This is due, in part, to the fact that not all of the teachers attended all five of the PD sessions. Additionally, I do not observe or collect data on all of the influences on teachers thinking and cannot separate out the influences of the PD program as compared with other potential factors. Another limitation of this study is that I focus solely on teacher thinking and understanding and not teacher instructional practice or student learning. This is due to the way the PD program was designed – to focus on teacher thinking in the first year and then to progress to a focus on teacher practice (after the year

this study was completed). Here, I take an initial step here in trying to identify what teachers need to learn as a part of the transition to teaching disciplinary literacy.

Findings

Teachers' conceptions, whether leaning more toward content-area literacy or more toward disciplinary literacy, included attention to four different aspects of disciplinary literacy – a definition, types of texts used, thinking skills employed, and associated instructional practices. Teachers' thinking about disciplinary literacy represented a spectrum of conceptions, in which teachers' ideas about these five aspects of disciplinary literacy ranged from developing to advanced. To explain these understandings, I create categories to characterize each teacher's thinking about disciplinary literacy and display these categories on a continuum (see Figure 3.1).

I have used labels to categorize teachers' thinking in relation to teachers' conceptions of disciplinary literacy. For example, I find Alex's conceptions to be mainly consistent with content-area literacy except for the few occasions in which she mentions what others might call disciplinary thinking skills. Since she does not recognize such things as stemming from the work of disciplinary experts, I categorize her thinking as *disciplinary latent*. On the other end of the continuum, I categorize Ryan as *disciplinary applied* since all of his conceptions were consistent with disciplinary literacy and he took up formal approaches to teaching his students about the work of disciplinary experts.



Alex: Disciplinary Latent	Lisa: Disciplinary Emergent	Taylor: Disciplinary Realized	Ryan: Disciplinary Applied
<p>Alex does not define disciplinary literacy. She conceives of literacy instruction as a blend of general and disciplinary approaches to reading and thinking, though she does not explicitly discern the difference. There is no formal attribution to the influence of disciplinary experts.</p>	<p>Lisa defines disciplinary literacy skills as reading, writing, and thinking like a disciplinary expert. Lisa promotes discipline-specific thinking skills, though she does not call it that. Lisa does not attribute any specific skills to the work of disciplinary experts. Her approaches to teaching literacy are general in nature (e.g., identify main idea).</p>	<p>Taylor defines disciplinary literacy as the impact that the work of disciplinary experts can have on classroom literacy. Taylor asks her students to read and think like a variety of disciplinary experts. She does not formally teach students how to act like an expert, instead relying on her own thinking aloud in front of students.</p>	<p>Ryan defines disciplinary literacy as adopting the approaches of disciplinary experts. Ryan creates disciplinary reading protocols (e.g., bookmark with discipline-focused questions) to demonstrate disciplinary thinking. Ryan supports his students to investigate the work that disciplinary experts do and provides models of this work.</p>

Figure 3.1. Continuum of teachers' thinking about disciplinary literacy.

In each sub-section below, I provide examples of statements that explain the conceptions of the teachers, my rationale for the label of each category, and my rationale for teachers' placement on the continuum. It is important to reiterate that these teachers make up a continuum of thinking about disciplinary literacy. This in no way suggests a learning progression that teachers go through. Rather, it is a simple representation of a range of thinking about disciplinary literacy among the four focus teachers I interviewed for this study.

Alex: Disciplinary Latent

In my interviews with Alex around disciplinary literacy, she often described quite general approaches to reading and writing. In one example of this, when I asked her to explain disciplinary literacy, she noted comprehension of content that students encounter in school. She

defined disciplinary literacy as “being able to use literacy skills to read, comprehend, and respond to content in various disciplines... and being able to take those literacy skills and apply them to whatever class they're in” (Interview 11/09/15, 22:22). When I asked Alex about her thoughts on disciplinary literacy specifically in the social studies classroom, she said,

A lot of the text that you're asked to read [in social studies] isn't made for entertainment; it's informational... The language can be very difficult because it's content-specific, so it's not vocabulary that you might be familiar with. So, we focus a lot on how to tackle difficult vocabulary. And in this class, we do a lot of opinion and debate and discussion... we look at a lot sources, how to make a good argument, and how you back up what you are saying with factual information. (Interview 11/09/15, 23:07)

In answering my question specific to social studies, Alex noted both general approaches to literacy and disciplinary ways of thinking. At first she mentioned two features of “text access” – recognizing informational text and glossing key vocabulary. But she also then referenced disciplinary thinking skills – comparing sources of information, making an argument, etc. – even though she did not label them as such.

There were multiple instances when Alex blended conceptions of content-area literacy and disciplinary literacy. Alex defined disciplinary literacy as the act of “reading and writing in different content areas” and specifically in social studies as “reading and comprehending social studies texts, historical documents, evidence... and then using that to produce some type of opinion, argument, or solution to a historical, social, or economic program” [Interview 06/21/16, 07:30]. In these statements, she blended general literacy approaches like comprehension monitoring with specific features authentic to a discipline (e.g., use of historical documents, application of a historical problem) even though she did not attribute these features to the work of disciplinary experts.

This blending was even more poignantly characterized when I asked Alex how one teaches students to do this. She responded,

You need to focus on vocabulary. I think it's a lot of vocabulary that is content specific. It's not things kids are familiar in everyday life. So, they need to understand the words that are being used. They need to have an understanding of the time frame, the setting of what they are reading. We do a lot of things in my class with validity of sources. So, if you're reading a letter that was supposedly written by Benjamin Franklin and he's talking about flying a plane, you know that's probably not a valid source because Benjamin Franklin wasn't flying a plane. So we do activities like that. Or checking multiple sources about the same event and what witnesses were saying. Just so they don't take everything they see as historical fact or truth. I want them to be able to discern the difference. (Interview 06/21/16, 09:00)

Here there is a very clear mention of both a general reading strategy (e.g., focus on vocabulary) as well as one that is discipline-specific one (e.g., verifying events through multiple sources). Again, Alex did not mention where these strategies come from. Rather, she implied that they appear simply because students encounter them in the classroom.

There were other examples of Alex blending conceptions of general content-area literacy strategies with conceptions that seemed more grounded in discipline-specific thinking. For example, in the quote below, Alex mentioned access to content-specific language (general to all content areas) at the same time she described a source of information as reliable when its dates are accurate and characterized student thinking in terms of interpretation (specific to a discipline). She explained,

Okay, so in social studies, the kids have to be able to read with purpose, and they have to be able to determine what is a reliable source and what's not a reliable source based on evidence. So, if they're reading a letter from history and dates are inaccurate, they need to be able to notice that... They need to be able to read opinion pieces and make decisions on what they think and on what they side with... So, I think there's a lot of where they have information presented to them and they need to be able to make sense of it. A lot of it's content-specific language. It's difficult, often old-fashioned, and they need to be able to dissect that stuff too and make meaning out of. (Interview 05/09/16, 24:15)

When I asked Alex after the school year concluded to revisit these same questions and to talk about how a teacher could teach students disciplinary literacy, she spoke about specific ways that she has taught students to write. According to her, some of the more important aspects for her

students to develop are, “Knowing their audience if it is an opinion piece. Knowing who they’re writing to if it’s something persuasive” (Interview 06/21/16, 11:40). She recounted a project her students completed at the end of the previous school year whereby they conducted academic work around a problem with natural resources:

So, the last thing we did this year was [a project where] the students had to choose a natural resource, research how it’s used, problems with it, and come up with a way to fix the problem. So, some kids chose oil spills. And they had to try and come up with solutions to minimize oils spills or stop them or minimize the damage they cause. (Interview 06/21/16, 12:12)

While this type of project is similar to one that someone within a related profession might complete (i.e., create an argument about what should be done to solve problems related to natural resources), Alex never mentioned the project in these terms. This was also evident in the packet that she gave her students explaining the project (see Appendix H). While the project asked students to think about the impact human civilizations have had on the natural world, there were no disciplinary guidelines for approaching their research (whether from the textbook or otherwise).

Notably, when I asked her to elaborate on the actual product that students eventually created, she referenced student writing as “coming up with mass plans in general” to be pitched “to only a theoretical audience” (Interview 06/21/16, 13:30). Thus, Alex described both the purpose of the project and the learning that students would achieve without specifically connecting it to the work of any disciplinary expert.

Alex’s thinking about disciplinary literacy was a blend of general approaches to content-area literacy (e.g., focusing on vocabulary, identifying the purpose of a text, writing with an audience in mind) and discipline-specific thinking practices (e.g., using multiple sources of information, considering the context of a source of information). However, while these

disciplinary thinking practices emerged in the interviews, Alex never formally attributed them to the work that experts in disciplines might take up nor did she describe these practices as anything other than what students encounter through the study of school subject matter.

Lisa: Disciplinary Emergent

When I asked Lisa to explain her understanding of disciplinary literacy throughout the course of the school year, she typically framed it in the same theoretical manner each time. Her most succinct way of defining disciplinary literacy was, “If I had to boil it down to a sentence, it would be how to read, write, and think like a historian or social scientist” (Interview 01/07/16, 12:38). At another time, she summed it up as

...helping kids be able to read like a historian, write like a historian, speak like a historian, and use facts to back things up. And then, of course, applying it in some way, shape, or form to their lives now or in the future. (Interview 10/27/15, 09:11)

At the time, I asked her if she thought there were any thinking skills associated with being a historian. She responded,

I want my students to not only understand what a person is saying, but to question that person. I want them to question whether they agree with this person. I want them to question whether they think their facts are real. I want them to know other viewpoints... Again, history isn't always right and wrong. There are always different viewpoints. (Interview 10/27/15, 11:14)

In this series of statements, Lisa characterized disciplinary literacy in history as originating from the work and thoughts of historians. She portrayed the thinking skills of a historian as interpretive insofar as she supported her students to recognize different perspectives.

Paradoxically though, when I once asked Lisa if disciplinary literacy could be defined as reading, writing, and thinking “like an expert,” she took some exception to my characterization.

She stated,

Personally, I don't think everyone has to be an expert in the field. I would like them to be able to understand it though and be able to do it... I want them to be able to do it and

know why it's important. You need to be able to read. For example, so we just did the 1920s through watching a movie. I didn't have them take notes or anything, just watch, so they're using listening skills. And the big deal for me was to see the similarities between the problems in the '20s and the problems we have now. And one of them was immigration and how they completely blocked Eastern Europe, Southern Europe, and the Asians [in the '20s]. I said, "Gee, is any politician talking about blocking certain people from coming over now?" And they're like, "Oh yeah, of course." So, that, I don't know if that makes them an expert, but I want them to be able to see why it's important to relate and see these changes and similarities over time. (Interview 01/07/16, 03:18)

Here, Lisa mentioned that she didn't think everyone (presumably students and maybe also teachers) needed to become disciplinary experts themselves. However, she at the same time advocated that teachers guide students to consider aspects of historical continuity and change over time.

In the same interview, I asked Lisa to describe in more detail how she conceived of teaching students disciplinary literacy in history, she responded by describing the need to use "multiple techniques" when reading. She went on,

We do highlighting, taking notes in the margin, drawing a picture of the main idea... offering students multiple ways to process or improve their reading... I think it's important for the teacher to model it first. You can't just say, "Here, read this and take notes." Because what I want for notes in history is different than what an English teacher wants... Again, with writing, I think multiple ways to teach organization. Some kids love graphic organizers, other kids hate them and want to do an outline... I approach all of these skills with "We got to do it in different ways." (Interview 01/07/16, 14:51)

The "different ways" that Lisa described for teaching students reading and writing can be viewed as general across disciplines and useful for comprehension and organization. Lisa echoed similar sentiments in other interviews, specifically when she referenced drawing pictures to capture main ideas and thinking aloud during the process in order to model the skill of determining main idea (Interview 05/10/16).

There were instances when Lisa blended general approaches to literacy with disciplinary-specific thinking. When I asked her what teaching practices help students to be able to do disciplinary literacy in history, she responded,

You have to find something that's going to engage them. I would probably start with reading different types of texts. And getting students to do close reading. So anything that you can do to help them stay focused on it, engaging those kids that don't want to read... making them go deeper than a summary... You might say, "I know you can tell me a summary, but that's not necessarily all I want. I want details or things in the reading that support your ideas." As far as writing goes, having taught AP US History, I think that helps me with at least historical writing... There is a different way to write history. I think it's important to teach students to write in a more formal historical manner, chronologically... (Interview 12/03/15, 17:25)

This response exemplifies a blend of conceptions of general content-area reading strategies (e.g., close reading, summarizing with details) and a hint of thinking aligned with the discipline (e.g., how chronology distinguishes writing in history). This type of response may signify that Lisa understood disciplinary literacy's influence on teaching and learning only in a theoretical manner since her conceptions of instructional practice remained in the realm of content-area literacy.

Each time I interviewed Lisa, she was quick to describe disciplinary literacy as a teaching enterprise that is based on the work that historians and social scientists do. She recognized that disciplinary expert work plays some role in framing disciplinary literacy. She mentioned thinking skills that can be associated with disciplines, including: determining the time in which something was created, recognizing the perspective that is present in a source of information, and consulting multiple sources of information. Lisa realized that her stance toward teaching literacy in history is at least partially based on what historians do. However, she questioned whether she wanted her students themselves to adopt the work of disciplinary experts. Consistent with this, she did not specifically teach her students about who historians are and what they do.

In describing teaching practices associated with teaching disciplinary, Lisa referenced general approaches to literacy that emphasized text access. These included having her students annotate and highlight text, having students draw pictures of main ideas, and her own modeling of such things. Like Alex, Lisa's conceptions about how disciplinary literacy influences instructional pedagogy seemed to blend general approaches to comprehension and disciplinary-specific thinking skills demonstrated in evidence-based reasoning.

I also found this to be apparent when I observed her US History lesson on the 1920s. During my visit, her instructional practice appeared consistent with my finding that Lisa had an intention to teach her students a disciplinary concept, but did so through a rudimentary vocabulary exercise. In our interview that day, she described her history objective as

...study[ing] 1920s culture in the United States. Specifically, we're going to focus on slang words. I want the kids to make a few connections: that slang has been around for a long time, how we still use some of those slang words now, how they're still relevant to today (Interview 01/07/16, 01:05).

This objective can be viewed as a version of the disciplinary concept in history known as *continuity and change* (Seixas, 2012) whereby aspects of society both stay the same and change. Lisa's instruction, and by extension what she asked her students to do, consisted of having students fill out a worksheet that contained a column of 1920s slang words and a column of matching definitions (see Appendix I). Students were to consult an online website to figure out what the slang words meant. Then, she expected students to write some of these slang words in sentences to demonstrate proper grammatical use. Lisa demonstrated all of these steps by using one of the terms as a model.

The lesson I observed exemplified the pattern of sentiments that Lisa expressed in our interviews. Namely, she mentioned the theoretical implications of disciplinary literacy based on the work of disciplinary experts, but this noticing did not translate into her own descriptions of

discipline-specific instruction nor in practice during the corresponding lesson that I observed.

From this, it seems that Lisa's conception of disciplinary literacy was theoretically sound, but her conception of how it is taught relied on content-area literacy strategies to promote comprehension.

Taylor: Disciplinary Realized

Throughout my interviews, Taylor continuously described disciplinary literacy in terms of the “nuances that people in different disciplines do when they're reading and writing” (Interview 12/07/16, 32:45). I captured a more explicated definition from her when Taylor described disciplinary literacy as:

...looking at what it is that's particular to a discipline as far as reading and writing, what the experts in that field do, what that can contribute to the classroom to help students understand and be able to think in that disciplinary way. (Interview 06/23/16, 4:25)

From the outset, Taylor maintained this conception of disciplinary literacy and often times would reference history or a social science by name.

When I asked Taylor to explain how teachers might help students understand and think in a disciplinary way, she referenced her own approach to teaching during a recent project. The outcome of the project was for students to research a national park and create a 60-second video promoting the park. Some of these videos would eventually be shown to “experts” from various agencies. As Taylor described it,

We have somebody coming in who is in charge of local parks and recs, we have a parent who serves on the board of the new national park that's nearby, and then we hope to get a third person in from a different park system. (Interview 04/27/16, 05:46)

To conduct research on this project she had students split up into groups of four. Then, each student in the group took on the identity of a disciplinary expert. Speaking about this manner of teaching students to adopt an expertise, Taylor said,

They meet in expert groups, so all the economists can get together and share ideas. So, a historian, a geographer, somebody who's focused on the government, and an economist. So, the four areas of the social studies. And then they meet in their expert groups to share ideas on what they are finding about their part. (Interview 04/27/16, 09:39)

In conceiving of disciplinary literacy in this manner, Taylor signaled that the role of the disciplinary expert is central to the thinking her students did.

I asked Taylor how she taught her students to figure out how to play the part of a disciplinary expert in the first place. She responded,

We've been doing that since the beginning of the year. The students learned before about those different parts of social studies, and we talk about it a lot with the different pieces that we read, what are the things that you're seeing. More so with history and geography than the other ones. (Interview 04/27/16, 10:15)

I also asked her whether she had certain language or ways of explaining this to her students, she stated,

It's probably more my modeling it, from what's going through my head as I read. I can't say that I specifically teach those things... I think that looking at your purpose for reading is big. A lot of times we will read through an article. I always try to get them to preview it first and then we'll read it with the purpose of just finding out what this article is about and then going back in and looking at it and say, "Okay, if you're reading it as a historian, what are the things that jump out of you? If you're reading it as a geographer, what jumps out at you?" And so forth. (Interview 04/27/16, 10:53)

In a related question, I had once asked Taylor before to describe those types of "things that jump out" to the historian. At the time, she said,

You know it's just those basic things of thinking like a historian, looking at the sequence of events when things are happening, putting it in the context of what else was going on in the world. (Interview 03/14/16, 5:00)

At another point in time, she explained further,

So, my historians are supposed to be reading like historians, thinking about the era in which they're reading, what are the things that are particular to that era? Looking at whether the information is sequential. Asking, "Is the information kind of like following a timeline? Is it kind of all over the place?" Looking at the important dates, the times, the people that were involved. Looking at the source, who wrote it, and determining their purpose. So, things like that versus my geographers who are looking at the physical space

and the people that are involved and how that all works together and why this spot for this National park. And the economists... looking at the lobbyists and how they got involved in. (Interview 04/27/16, 8:17)

Ultimately, Taylor claimed that she taught her students to think like a disciplinary expert through a combination of general approaches (e.g., identifying purpose and reading for comprehension) as well as disciplinary-specific ones (e.g., the historian thinks about the author and time of a source's creation versus the geographer who considers the interaction with physical space).

Taylor's reference to having her students take on the "perspective" of one of four disciplinary experts (e.g., historian, geographer, economist, and political scientist) was made apparent when I observed her teach a lesson in the unit on National Parks Preservation. During that lesson, Taylor asked her students to select and read through a document found in the Hetch Hetchy Environmental Debates collection on the National Archives website. These debates took place between 1908 and 1913 when the city of San Francisco proposed building a dam in the Hetch Hetchy Valley with Yosemite National Park. While Taylor asked students to determine whether each document represented a "preservationist, conservationist, or opportunist" conception, she made passing references to reading the documents with a disciplinary expert lens. For example, she said, "one of the things that we're doing in your groups, remember, is researching from your different perspective. So, for example, if you are a geographer, you're looking at why a park might be located in that geographic area" (Observation 04/27/17, 40:55). This direct reference to adopting the lens of a disciplinary expert corroborates Taylor's statements about her approach to providing students an opportunity to engage in disciplinary thinking. At the same time, it also supports my notion that there was no explicit instruction for students on how to do this. Rather, it likely relied upon Taylor mentioning the idea and giving examples periodically.

In my interviews with Taylor, she described disciplinary literacy as a nuanced process of reading and writing that reflects what disciplinary experts do. She often mentioned thinking skills that were aligned to the thinking of disciplinary experts. When describing the types of lessons and instructional activities connected with disciplinary literacy, she noted the explicit incorporation of disciplinary stances for her students to adopt (e.g., historian, geographer, economist, political scientist). In addition, the projects of her students were focused on producing outcomes that were authentic to the work while addressing audiences with whom a historian or social scientist might interact. In the end, the only aspect of Taylor's conception of teaching disciplinary literacy that did not seem to be explicitly mentioned or demonstrated during the lesson I observed was *how* to teach students to be disciplinary experts in any formal manner. Rather, Taylor states that she relies on modeling her own intuition and thinking without adopting any formal pedagogy or design for this. Regardless of this reliance on teaching through idiosyncrasy, her instructional practice realized the importance of the work of disciplinary experts.

Ryan: Disciplinary Applied

When I probed Ryan for a definition of disciplinary literacy, he was quick to characterize it as a disposition whereby students consider a range of questions that a historian might ask. He said,

In history, I would explain [disciplinary literacy] as trying to help my students to think from the stance of a historian. You know, how a historian would approach lots of different things. So, it could be answering a question or posing a question like, "How does a historian approach different problems within history?" Or, "How does a historian approach reading a document or multiple documents?" And once they get through a set of information or a course of inquiry or an investigation, "What do historians do at the end of that? What do they create?" (Interview 10/27/16, 00:30)

He then continued by describing how students might apply this thinking when consulting sources of information. He said that he has his students look at sources of information to first determine whether those sources are themselves “legitimate.” To do this, he said that he leads his students through the use of a “pre-reading protocol” for determining a source’s reliability. Calling these “sourcing techniques,” he described these strategies as “thinking about who the author is, perspectives, biases, and the context in which it was created” (Interview 10/27/16, 01:24).

In order to support his students’ use of the reading protocol, Ryan demonstrated its use in actionable ways. He said he introduced the protocol to his students as an activity to learn about source reliability. He said that first created a checklist for his students as a tool for being able to do the reading in class.

I created a checklist for [my students] as tool for being able to do the reading in class. I modeled the use of this protocol by looking at three websites in front of the class. We dug into each website and determined whether it was reliable. They then needed to find three sources that were reliable in order to complete a project... This became a practical tool for reading and note taking. (Interview 10/27/16, 09:30)

Such a reading tool suggests that Ryan conceives of disciplinary literacy as having practical implications through his codification of the thinking skills that historians undertake when reading into a checklist that students use to determine source reliability.

Designing such a protocol for reading fit into a larger instructional arc that Ryan espoused when I asked him about how he thinks about teaching students disciplinary literacy. He referenced teaching students about what disciplinary experts do in a structured manner. Ryan said that has worked to show his students that “history content comes from a certain place” and that “there are people doing work putting together the information that we learn.” To Ryan, this was an important thing to convey to students because it showed that “there are people doing this work... by building narratives, writing books, and creating documentaries. And their act is of

gathering information from multiple sources and putting it together in some sort of cohesive narrative” (Interview 10/27/16, 5:30).

Ryan’s accounts of his instruction similarly exhibited a full understanding of disciplinary literacy. When I asked Ryan to explain what his instruction looked like when taught this to students, he said described a project whereby students can see “what people with a degree in history end up doing.” He elaborated, “So we look at different sources of information like the Bureau of Labor Statistics, who has information on what historians do – what jobs they actually get after getting a degree history.” This was important, he said, because it set up students to conduct their own research. In his mind, such an activity got students to “think more broadly about how to approach their own investigation.” In short, he said, “We identify subgenres of history that could be interesting to students” (Interview 10/27/16, 5:30).

Ryan saw his culminating course project in Advanced Placement US History as an embodiment of disciplinary literacy through his teaching of writing. He explained that he wanted each student to write something she or he found useful while linking it to the work of historians. As an example, he described one student’s interest in World War II medicine:

I had a student who wanted to be a doctor and is likely to be one... He wanted to research the use of morphine in World War II given today’s current opioid epidemic. He wanted to know, “Were there similar problems with soldiers after the war?” That was one of his guiding questions... I wanted him to do something useful... so he wrote a history of the use of morphine in World War II but he did it in the style of a medical journal... He did a genre study on journal writing for medical journals and learned how to write in that style. I wanted to be sure that if he, in fact, goes into a career in medicine, he has practice doing that. (Interview 10/27/16, 15:15)

Though he admitted that this type of project only happens once a year, Ryan nonetheless held particular conceptions of what disciplinary literacy looks like in his classroom and took up instruction that reflected his conceptions. His notions included wanting opportunities for students

to learn about what disciplinary experts do, to approximate some aspect of their work, and to take up an investigation into a topic they find purposeful.

Ryan's thinking about how he has taught students to read, write, and think like a historian demonstrates that he is literate in the actual work of historians. For him, "like a historian" is not just a theoretical characterization but is also a practical stance toward learning. For example, the protocol that he developed for his students to support them in evaluating sources of information demonstrates this practical stance (see Appendix J). On this protocol, there are categories of questions around "credibility," "accuracy," and "sourcing" that prompt students to consider and interpret the reliability of information in a manner consistent with the working and thinking of historians.

While Ryan spoke about how he perceived ways that he has aligned his literacy instruction to the work of historians, he also mentioned how he has directly taught his students about who historians are and what lines of work they do beyond writing books and working in academia. This sets Ryan apart from Taylor. Taylor asked her students to take on the role of a disciplinary expert when investigating a topic and encouraged them to think accordingly. However, Taylor did not make this identity shift the focus and structure of her instruction. Ryan focused explicitly on teaching students who historians are and what work they do. He mentioned how he used texts and sources of information that historians would reference with his students. He described the thinking skills that he teaches his students and has specific terms for these, including "sourcing" and "contextualizing." Moreover, he encouraged his students to become historians in a variety of ways including projects in which students read and write in a manner consistent with the writing of disciplinary experts and to an audience that is representative of one to which a disciplinary expert would write.

Discussion

In this study, I have sought to identify the knowledge four social studies teachers have about disciplinary literacy by soliciting their thinking as they took part in a common PD program focused on gaining an understanding of disciplinary literacy. The range of conceptions that arose across the teachers indicated a continuum of sophisticated thinking about disciplinary literacy. I found that the four teachers held a of range conceptions not just about disciplinary literacy as an idea but also as a set of instructional practices.

Alex did not mention disciplinary experts by name (e.g., “historians”) and did not associate any thinking skills, materials for reading or writing, or instructional practices directly with the work of disciplinary experts. While she did describe some of these dispositions in a manner that is consistent with a discipline (e.g., interpreting evidence by analyzing the date of a source, corroborating evidence through multiple sources), these descriptions originated from a focus on what a student encounters in the classroom. That is, in defining disciplinary literacy, she spoke about the texts or genres of reading that students experience in the social studies class. While another teacher could use these same texts (e.g., articles, newspapers, textbooks) in a disciplinary fashion, Alex spoke of having student approach them through general content-area literacy strategies focused mainly on comprehension (e.g., defining vocabulary). This is consistent with the type of project she envisioned doing with students – one rich in comprehension and some analysis but tailored to an undefined generic audience (e.g., “people on the other side of the issue”). Consequently, I see Alex’s conceptions of disciplinary literacy as *latent* and not explicitly stated with attribution to the work of disciplinary experts.

Lisa’s conceptualizations of what disciplinary literacy is were consistent with disciplinary thinking – she emphasized thinking skills, annotating texts, and opinion writing. Yet her ideas

also indicate that the role of disciplinary expertise was only one of attribution. She, like Taylor and Ryan, directly referenced the work of disciplinary experts when defining disciplinary literacy (i.e., reading, writing, and/or thinking like a historian or social scientist). But while she spoke about wanting students to connect the past with the present and write their own arguments, she was cautious about wanting to push her students to become disciplinary experts themselves. When describing how one might teach students literacy, she recounted her own modeling of general annotating, highlighting, and drawing pictures of text. This stance toward instruction aligns neatly with content-area literacy. Given this, I consider Lisa's thinking about disciplinary literacy to be *emergent* since she recognizes that the work of disciplinary experts can have some influence on school-based literacy but does not seem to translate this into her thinking about instructional practices.

What differentiate Taylor and Ryan from Lisa are their attempts to approximate the work of disciplinary experts in the classroom. Taylor and Ryan both described disciplinary literacy in similar ways. To them, it is both a way of thinking aligned to how "experts in the field" do their work and a performance of higher-level teaching that is often ambitious and project-based. Taylor and Ryan characterized disciplinary literacy as utilizing the thinking skills of disciplinary experts (e.g., interpretation based on authorship and date of creation), real sources of information that a disciplinary expert would look at, and conclusions communicated to a specific and real audience in a manner consistent with a discipline and its genres of writing. Considering this, I see these two teachers' thinking about disciplinary literacy as at least *realized* through their recounting and descriptions of projects their students have completed.

What differentiates Ryan from Taylor is Ryan's attempt to explicitly and formally teach his students about who disciplinary experts are and what lines of work they take up. Taylor relied

upon her own cognitive modeling (i.e., thinking aloud her thoughts to students) to assist students in developing thinking skills while reading but did not otherwise formally teach her students how disciplinary experts think. In comparison, Ryan codified such thinking skills for his students into a useful tool (e.g., his protocol for preparing to read). Given this and that he speaks of explicitly introducing his students to the current work and careers of disciplinary experts, I categorize Ryan's thinking about disciplinary literacy as *applied* through his deliberate attempts to teach about disciplinary expert thinking.

The fact that there was such a range among responses to the same questions by teachers who are in the same PD is not surprising since teachers tend to vary in response to the same PD based on their prior knowledge and experiences (Desimone & Garet, 2015). What is slightly surprising is the tidiness with which the four teachers' conceptions fit into a continuum. Of course, this continuum is meant to be descriptive of teacher conceptions and not diagnostic or evaluative. It certainly does not represent the only possibilities for categorizing teacher thinking. One could expand on this continuum by considering more extreme ends beyond either *latent* or *applied* as well as by testing other teachers' conceptions that may be more problematic, say a teacher who teaches using disciplinary-aligned instructional methods but does not understand why such practices are meaningful.

As it currently appears, the continuum suggests that more sophisticated thinking about disciplinary literacy (the right side of the continuum) is comprised of certain layers of knowledge. At the very least, it seems obvious that teachers need to be able to define disciplinary literacy in order to become clued into the work of disciplinary experts, upon which school-based disciplinary literacy is based. In addition, those teachers who spoke most directly about the work of disciplinary experts tended to have more appropriate conceptions about how disciplinary

literacy can be taught. None of this is to suggest an exact learning progression. However, these insights do support the notion that conceptual frameworks are critical for understanding facts and ideas (Bransford, Brown, & Cocking, 2000).

Developing Teacher Content Knowledge

What ideas might then move teachers along this continuum? For the most part, the conceptions of the teachers can be arranged into three categories that represent potential “content foci” of PD for disciplinary literacy. These include:

- Knowledge of what disciplinary experts do, how they think, and what they think about (e.g., the sources of information disciplinary experts consult, the ways they interpret evidence, or how they communicate conclusions);
- Knowledge of what students can do in the classroom to reflect the work of disciplinary experts (e.g., ways of annotating sources of information or writing assignments students can complete); and
- Knowledge of instructional practices that teachers can enact to promote students’ disciplinary reading and writing (e.g., how to select appropriate sources of information, what questions to ask students to prompt discussion, or how to model a reading or writing skill).

These bases of knowledge have implications for two critical areas in need of attention by those who lead PD and research teacher learning. In PD for disciplinary literacy, there is a need to support teachers to think about and between two worlds – the world of the professional “disciplinary expert” at work and the world of the teacher leading instruction in the classroom. In research, there is a need to further understand how teachers think while they navigate between these worlds. In both areas, Shulman’s (1986) notions of content knowledge and PCK are useful.

With regard to content knowledge for teaching disciplinary literacy, not only must teachers approach their instruction already knowing the facts and concepts of the subject matter, teachers also need to know how the underlying knowledge was created. As referenced in the

literature review, I delineate Shulman's (1986) notion of content knowledge into *topical content knowledge* of facts and basic concepts and *disciplinary content knowledge* of how historians do and think about their work. The latter seems especially important for developing and supporting teacher thinking about disciplinary literacy since part of the content focus for this type of PD is learning about the work of disciplinary experts. Moreover, teachers with different forms of these knowledge areas are likely to impact students' opportunities to learn in different ways (Monte-Sano, 2011). For the teachers in this study, it appeared that most utilized some *disciplinary content knowledge* insofar as they could identify the habits of mind related to corroborating multiple pieces of evidence and taking into account the historical context in which something was created. That is, teachers could state *that* historians think about things in certain ways. Yet, only Ryan articulated an idea of where these habits of mind come from (i.e., the literal work that historians take up). Without an understanding of the nature of the work that historians do, it is not likely that teachers will be able to explain *why* the habits of minds within history exist. Without this knowledge of the work that historians or other disciplinary experts do, teachers are not positioned to then think of ways that students can reflect this work in classrooms.

PCK is also applicable here since it is a domain of knowledge that bridges what teachers know with how to teach that knowledge. For Shulman (1986), PCK is a "kind of content knowledge... which goes beyond knowledge of the subject matter per se to the dimension of subject matter knowledge *for teaching*" (p. 9, emphasis original). This "dimension" of knowledge can be considered the application of subject matter knowledge to instruction of students. But, without content knowledge of the subject matter and how that subject matter came to be, teachers will not be positioned to translate such knowledge into practice. In this regard, my findings expand on research on PCK through connections to other studies on the topic.

Monte-Sano and Budano (2013) consider the literature on history education and identify examples of pedagogical practices associated with PCK for teaching history. They organize the literature into four components: representing history (communicating what history involves), transforming history (translating content into lessons and materials), attending to students' ideas about history (noticing and responding to students' conceptions), and framing history (selecting and arranging topics). The authors acknowledge that research in history education focused on teacher "has been scattered" (p. 207) and that researchers have not yet build a coherent framework for PCK.

The findings in this study, while not directly contributing to a larger framework, highlight what teachers need to understand in order to take up the types of practices that Monte-Sano and Budano documented. Stated more directly, I note that teachers need support in developing conceptions of the work of disciplinary experts, how students can reflect this work, and how teachers can support such student learning. Each of these three bases of knowledge seems, in part, to map onto Monte-Sano and Budano's (2013) aspects of PCK. In order to better represent history, it would make sense that teachers need to develop their knowledge of the discipline. To attend to students' ideas and transform history, teachers need to know what it looks like for students to "do" history in the classroom. To frame history, teachers need to develop knowledge of instructional practices that align to disciplinary practice and support student learning. Establishing firmer connections between knowledge that teachers possess and the ways that instructional practices demonstrate such knowledge might then piece together more of the framework these authors seek.

The findings in this study also suggest that a translation of Ball and colleagues' (2008) two subdomains of PCK is appropriate when applied to disciplinary literacy. In their study of

mathematics teachers, Ball and colleagues (2008) refine their understanding of the domain of PCK into *knowledge of content and students* and *knowledge of content and teaching*. The former is knowledge that combines knowing about students and knowing about the subject matter. That is, teachers must “anticipate what students are likely to think and what they will find confusing” (p. 401) and utilize knowledge about student “conceptions and misconceptions about particular [subject] content” (p. 401). The latter is knowledge that combines knowing about teaching and knowing about the subject matter. This includes “coordination between the [subject matter] at stake and the instructional options and purposes at play” (p. 401).

How then could these two subdomains be translated into knowledge for teaching disciplinary literacy? With regard to *knowledge of content and students*, teachers can be viewed as applying their knowledge of what disciplinary experts do to what students might think. This knowledge could be demonstrated when teachers select useful representations to teach students about what disciplinary experts do. For example, a teacher might decide to use one mentor text (i.e., an example of disciplinary expert writing) instead of another in order to show students the component parts of the genre within which a disciplinary expert is writing. With regard to *knowledge of content and teaching*, teachers can be viewed as applying to their instructional design their knowledge of what disciplinary experts do. Such knowledge could be demonstrated in the ways that teachers design routines and activities whereby students approximate the work of disciplinary experts. For example, a teacher might develop a class analysis routine whereby she/he models and instructs students to first look for who created the source and the date and place of its creation since this reflects the reading habits of historians.

Framing content knowledge as “knowledge of the work that disciplinary experts do” and PCK as “knowledge of the work that disciplinary experts do that informs instructional design and

anticipation of students' conceptions" has implications for both practice and research. In presenting these bases of knowledge, I frame the intellectual work of teachers as an act of translating the work of disciplinary experts into instructional practices in secondary classrooms. Within PD settings, these bases of knowledge could impact the "content focus" (i.e., what teachers are meant to learn during the program [Desimone, 2009]) and the materials that are selected for study. Within research agendas, these bases of knowledge can inform the ways that researchers study how knowledge is attained and used.

These propositions suggest that the three bases of knowledge described above are "content foci" that can act as a framework to direct programmatic design of PD. First and foremost, teachers need to learn about what disciplinary experts do, how they think, and what they think about. Since many teachers themselves have not undertaken the work of or been a disciplinary expert (e.g., graduate work in the discipline, prior or concurrent career in the discipline), it seems reasonable to assume that teachers need opportunities to learn what historians, economists, political scientists, and geographers do, especially outside academia. That is, teachers need opportunities to develop content knowledge about the work of disciplinary experts. In a simplistic manner, this can be addressed by providing literature and research on the thinking and practice of disciplinary experts. Within the discipline of history, this could include what historians have written about what they do (e.g., Bain, 2000; Collingwood, 1946) and what researchers have written about historians' thinking (e.g., Wineburg, 1991). A more sophisticated way of bridging this divide would be to introduce teachers and disciplinary experts to one another as an opportunity for dialogue with the "more knowledgeable other" on which social learning rests (Vygotsky, 1978). Such an endeavor could be a tall order for a district- or school-based PD leader. In yet another possibility, a single teacher leader or teacher educator well

versed in epistemology of disciplines could guide professional learning opportunities.

Unfortunately this relies exclusively on the capacities of individuals and is not a structural approach. Regardless of how it is done, program design meant to facilitate teacher learning and research meant to investigate the conceptions teachers develop can begin to build upon what teachers exhibited in this study.

CHAPTER 4

The Challenges of Developing Teacher Thinking about Disciplinary Literacy

At the conclusion of the first year of a teacher professional development (PD) program, I interviewed the coordinator of the program (herein “PD Coordinator”) in order to understand how she thought the program went. The PD Coordinator spoke with exasperation about not accomplishing the main objective of the PD program for the school year – getting teachers to develop their thinking about what disciplinary literacy is and how it can be taught. Teachers did not seem to have a clearer sense of what disciplinary experts do, let alone how to translate this work of disciplinary experts into instruction in their classrooms, at the end of the first school year of the PD program. This was the case, the PD Coordinator said emphatically, even after introducing teachers to university academic professors – designated “experts” that teachers could learn from – during the year and providing opportunities for teachers to collectively think about pedagogy.

It was true. During one of the five PD sessions in which teachers took part, teachers met with professors who taught university courses within the same content area. This occasion was billed as an opportunity for dialogue about disciplinary expertise and instructional practice. But, based on the PD Coordinator’s interactions with teachers since that point, they did not develop conceptions of the content as she had expected. Moreover, she had provided teachers with books, articles, and access to other professors who focused on disciplinary literacy pedagogy. Teachers even had opportunities to present their own teaching to one another in PD sessions. The PD

Coordinator was surprised that teachers had not fully developed an understanding of disciplinary literacy after being provided substantial opportunities to learn. Yet, teachers perpetually expressed doubt about teaching disciplinary literacy. Statements like, “I teach science, but I am not a scientist,” were common. Thus, the PD Coordinator wondered at the end of the year whether it “just isn’t possible” to get teachers to develop conceptions of disciplinary literacy or whether it was “fair” to expect teachers to “really know what disciplinary literacy is and to do it.”

Does disciplinary literacy pose an inherent challenge to supporting teachers? Even when teachers and academic professors sat in the same room, teachers did not adequately develop knowledge of disciplinary literacy and how it can be taught. Was this just a mismanaged learning opportunity, or are there particular challenges involved in supporting the development of teacher thinking about disciplinary literacy? In this article, I consider the challenges for designing PD focused on disciplinary literacy and what may contribute to such challenges.

Background

There are two areas of literature that inform my review of the challenges of supporting teacher thinking about disciplinary literacy. First is research on the topic and content focus of the PD – disciplinary literacy. Second are scholarly conceptions of the knowledge teachers utilize when teaching, specifically forms of content knowledge. In relating this, I highlight how this background applies to the potential challenges that arise in PD focused on disciplinary literacy.

Disciplinary Literacy

There has been a growing reform effort over the past decade within research and scholarly literature advocating for secondary content teachers to shift their literacy instruction

away from so-called “content area literacy” toward teaching “disciplinary literacy.” Shanahan and Shanahan (2012) describe the differences in these two approaches, writing,

The difference is that content literacy emphasizes techniques that a novice might use to make sense of a disciplinary text (such as how to study a history book for an examination), whereas disciplinary literacy emphasizes the unique tools that the experts in a discipline use to engage in the work of that discipline. (p. 8)

Rather than integrating general-purpose literacy strategies into subject content, teaching disciplinary literacy involves attention to how knowledge is constructed in a specific discipline and how reading, writing, and thinking are part of that construction.

The trend toward supporting a disciplinary approach to reading and writing in schools has been established across disciplines (e.g., Moje, 2008; Shanahan & Shanahan, 2008) and within them, and researchers have made the case for the benefits of teaching students to read and write in a disciplinary fashion. For example, for teaching disciplinary history, these benefits include understanding history topics (i.e., events, actors), thinking in an interpretive manner, and developing argument-writing skills (De La Paz & Felton, 2010; Monte-Sano, 2011). To extend this further, Shanahan and Shanahan (2012) make the argument that “students would make greater progress in reading the texts of history... if instruction provided more explicit guidance that helped them to understand the specialized ways that literacy works in those disciplines” (p. 16). This idea of explicitly teaching students “specialized ways” to approach literacy is supported by several research studies in classrooms (De La Paz, 2005; De La Paz et al., 2017; Monte-Sano, 2008; Nokes, Dole, & Hacker, 2007; Reisman, 2012a). Given this documented impact on student learning, disciplinary literacy was incorporated into the central tenets of the C3 Framework for Social Studies State Standards (National Council for the Social Studies, 2013).

Content Knowledge

For three decades, there has been scholarly application of Shulman's (1986) concepts of content knowledge and pedagogical content knowledge (PCK). Content knowledge is subject matter knowledge that is not limited to just "facts or concepts" (p. 9) but also includes "understanding the structures of the subject matter" (p. 9). In discussing these "structures," Shulman references Joseph Schwab's (1978) essays, which delineate two structures of subject matter. These include substantive structures (i.e., conceptual ways of organizing facts) and syntactic structures (i.e., ways to determine the validity within a discipline). Applying this, while summarizing his concept of content knowledge, Shulman (1986) writes, "The teacher need not only understand *that* something is so; the teacher must further understand *why* it is so" (p. 9, emphasis original). Applying this to disciplinary literacy, Moje (2007) writes, "Subject-matter learning is not merely about learning the stuff of the disciplines, it is also about the processes and practices by which that stuff is produced" (p. 10). The notion then of content knowledge for disciplinary literacy includes demands on teacher knowledge of the facts, events, and phenomena that disciplinary experts work with – what I refer to as *topical content knowledge* – as well as the ways in which those disciplinary experts go about their work – what I refer to as *disciplinary content knowledge*.

In a similar manner, PCK can be applied to disciplinary literacy. For Shulman (1986), PCK is a "kind of content knowledge... which goes beyond knowledge of the subject matter per se to the dimension of subject matter knowledge *for teaching*" (p. 9, emphasis original). This "dimension" of knowledge can be considered the translation of subject matter knowledge into teacher instruction of students. Elaborating on this concept in their work with mathematics teachers, Ball and colleagues (2008) further elaborated an understanding of the PCK by developing the concept into smaller subdomains. Applicable to this study, they discerned two

subdomains within PCK: *knowledge of content and students* and *knowledge of content and teaching*. The former is knowledge that combines knowing about students and knowing about the subject matter. That is, teachers must “anticipate what students are likely to think and what they will find confusing” and utilize knowledge about student “conceptions and misconceptions about particular [subject] content” (p. 401). The latter is knowledge that combines knowing about teaching and knowing about the subject matter. This includes “coordination between the [subject matter] at stake and the instructional options and purposes at play” (p. 401). Considering this in application to disciplinary literacy, there appears to be a need to for teachers to develop knowledge about how students build conceptions of disciplinary content and cognitive processes for learning in addition to how certain instructional practices can support student learning.

Teacher Learning

In order for teachers to develop new knowledge and instructional practices, they must have multiple and varying opportunities to learn while adopting new identities within a specific culture of discourse. To teach students the skills needed to develop disciplinary literacy necessitates that teachers themselves (1) develop their knowledge of a discipline, (2) develop discourse and instructional practices aligned to a discipline, and (3) alter their identities within certain discourse communities (Moje, 2008). Since disciplines use specific discourse and instructional practices, engaging in disciplinary literacy becomes a cultural experience. Conceiving of disciplines as cultures “challenges notions of disciplines as stable bodies of knowledge and reminds us that disciplines are human constructions” (Moje, 2015, p. 258). To participate in this constructive enterprise, individuals must develop knowledge and wrestle with issues of identity. Placing the individual at the center of a culture-knowledge sphere, Gee (2007) writes,

All deep learning – that is, active, critical learning – is inextricably caught up with identity in a variety of ways... People cannot learn in a deep way within a semiotic domain if they are not willing to commit themselves fully to the learning in terms of time, effort, and active engagement. Such a commitment requires that they are willing to see themselves in terms of a new identity. (p. 54)

This notion that teachers must develop knowledge, culture, and identity transforms the view of teacher learning within PD settings. In fact, it implies that major challenges need to be addressed in order for teachers to learn deeply.

Literature specific to PD for disciplinary literacy is scarce, however. The few studies that do exist highlight challenges faced around PD and disciplinary literacy teaching through research on project-based curricula in middle school science classes (Moje, Sutherland, Cleveland, & Heitzman, 2010), on findings around school culture and a teacher-coach model (Bamford, 2011), and on how teachers' incorporation of literacy frameworks promoted in PD programs into their English writing instruction (Lillge, 2015). While such studies can indirectly inform my study insofar as framing of the content, they all analyze outcomes of teacher enactment, which is beyond the scope of this study.

Fortunately, other scholarship on disciplinary literacy research and preservice teacher education do contribute to my work by suggesting the importance of providing specific settings for teachers to learn about new content. Moje et al.'s (2004) version of "third space" as a "navigational space" for "crossing and succeeding in different discourse communities" is applicable here, especially since I am studying PD of secondary teachers. This has been a dominant perspective on third space at the secondary level, these authors write, because "of the need to cross the discursive boundaries posed by the different disciplines as students encounter specialized texts in the content area" (p. 44). This notion of a hybrid space with members from different discourse communities highlights the importance of studying the interactions that

teachers have when they participate in PD. Shanahan and Shanahan (2008) write that researchers point to the benefits of both the careful study of reading by experts in disciplines and the value of collaboration among literacy experts, disciplinary experts, high school teachers, and teacher educators in addressing the unique reading demands in the disciplines.

It seems reasonable then to characterize the act of learning about disciplinary literacy as a cultural enterprise that gets taken up in a variety of settings centered on developing knowledge and creating identity. In writing about this experience with preservice teachers, Bain (2012) describes the imperative of developing teacher content knowledge. He writes, “in preparing teachers to teach secondary content, the teacher education program must integrate ideas, dispositions, and practices of domain-specific reading and writing in the service of learning that content” (p. 520-521). Focusing on preservice teacher educators, Dillon, O’Brien, Sato, and Kelly (2010) write that to understand teacher learning within disciplines, teacher educators “need a much deeper understanding of the conceptual domains of each discipline, how the conceptual domains are pedagogically framed to support learning, and how preservice teachers construct their understanding of literacy practices within disciplines” (p. 640-641). As applied to teacher PD, this would suggest that PD leaders also must explicitly attend to ways that teachers build their conceptions of disciplinary expertise and disciplinary practice. Consistent with this, Moje (2008) writes,

To fully integrate literacy instruction and the subject areas... teachers, researchers, and teacher educators must acknowledge the conundrum that one cannot enact discourses and practices of a domain (i.e., enact identities) without relatively sophisticated knowledge of that domain. (p. 101-102)

Taking up this disposition turns me to my next section in which I consider what bases of knowledge teachers need to develop in order to generate sound conceptions of disciplinary literacy and associated instructional practices.

This Study

Considering the knowledge demands placed on teacher learning about disciplinary literacy for the first time as well as the aspects of culture and identity that teachers need to adopt when learning about disciplinary literacy, there is a wide range of potential challenges for any teacher leader or PD facilitator aiming to develop teacher thinking about disciplinary literacy. In the sections that follow, I lay out my exploration of what challenges a PD Coordinator perceived while facilitating a PD program aimed at developing teacher thinking about disciplinary literacy. Ultimately, I look back on interviews with the PD Coordinator and my observations of five PD sessions in order to answer the question: What are the challenges for designing PD that supports teachers' thinking about disciplinary literacy?

Method

This is a descriptive case study (Yin, 2014) of the challenges that arose during a yearlong series of teacher PD experiences focused on developing teacher thinking about disciplinary literacy. This type of case study is appropriate here since I attempt to reveal phenomena that linked to a common activity that took place within a specific setting. The perceptions of a PD Coordinator about the enactment of the PD program, as discussed in interviews over the course of the PD series, serve as primary data for identifying challenges that arose. Observations of PD sessions, planning sessions, and webinars serve as secondary data for corroborating the challenges revealed in the interviews with the PD Coordinator. I analyze the data through a coding scheme that emerged through various rounds of data review.

Context

The Professional Development for Disciplinary Literacy (PDDL) program is a multi-year series of PD sessions and experiences hosted by a county intermediate school district (ISD) in a Midwestern state. The scope of the PDDL program captured in my data is the first academic year of the program, which lasted from September to May and consisted of five face-to-face sessions. The PD Coordinator, a staff member of the ISD, generally designed and facilitated the overall PD program, though most individual activities during the PD sessions were carried out by or in conjunction with teacher participants.

Teachers who participated in the PD program were 36 middle school and high school teachers of different academic subjects from 20 different schools across 10 school districts in the two counties served by the ISD. Prior to taking part in this program, all teachers had previously participated for multiple years in two other PD programs, one focused on reading in the content area and one focused writing in content areas.

According to the PD Coordinator, the first year of the PD series was a “knowledge-building year” (Interview 08/20/15, 22:30). The focus was on getting teachers to think about and develop an understanding of what disciplinary literacy is and how it might be taught. During an initial interview before the PD program started, the PD Coordinator emphasized the knowledge aspect of the PD program saying, “I don’t know if teachers can come away after this year and [teach like] that every day in the classroom, but even if they just get a slice of the idea that would be progress” (Interview 08/20/15, 37:32). In a mid-year interview, the PD Coordinator clarified this goal saying that she wanted teachers to develop knowledge about disciplinary literacy in order to eventually be willing to try to teach in ways aligned to this content. Given this goal of developing teachers’ thinking about disciplinary literacy and aligned instructional practices, this paper focuses exclusively on perceived challenges that related to developing teacher thinking.

As part of the PDDL program, all teachers eventually had the opportunity to participate in two days of planning during the summer, one day of planning during the fall, four PD sessions at the ISD throughout the school year, one session of PD at a local university during the middle of the school year, and two webinars with university faculty authors of books related to teaching disciplinary literacy. While the PD Coordinator initially expected to have an online component to the PD program, this was suspended soon after the second face-to-face session because of a lack of online activity by teachers.

Participants

The PD Coordinator that I interviewed held a B.A. in Psychology, an M.A. in Curriculum and Teaching, and an M.A. in Education Technology, all from a state university. She completed a post-baccalaureate teacher certification program where she became certified to teach English and psychology. After receiving her certification, she taught for eight years in a public school district, mainly as an 8th-grade English teacher with one year as a 9th-grade English teacher. During this time she also served as her department's chair for three years. After teaching, she taught methods courses and conducted field supervision for teacher candidates at a state university. She later worked for two years as a K-12 literacy coach for another public school district.

At the ISD, the PD Coordinator held a position of Coordinator of Instruction for Literacy in which she oversees various literacy PD programs. Before facilitating the start of the PDDL program, she oversaw the continuation of two content-area literacy programs – one focused on reading and one on writing – that the ISD already had in place prior to her arrival. In addition to working to create the PDDL program, the PD Coordinator had coordinated the beginning of a PD program focused on elementary literacy.

Data Collection

I collected the data for this study during the first school year of the PDDL program. I interviewed the PD Coordinator five times throughout the year – three times at the beginning, one time in the middle, and one time at the end – in order to capture her perceptions at different points in time about the planning, implementation, and accomplishment of the PD program (see Appendix A for a timeline of data collection). During my semi-structured interviews with the PD Coordinator, I attempted to elicit in an open-ended fashion topics ranging from the PD Coordinator's personal professional background, history of the ISD's work with PD on literacy, the PD Coordinator's conceptions of disciplinary literacy, her goals for the year, and the challenges that arose before, during, and after the school year (see Appendix B for an interview protocol from one of these interviews). All of the interviews were audio recorded and transcribed. During interviews, I kept running field notes about what the PD Coordinator said.

In addition to these interviews, I observed two PD planning sessions in the summer, one PD planning session during the fall, five face-to-face PD sessions, and two webinars facilitated by the PD Coordinator and university professors. I video recorded the PD sessions and webinars and transcribed excerpts pertinent to my study. For the three planning sessions, I audio recorded the sessions and later transcribed pertinent excerpts.

I also conducted multiple interviews with four social studies teachers before, during, and after the PD program. During these interviews, I asked questions specifically about conceptions of disciplinary literacy and ways of enacting disciplinary literacy through instructional practice

(see Appendix F for an interview protocol from one of these interviews). These interviews were audio recorded and later transcribed.

Data Analysis

After the conclusion of the school year in which I collected data, I reviewed the transcripts of the interviews with the PD Coordinator and conducted a process of data reduction (Miles & Huberman, 1994) through procedures of writing memos, coding, and review. I read through each interview transcript and wrote a memo to collect my initial thoughts about the challenges that the PD Coordinator perceived. Based on these memos, I created a list of working codes on the challenges that emerged from the PD Coordinator's interview transcripts in order to attribute "a class of phenomena" to the segments of text that I was reading (Miles & Huberman, 1994, p. 57). After reading through my memos, I created the following four categories of codes: (1) Challenges of Professional Identity, (2) Challenges of Teacher Knowledge about Disciplinary Expertise, (3) Challenges of Teacher Knowledge about Disciplinary Literacy Instructional Practice, and (4) Challenges of Teacher Participation and Attrition.

After reading through transcripts and memos to develop a list of four emergent codes, I conducted a round of coding of all of the PD Coordinator's interview transcripts (see Appendix K for examples of the application of the codes to excerpts from interviews with the PD Coordinator). After coding these transcripts, I was able to take all coded segments and review them as a list of relevant statements generated out of the interviews. Taking this list of coded segments, I then proceeded to corroborate the challenges that the PD Coordinator perceived with a review of my observations of the PD sessions, planning sessions, and webinars as well as transcripts of the interviews I conducted with four social studies focus teachers. After this review

of the data, I challenged my claims through multiple passes of all the data and remained attentive for evidence that could contradict my claims. I revised my claims as necessary during this analysis.

Findings

During my review of the interviews with the PD Coordinator and subsequent comparison of these interviews to my observations of the PD sessions, observations of planning sessions, observations of webinars, and interviews with social studies teachers, I identified four distinct challenges to supporting teachers' thinking about disciplinary literacy. These included:

1. A disciplinary expertise gap between teachers and disciplinary experts that was not bridged by just putting teachers in the same room as university professors,
2. The lack of representations of instructional practice focused on disciplinary literacy coupled with a reliance on teachers to present their own practice,
3. Teacher attrition and lack of teacher participation, and
4. An overrepresentation of ELA teachers in the PD program.

When viewed together, the first two challenges depict the development of teacher thinking around disciplinary literacy as particularly difficult given that the locus and basis of the content that teachers learned (i.e., the work disciplinary experts do and where they do it) was situated outside both the context of the instructional practice of teachers in schools and the context of formal learning opportunities at an ISD building. Hence, the very nature of the topic of disciplinary literacy presented inherent challenges for the design and implementation of the PD program. However, the last two challenges seem to be particular to the specific PD program under study and not especially related to the content focus, although the last one may hint at perceptions about literacy work.

Challenge 1: The Disciplinary Expertise Gap between Teachers and Disciplinary Experts

In our interviews, the PD Coordinator spoke about her desire to have teachers move away from a “packaged” strategy-based form of teaching content-area literacy toward something that

is closely tied to the work of disciplinary experts. The PD Coordinator explained that such a shift might involve several issues:

I want them to get an idea that they've already got [a content-area literacy] foundation, that they're going to the next level and to start looking at themselves as a scientist who reads or a scientist who writes... and adopt a separate identity, I guess, or a dual identity. I don't want people to be saying anymore, "I do [this reading program], or I do [this writing program]." I'd rather hear them say, "I am a scientist and I teach kids to read and write in science." (Interview 08/20/15, 33:23)

However, when asked if teachers were experts in a discipline, she responded, "They're not. They are teachers of the subject content... But they don't have to be [disciplinary experts] necessarily" (Interview 08/20/15, 34:50). Since teachers were not disciplinary experts, they would likely need to shift their identities as the PD Coordinator explained earlier. But the PD Coordinator did not have a clear idea of what this shift would involve. She shared,

Maybe we don't know what the shift is yet because we haven't seen it. This is so new. Part of it may come through [teachers] taking a look at their content in ways they haven't before. I think they're going to need to connect with community members, actual scientists and historians in the community – stop just "playing school" and connect with the real world. Make it authentic. (Interview 08/20/15, 35:57)

When asked how this could be achieved, the PD Coordinator responded,

Whatever the shift is, it's going to involve some authentic literacy activities and if that authentic activity is in science then they should be connected to a scientist, whether that's the teacher who's taken that identity or the teacher was able to connect the classroom somehow to scientists in the community or historians. (Interview 08/20/15, 36:39)

While there was clear motivation on the part of the PD Coordinator for teachers to shift their approach to teaching, her responses highlight that she was less clear about how this shift would take place.

Though the PD Coordinator did not specifically lay out a trajectory for teachers' shift toward embodying a deeper purpose for disciplinary literacy, she did describe the types of knowledge that she thought the teachers would need to employ to make this shift. She said,

Content knowledge for sure. When I say content knowledge I don't just mean "I know the content of my science textbook or my social studies textbook." It's really having that real knowledge... I guess they need the PCK as well. You have to move from knowledge to instruction. I feel like, first, they have the base of knowledge but then move to the instruction piece. (Interview 08/20/15, 24:32)

This is notable since the PD Coordinator specifically articulated that teachers would not only need to develop knowledge about disciplinary content but also about how to teach that content.

In the middle of the year, after two PD sessions had taken place, but before a disciplinary literacy showcase was to be held at a local university, the PD Coordinator mentioned that she had noticed some shift in the thinking of the teachers up to that point. She said,

I think they do see disciplinary literacy as something different than what they've been doing before, and I think they see it as something difficult to achieve for themselves. I've heard several times from teachers, "Well, I'm not a scientist so how would I know that?" Or, "How do I get access to scientists? How would I know how to read and write?" So they do see disciplinary literacy as something different now... But they don't yet see themselves as someone who would be able to have the same reading and writing practices as a scientist or historian. (Interview 12/17/15, 4:56)

This response highlights one of the primary challenges that the PD Coordinator perceived. That is, even if teachers could see that disciplinary literacy was a different approach than they had been familiar with before and could define what it is, teachers did not necessarily know the specific disciplinary underpinnings that were hallmarks of disciplinary experts' work.

Overall, the acknowledgement of actual tenets of disciplines found in the work of disciplinary experts remained elusive for most of the teachers. One example of this was when a social studies teacher described how she did not know how to be a disciplinary expert saying, "I don't know how to be a psychologist or teach my students to be psychologists." This teacher hypothesized a novel approach to dealing with this problem, but also noted further obstacles, saying, "I could bring psychologists in, but when they come in, they're not teachers. So how do I help them engage my students in psychology when they may not know how to break it down for

[students]?” In a similar vein of thinking, the mathematics teacher that had defined disciplinary literacy earlier wondered aloud, “Where can I go to read authentic things – a journal of mathematics maybe? But that still wouldn’t make it clear how mathematicians go about creating those [articles]” (PD session 2, episode 2). This statement reflected one of the issues that needed to be addressed in designing the PD program. That is, teachers needed opportunities to work with disciplinary experts. To address this, teachers were provided just such an opportunity during the third PD session in January of that school year.

An attempt to bridge the disciplinary expertise gap. For the third PD session of the school year, in lieu of meeting at the ISD building, teachers participated in a Disciplinary Literacy Showcase at a local university where teachers and university professors could sit together in related disciplinary groups and engage in thinking about disciplinary expert work and secondary literacy instruction. This showcase was billed as an opportunity for teachers to meet and interact with professors in the role of disciplinary experts. An email sent from the PD Coordinator to teachers about this showcase stated,

Join colleagues from across the disciplines and subject areas at both the secondary and college level to talk about writing – and about how we can help our students make smooth transitions across the grade levels and into the workplace. Our day will include:

- An introduction to the research base and practical strategies underlying a Disciplinary Literacies approach to writing and writing instruction
- Workshops led by university faculty and area secondary teachers on approaches to writing in a variety of disciplines
- Content-area discussions between university faculty and secondary teachers
- Panel discussions with university students sharing anecdotes of their transition from high school to college writing and how teachers can help those transitions

If there was a time for teachers to learn about the work of disciplinary experts, this seemed the most obvious moment. The PD Coordinator hoped the showcase would provide teachers with an opportunity to view disciplinary expert work and question how this could inform their own instruction. She said,

I think teachers need to see expert work in action. I think they need to see a lot more examples. I'm hopeful for our next session because we're at [the university] and teachers are going to see what professors expect out of reading and writing from their students. (Interview 12/17/15, 14:49)

However, the showcase became less about demonstrating disciplinary expertise and more about the importance of having students write in the first place.

Unfortunately for the PD Coordinator, the showcase did not meet her expectations. In reflecting on her experience at the literacy showcase, she responded,

No. When [these professors] came, they literally brought nothing to the table in the way of “This is what a text looks like that I wrote because I'm a mathematician,” or “This is what a text is that I wrote because I'm a biologist or because this is what I am training my students to do at this level.” They brought nothing... I didn't leave with any clearer idea of what disciplinary literacy is in certain subjects than before. (Interview 07/01/16, 2:30)

What seemed to be more disappointing was that the PD Coordinator felt that she had been promised a demonstration of disciplinary expert work. She recalled, “I had a promise that... we would get to actually come in contact with authentic genres and actual writings and text, and then the teachers will be able to then start planning for implementation. We never got there” (Interview 07/01/16, 6:00). What seemed to frustrate the PD Coordinator even more was that professors periodically mentioned things they write or create but did not show any examples. For example, the PD Coordinator recalled,

One of the professors mentioned an evidence case file used in forensic anthropology... Well, where do we get one? How do we see one? What does it look like or why would you write one? We still didn't get at looking at one or pick apart how would it be appropriate for a student to write one even if they don't write it at that same level... Sometimes there were examples mentioned of an expert piece, specific to a discipline. It's mentioned, but still, a product is not produced in front of us like, “This is what one looks like,” or “This is how you would expose kids to it.” (Interview 07/01/16, 8:30)

These recollections by the PD Coordinator were consistent with my own observations of the university showcase. When I sat in on two different sessions with social studies groups, I also

found a major disconnect between what the professors were describing and what seemed to be the primary reason teachers were attending the showcase.

During the literacy showcase, I also observed two discussions among university faculty and social studies teachers. The discussions were presentations by two university faculty members – a professor of political science and a professor of geography – of the type of writing they assign to their undergraduate students. Like the experience of the PD Coordinator, I found the conversations to reveal quite a disjuncture. For example, the political scientist had her students write “This I Believe” statements in order to eventually connect their own interests to some apparatus of government in order to demonstrate how government affects their lives (PD session 3, episode 3) even though she later reported that this is not the kind of writing that political scientists do. While such a writing task might engage students in thinking about government, it did not make any reference to the actual writing of a political scientist. In fact, the professor described the genre of writing as similar to “the radio segments on National Public Radio.” Later that day, a geographer presented on a cultural landscape assignment she gave her students (PD session 3, episode 5). In this assignment, students were asked to take a photo of a place that is meaningful to them, describe ways in which humans have transformed the landscape, and analyze how such transformations reflect culture. While this assignment focused on core concepts of geography, the professor never directly correlated the assignment to the type of work she does as a geographer. In fact, when asked if this type of assignment had any connection to the work she does as a geographer, she replied, “I never thought about that before.”

These face-to-face interactions among teacher participants and university professors revealed outcomes similar to those recounted by the PD Coordinator. That is, professors

mentioned the type of writing they have their own students do, yet they did not necessarily produce actual examples of writing typical of their disciplines for teachers to see or to connect to their own work.

The teachers not only left the showcase without a clearer sense of disciplinary expert work, they also left without any clearer ideas about how to incorporate disciplinary literacy in their classrooms. As the PD Coordinator noted,

Teachers didn't come away with any plans. They came away with, "Oh, well, I know I need to write more in my science class. I need to teach the kids to write to learn and learn to write in a genre of science," but not really still knowing what that real genre is or how to do it. (Interview 07/01/16, 8:00)

Given that teachers seemed to be interested in learning from disciplinary experts but that the experience did not pan out the way she intended, the PD Coordinator spoke about her reservations on whether supporting teachers to learn about disciplinary literacy was an attainable goal. She said,

I think I left with more questions than ever. I was like, "Okay, so is it just that what I'm asking of teachers to learn just isn't possible? Is it not fair to expect them to really know what disciplinary literacy is and do it?" It just brings me back to the question that I hear teachers talk about, "I teach science, but I'm not a scientist." I was disappointed [with the showcase] on so many levels. (Interview 07/01/16, 0:30)

This sentiment continued to echo what the PD Coordinator and teachers had mentioned earlier in the school year about not having the disciplinary expertise necessary to approach teaching reading and writing in an aligned disciplinary manner. Without having solid ideas of what disciplinary experts do, it is difficult to conceive of a manner that teachers could thus shift their identity from being a teacher of subject matter to a practitioner whose work reflects disciplinary expertise. Yet, as demonstrated by the outcomes of the literacy showcase, simply putting teachers and university professors together in the same space does not bridge the disciplinary expertise gap between teachers and disciplinary experts.

Challenge 2: The Lack of Representations of Instructional Practice of Disciplinary Literacy

Given the challenge of supporting teachers' thinking about the work of disciplinary experts, it seems reasonable that there is also a challenge to supporting teachers to shift their thinking about what disciplinary literacy instructional practice should look like in the classroom. The crux of the challenge here is the fact that the PD Coordinator designed the PD program to be teacher-led and teacher-centered. Such an orientation toward active teacher learning, while an appropriate move to engaging teachers in their own learning, relies heavily on teachers to represent and demonstrate instructional practice. Without actual representations of teachers who are already teaching disciplinary literacy, there was nothing for teachers to see that helped them learn about teaching disciplinary literacy. The only representations of such instructional practice became the books and articles the teachers read.

If the main challenge discussed in the previous section was about providing teachers opportunities to learn what disciplinary experts do, then this challenge addressed the difficulty in providing teachers with opportunities to see what disciplinary literacy looks like in the classroom. According to the PD Coordinator, not having some basis for a collective understanding about what instructional practice could look like precluded teachers from eventually taking up instructional change. For example, she said,

I think that a lot of learning has to occur first to make sure we are on the same page about what disciplinary literacy can look like. I don't think teachers will implement change right away... If teachers have just been using the textbook all this time and maybe still lecturing and this whole idea of disciplinary literacy is new to them, I think it's going to take a while... I think it's going to take some time for them to internalize that learning before they can start seeing how it's going to look in their classrooms. I think learning *about* instruction has to come first. (Interview 08/31/15, 10:40, emphasis added)

Given that the PD Coordinator expected that teachers needed to learn about instructional change before they could begin to make such changes, it seemed reasonable that there would be an added challenge of providing the right kind of examples of disciplinary literacy instruction for teachers to learn from. This meant distinguishing previous content-area literacy instructional methods from disciplinary literacy methods. This was apparent when the PD Coordinator described the previous content-area literacy PD programs the teachers had taken. She said,

I want them to see that [their previous PD programs on content-area literacy] were frameworks for content-area teachers to teach through and that's not necessarily the same as disciplinary literacy. They received a lot of strategies in [their previous PD programs on content-area literacy] and they got the point of understanding that they need to be having kids writing in their classrooms. But that doesn't mean that they're going to be able to know as teachers how to teach the kids to read and write like scientists or like a historian or a mathematician. (Interview 08/20/15, 33:23)

Consistent with her view of teachers often approaching the teaching of literacy through the use of a "program," the PD Coordinator saw teachers as gravitating toward identifying with a program rather than talking about their instruction. She said,

If you were to ask teachers what they did in their classroom yesterday, or how they teach reading, they would say, "Oh, well I do [a particular content-area literacy program]." They don't mention instructional moves, they identify with a program. (Interview 12/17/15, 8:19)

This view of teachers being more inclined to identify with a packaged program of embedded materials rather than an orientation toward a fundamental instructional approach represents a frustration on the part of the PD Coordinator in how these teachers were learning about or developing their knowledge of pedagogy.

By the end of the school year, the PD Coordinator believed that teachers were still not seeing viable ways that disciplinary literacy could be implemented in the classroom. She said,

I still feel like there's this giant unanswered question, like, "What exactly is disciplinary literacy and how do I do it?" I think they're beginning to understand the difference between content area literacy and disciplinary literacy, but I'm still not seeing a product,

like, “This is what it looks like in my classroom because I did this.” (Interview 07/01/16, 10:00)

While the PD Coordinator did perceive teachers to have conceptualized the basic tenets of disciplinary literacy, she did not perceive teachers to have actually established firm conceptions about how it could manifest in classroom instruction. This was consistent with my own observations of the PD sessions throughout the year.

Related to the PD Coordinator’s notion that teachers may not have developed clear ideas on how to teach disciplinary literacy, one of the more notable quotes from the PD program that I recorded was a mathematics teacher stating just this. She explained that she had a difficult time picturing what it looked like to teach disciplinary literacy. She said,

Teaching disciplinary literacy is kind of elusive, right? I think once I see it clearly, I’m going to understand it. But on the way, it’s going to stay fuzzy for me. Especially, if I don’t know how a mathematician reads for real. (PD session 2, episode 2)

Consistent with the PD Coordinator’s thoughts about teachers not getting to the point of demonstrating knowledge about disciplinary literacy instructional practice, this teacher characterizes the instruction of disciplinary literacy as something vague and nondescript.

My observations of the PD program also support this notion that teachers did not, on the whole, demonstrate knowledge of discrete instructional practices aligned to disciplinary literacy. The three instances of PD activities called *From the Classroom* (referenced in Chapter 2), where teacher participants demonstrated some activity they teach in their own classes, all exhibited shortcomings given the absence of direct connections to the work of disciplinary experts.

Ultimately, the PD Coordinator’s perceptions of teachers struggling to envision how disciplinary literacy could be implemented in the secondary classroom seemed to be well founded based on my observations. In their own demonstrations of classroom instruction, teachers did not explicitly link their work to the work of disciplinary experts. Whether stemming

from a gap in knowledge about what disciplinary experts do in the first place or from the act of translating knowledge into instructional practice, the challenges in getting teachers to coherently think about disciplinary literacy instructional practice appeared to be real.

Challenge 3: Teacher Attrition and Lack of Participation in Online Learning

According to the PD Coordinator, there were very few opportunities for teachers to gather together in the first place since there were only five face-to-face sessions (one every other month). When I asked her how this impacted teachers, she said, “We don’t know what the magic amount of time is” but she thought that the five face-to-face sessions were likely not enough yet were the maximum allowed within the ISD’s funding. In order to complement the face-to-face PD sessions, the PD Coordinator had planned to incorporate an online component to establish a “blended learning” experience whereby teachers would participate virtually at some point during the month in between face-to-face PD sessions. This, however, did not materialize. When I asked the PD Coordinator about this online component midway through the school year, she said, “For the whole online piece, they are not engaged in it. Not just in [this PD program] but in all the programs we run... I don't know how to break through that online piece with them” (Interview 12/17/15, 18:37).

In my observations of the PD sessions throughout the school year, I noticed a precipitous drop off in the participation rates of the teachers as the year unfolded. For each of the five face-to-face PD sessions, the attendance rates among teachers from the first PD session to the last were 36, 21, 18, 16, 9. Moreover, on the two occasions that I checked the online platform during the school year I found that there were no comments or posting by any teachers beyond the initial face-to-face session of the PD program that previous September. I did observe, however,

that contributing to the online platform was a component of the activity of the book groups that teachers had elected to join during the face-to-face PD session.

When I asked the PD Coordinator if she had thoughts about why teachers did not contribute to the online platform, she said she didn't have specific reasons that the online part alone did not work. Instead, she cited a host of external factors as to why teachers don't participate in PD experiences in general. She said,

There are a lot of barriers that prevent teachers from coming sometimes. Substitute teachers, days out of the classroom may count against their teacher evaluation. Some districts are on semesters, some are on trimesters, so the timing of everything will never make it easy for everyone to be there all the time... Is it that just they don't need to be there? Is it because districts are providing in-district PD already? (Interview 12/17/15, 18:37)

These reasons, while applicable in a general sense, did not explain for the lack of participation in the online platform.

Another feature of the PD program that the PD Coordinator built in to compensate for the lack of face-to-face session were webinars, billed as “book chats,” with authors of two of the books that ELA teachers and social studies teachers read and discussed at the PD sessions. In the midst of discussing teacher (lack of) participation in the online blended learning platform, the PD Coordinator also mentioned poor teacher attendance at the first webinar saying, “I had a book chat on Tuesday evening with [an English professor]. Two people showed up” (Interview 12/17/15, 18:37). The attendance at the second webinar with an education professor who researches curriculum and student writing in history, one that I observed, was worse with only one teacher attending.

Given that there were so few sessions, the PD Coordinator hypothesized that teachers “just can't come” to all the sessions. This, she said, was unfortunate because “when teachers do come and why they say they come is because of the collegiality – getting to be with their peers.

That's hard to replicate online no matter what you do” (Interview 12/17/15, 20:36). Given this strong pull of collegiality, I thought it pertinent to ask the PD Coordinator at the end of the school year if she knew of any collaboration among teachers that took place outside of the scheduled PD sessions. While she expressed her desire to have something like that as a regular feature of the PD program, she said she did not know of any such thing saying, “No. Not that I’ve seen. Not that I’m aware of. I don't think any collaboration like that has happened” (Interview 07/01/16, 19:00).

Challenge 4: An Overrepresentation of ELA Teachers

The second thing that contributed to the challenge of teachers participating in the PD program, according to the PD Coordinator, was that a large contingent of the teachers who participated in the PD program was English Language Arts teachers. When asked about the participation rate of teachers who presented or facilitated specific activities within PD sessions, the PD Coordinator said,

I like that teachers are the ones presenting. We always have a *From the Classroom* section... but it still tends to be an English teacher presenting something about writing in their classroom. That's been a huge challenge – just getting teachers other than English teachers engaged in this... It's a perpetual problem. It's been a problem because they're the ones who developed [one of our previous PD writing programs]... Even when asking for a planning team for this PD program, most were English teachers. (Interview 07/01/16, 19:30)

In discussing why she thought this was the case, she said,

I think they see it as their job. Like, “Well, of course, I would be on this planning team because I'm the one who knows reading and writing.” That's definitely a problem moving forward – getting more teachers engaged both because the English teachers feel inclined to do it because it's their job but also whenever an administrator hears the word “literacy” that's who they send us. (Interview 07/01/16, 19:30)

Given that the PD program aimed to get teachers to move away from content-area literacy and toward disciplinary literacy, this overrepresentation of ELA teachers could be interpreted as

problematic since the nature of disciplinary literacy meant an explicit focus on what all disciplines had to offer and not simply general approaches to comprehension and use of language.

My review of the 36 teachers who participated in the PD program found that 18 were ELA teachers (including one retired teacher, one who taught ELA/science, and one who taught ELA/social studies), seven were science teachers, seven were social studies teachers, two were math teachers, one was a family/consumer science teachers, and one was a district instructional coach. My review of the eight teachers who participated in the planning sessions found that four were ELA teachers, two were science teachers, one was a social studies teacher, and one was a math teacher. While these numbers do confirm that ELA teachers were overrepresented, I was not able to corroborate whether these breakdowns by teachers contributed to any lack of participation by teachers overall. However, this was a structural feature that affected the way in which disciplinary literacy and the teaching of it were presented.

Discussion

In analyzing interviews with the PD Coordinator and observations of PD sessions, I have attempted to reveal the perceived challenges in a single case of constructing and leading a PD program focused on developing teacher thinking about disciplinary literacy. The foremost challenge was getting teachers to regularly participate in PD sessions for the duration of one school year. Given the precipitous decline in teacher attendance at the PD sessions and the goal of having teachers actively learn through building collective knowledge with other teachers, it is hard to expect teachers to really develop their thinking if so few are regularly participating.

Since there was no effort to gauge why teachers gradually stopped participating, any attempt to identify a cause is simply conjecture. It may be just as likely that teachers stopped

participating because of circumstances that arose in their districts as much as because the PD program did not “connect” with teachers via aspects of coherence like aligning to state or district demands, promoting learning that was consistent with teacher beliefs, or engaging teachers in conversations with colleagues that did not attend the PD (Desimone, 2009). Regardless of the reasons for teacher attrition, the fact that so few attended all the sessions raises concerns.

The teachers who were most likely to participate in the PDDL program and the planning of it were ELA teachers. Given that the nature of the PD program was centered on learning about disciplinary ways of reading and writing in the secondary classroom – a move that was meant to be a clear break from previous content-area literacy PD programs – seeking the right balance of teachers in specific content areas is an appropriate expectation. Of course, an overrepresentation of ELA teachers may not be as apparent a challenge if it were not for the at times small numbers of teachers from all content areas. That is, if there were consistently eight teachers from the other content areas, having 15 ELA teachers would not seem that problematic. As it was, there were times when only one or two teachers from each non-ELA subject were present. Regardless, this disparity in participation rates may indicate a more subtle but powerful message that teachers received about disciplinary literacy: that this reform effort is the business of ELA teachers and they, therefore, take responsibility for initiating the work. Though Moje (2008) argues that teaching literacy to adolescents necessarily means teaching literacy within the disciplines, this is a shift in thinking. Typically, educators are accustomed to thinking of teaching literacy in the context of ELA.

While the PD Coordinator thought teachers had begun to shift away from thinking in terms of content-area literacy, whether teachers fully embodied a disciplinary stance at the end of the school year remained unanswered. Given that this “authentic” form of literacy, as the PD

Coordinator referred to it, was linked to a shift in identity, and this shift in identity was further linked to knowledge of what disciplinary experts do, this challenge was not likely overcome during this PD experience. Even if teachers were able to come up with a sound definition to differentiate disciplinary literacy, this would not suffice for full knowledge of what disciplinary experts do and what practices are foundational to a discipline. As planned, this gap was to be filled by the Disciplinary Literacy showcase at a local university. Yet, this experience became problematic since either the professors did not present actual writing products or they presented products that were not directly tied to considerations of their work as disciplinary experts.

Without some basis of understanding what disciplinary experts do and how they think, teachers likely found it challenging to think about disciplinary literacy instruction. From the PD Coordinator's perspective, a part of this challenge was that teachers did not see enough representations of instructional practice. In PD programs grounded in representations of instructional practices (e.g., Monte-Sano et al., in press), teachers can learn disciplinary literacy while working with curriculum materials, among other approaches. Of course, some of the best opportunities to learn about disciplinary literacy instruction likely came during the webinars with the English professor who focuses on digital literacy and later with the education professor who focuses on disciplinary literacy in history. And since regular teacher participation itself was an issue, the challenges, when viewed together, appear connected.

It is possible that the nature of disciplinary literacy exacerbates these challenges. Disciplinary literacy is set apart from other reform efforts by the fact that the content focus of the PD program is quite literally the work of a different profession. This point is emphasized by Wineburg's (1991) work in identifying the specific disciplinary expertise of historians and how this is distinct from the thinking of high school students. His imperative is clear: teachers need to

bridge this gap. Yet, unlike other topics that arise in PD programs, disciplinary literacy, to an extent, also exists outside of the settings in which teachers both work and learn. In this study, while teachers worked in a school setting and they had PD at a separately designated site, the PD topic of disciplinary literacy continuously and implicitly referenced a foreign site – the locus of work of the disciplinary expert. What is more problematic, this site remained entirely ambiguous and amorphous since teachers never actually observed disciplinary experts doing work. This lack of teacher exposure to the actual places where disciplinary experts do their work begs for a dedicated “third space” (Moje et al., 2004) of professional development where teachers can cross the “discursive boundaries” (p. 44) of different disciplines and encounter specialized knowledge. From the findings outlined above, it appears that this “distance” among settings of practice, learning, and content provides some explanation for why these challenges exist. Regardless, changing teacher content knowledge or instructional practice is an inherently difficult endeavor that necessitates PD providers be explicit about learning objectives and seeking outcomes based in classroom instruction (Desimone & Garet, 2015). This reiterates the centrality of a strong content focus and coherence within PD for disciplinary literacy.

In addition to multiple settings posing a unique challenge to learning about disciplinary literacy, multiple actors played some type of role in the PD experience. There were four distinct types of actors present throughout the experience: the PD Coordinator, the teachers, the university professors at the showcase (i.e., disciplinary experts), and the two university professors who attended webinars and authored books about disciplinary literacy used by the book clubs in the PD sessions at the ISD. At no point in the enactment of the PDDL program did any one of these actors identify themselves as an “expert” in disciplinary literacy (though a case could be made that the university professors who were invited guests to the webinars actually

were). Seemingly then, PD in disciplinary literacy requires a constellation of actors with different roles. Yet, these roles need to be specified and clarified.

The core challenges in this case revolve around developing disciplinary content knowledge – here, knowledge of what disciplinary experts do – and PCK (Shulman, 1986) – here, knowledge of how to teach disciplinary literacy. If one agrees that these bases of knowledge are not only used by teachers but that teachers can be supported to develop this type of thinking, then it behooves the researcher and practitioner alike to consider how we teach our current and future teachers about the disciplines we ask them to approximate in their instruction. But who can facilitate and support this learning with teachers? Who, in a sense, is the “more knowledgeable other” (Vygotsky, 1978) that can lead teachers toward more sophisticated thinking about disciplinary expertise and, thus, bridge the worlds of the disciplinary expert and the secondary teacher? Given the multitude of actors present, there are questions about what contribution each can make toward developing certain aspects of teacher thinking. In short, what types of expertise are needed in order to develop certain bases of knowledge?

This PD coordinator has expertise in designing programs that facilitate the learning of teachers. Given her background in literacy and instructional support, the PD Coordinator was well positioned to design and facilitate the structural features of the PD program to support teacher learning (e.g., coordinating planning, scheduling activities). However, while she has deep knowledge about literacy practices in general, she is neither a disciplinary expert nor a disciplinary literacy expert and was adamant that she did not have the expert knowledge of each individual discipline required to extend the learning of teachers

The teachers are experts in their own school context and possibly experts in school subject content knowledge. They are not disciplinary experts and, as perceived by the PD

Coordinator, experience some type of identity conflict arising from the divide between being teachers and not being disciplinary experts. Considering that teachers are being asked to interact and think across multiple settings, then notions of identity seem to arise based on those varied learning settings and experiences. This would be consistent with Vygotsky's notion of *gestalt* as self-perception that is impacted when an individual is placed at the center of a system of social interactions (Vygotsky & Rieber, 1997) since the teachers are working across at least three settings of practice.

According to the PD Coordinator's expectations, much of the support for developing teacher content knowledge about disciplinary expert work was to be done by bringing together university faculty and secondary teachers at the university showcase. While the showcase experience did not meet these expectations, it would have, at best, only provided some insight into the work of disciplinary experts. It would not have provided support for developing teacher thinking about instructional practice since university faculty may not be aware enough of what goes on in secondary classrooms let alone how to translate their work into pedagogical activities.

The professors enlisted for webinar "book chats" might be able to play the role of developing teacher PCK. Even if there was a university faculty member who does this translating, what then does this say about the likelihood of PD programs to have this capacity? That is, if developing disciplinary literacy instruction is based on availability of such university faculty members, what are the chances that this could become a systemic feature of PD? Perhaps, very little.

Given that this is not a systemic way of resolving the issue, the answer is not likely to be found in the job description of just one person. The PD coordinator said as much in her interviews. Rather, it is likely to be a confluence of people and activities that eventually support

teachers in their learning. In some part, there likely is a need for literature and research to play a part. That is, providing teachers with some information on the discipline and the work of those disciplinary experts. This can stem from a disciplinary stance that reflects on the profession itself. That is, historians discussing history (cf. Collingwood, 1946). This can also stem from the work of educators and/or education researchers who investigate what historians do and how they think. These researchers, while possessing some background in or knowledge about history, are not historians by training (cf. Wineburg, 2001). This can also stem from those historians who have a “foot in both worlds” with both formal training in history through their graduate education and profession as well as working directly in or indirectly with a K-12 educational setting (cf. Bain, 2000).

Desimone and Garet (2015) acknowledge the need for more specificity within their five-feature model of PD (i.e., duration, collective participation, content focus, active learning, and coherence), but I do not see the findings here challenging their core features. Rather, each of the challenges documented here maps onto the specific core features. For example, the disciplinary expertise gap between teachers and disciplinary experts seems to be very formidable and inherent to learning about disciplinary literacy. However, this can be just as likely to be understood as a case of poor treatment of a content focus as much as an encounter with an excessively difficult topic. The other three challenges may also have simply been outcomes of the particular way the PDDL program was designed and enacted and not stemming directly from the nature of the topic. These challenges might be overcome in the future with better attention to and uptake of the core features of active learning, collective participation, and coherence. For instance, with more opportunities for active learning centered on teacher observation and review of student work, teachers may be able to work with more representations of instructional

practice. Additionally, with more attention to coherence between the PD program and demands that teachers face within their schools and districts, teachers may be more likely to continue attending PD sessions. With more structures for collectively participating within cohorts, teachers may find more opportunities to draw in other non-ELA content teachers. Regardless, the findings here do not suggest that the five-feature conceptual framework needs revising. However, this study does show what those five features might mean and involve when the focus of the PD is disciplinary literacy.

Limitations

First, while there are clear roles to be played by university professors or other professionals as models demonstrating the work of disciplinary experts, this study does not address the differences between an “academic disciplinary expert” and a “practitioner disciplinary expert.” For example, one could reasonably ask whether it is more valuable to think of the cartographer rather a geography professor, the civil engineer rather than a physics professor, or the journalist rather than the English professor. While there are certainly instances in which these lines of work are not mutually exclusive, I do wonder whether focusing on the professional disciplinary expert might better support an initiative to make disciplinary literacy more related to “real world” learning.

Second, given the orientation of the PD Coordinator toward framing the first year of the PD program as “knowledge-building year,” I based my analysis within these parameters. However, one could argue that developing the knowledge of teachers without developing their instructional practice is, at best, a theoretical exercise or, at worst, a meaningless one since teachers have no real activity to reflect on and learn from. Without a connection to professional

practice, teacher conceptions may exist in an ungrounded, context-neutral manner that does not benefit the real work that teachers perform.

Finally, since this study did not focus on actual change in teacher thinking, it is impossible to draw conclusions about how strong or persistent any one particular challenge is. While my observations of PD sessions did corroborate the existence of the challenges the PD Coordinator perceived, my observations were not conducted with the intent to determine how much work would need to be done in order to overcome these challenges. Thus, there is space to study the relative impact various approaches might have on alleviating certain challenges.

To conclude, this study lays the groundwork for characterizing and confronting challenges inherent in the supporting teachers to develop thinking about disciplinary literacy. The findings suggest that actors outside of school and PD-program settings have particular roles to play in representing the content as well as supporting the translation of this content into instructional methods. Without structured opportunities to learn from a range of experts, the burden grows on teachers to self-teach an unfamiliar concept.

CHAPTER 5

Conclusion

In looking back upon the findings in the three manuscripts in this dissertation, I find it necessary to reiterate that these studies were explorations of different but related phenomena. From the outset, I sought to discover what was happening in the activity of the professional development (PD) program as well as in the minds of four focus teachers. The findings across the three studies presented here depict specific and complex challenges for teacher learning that stem, at least in part, from the very nature of the topic of disciplinary literacy. Although I have not been able to make causal claims about the impact of the PD program on teacher thinking, I have laid the groundwork for informing studies that can. In that way, this dissertation clarifies facets and levers within a theory of teacher change specific to PD on disciplinary literacy.

The exploration of the PD program's design and substance (Chapter 2) revealed some notable examples of Desimone's (2009) core features of PD as well as notable absences of some core features. The PD program had the necessary duration of hours and term for teachers to develop deep learning. The manner of teacher participation in learning was certainly active, given the opportunities for participating in planning sessions, for facilitating activities, and for discussion with other teachers, teacher leaders, and professors. This style of PD stands in stark contrast with the traditional "sit and get" workshops that teachers have been accustomed to attending in past decades. Yet, duration and opportunities for active learning alone were not

sufficient for achieving the objectives of the PD program – that is, teachers still came away from the PD experience without fully developed conceptions of the topic. This fact highlights the critical nature of the remaining core features of PD: coherence, collective participation, and content focus.

The PD program did not demonstrate features of coherence and collective participation based on the way these features are generally defined within research on PD. This is extremely important to highlight because these features would most directly connect the PD experience with the work that teachers do by connecting professional learning to the demands teachers experience in schools and districts through participation with colleagues from these schools and districts. Without a direct connection to the work that teachers take up on a daily basis, PD is not likely to be effective.

Making the enterprise of PD for disciplinary literacy all the more challenging, the topic under study had multiple and discrete layers that were not delineated from the outset for teachers. The content focus of the PD program was, in fact, twofold. Teachers were being supported to learn about disciplinary expertise as well as new methods of instruction. These two foci were not made explicit as two different topics. Rather, they were subsumed under the general topic of disciplinary literacy. Likely as a result, teachers may not have been as tuned into identifying the conceptions they were being asked to develop than if these aspects of knowledge had been framed from the outset. Without such support for metacognition, it is hard to expect teachers to readily develop new knowledge. Moreover, there appeared to be inherent challenges in learning about disciplinary literacy as a topic since teachers were being asked to think about the work of other professionals (i.e., disciplinary experts) that is located outside of school settings without exposure to that expertise.

Given the PD program's limited embodiment of the core features of PD as well as the drastically declining rates of participation among teachers, I did not seek to make claims about the impact that the PD program had on teacher learning. Rather, I continued with what I determined was the next logical step – an exploration of teachers' thinking while they were in the midst of participating in the PD program (Chapter 3). Given my own interest in social studies education, I selected four social studies teachers as my focus teachers.

While I found that there was a wide spectrum of teacher thinking about disciplinary literacy, all the teachers referenced similar ideas, whether directly or indirectly. They all discussed the habits of mind that historians and social scientists use, though not all of them attributed such habits to the work of disciplinary experts. They all mentioned student work, typically noting the texts students work with in the social studies classroom, although only a couple identified these texts as the source materials that disciplinary experts also work with. They also all mentioned instructional practices, even though only a couple could clarify how they support students to take up disciplinary stances.

I discovered there was a wide range of teacher thinking and varied application of the knowledge of disciplinary experts, knowledge of what students can do in the classroom to reflect disciplinary expertise, and knowledge of instructional practices to support student learning. Thus, I found there was a critical need for PD to support teachers to think about and between two worlds – the world of the professional disciplinary expert at work and the world of the teacher leading instruction in her or his classroom. This idea that the teachers were conceptually straddling two worlds mapped directly onto one of my previous findings that there were, indeed, two different content foci (i.e., disciplinary expertise and how to teach it) continuously at play during the PD program that were not necessarily addressed as two different entities. Yet again, I

had established findings that spoke to the complex and problematic nature of disciplinary literacy as a topic for PD.

Through this exploration of the knowledge needed to teach disciplinary literacy, I applied Shulman's (1986) notions of content knowledge and pedagogical content knowledge (PCK). Relating to content knowledge, teachers now not only need knowledge of facts, events, and phenomena that disciplinary experts work with, they also need knowledge of the ways those disciplinary experts go about their work. This content knowledge for disciplinary literacy informs the PCK that teachers utilize. Further applying the subdomains that Ball and colleagues (2008) named within PCK, I considered that teachers need to develop knowledge about the conceptions students might have about the work of disciplinary experts as well as knowledge about how the work of disciplinary experts can be approximated through classroom instruction. In doing so, I have identified aspects of knowledge that teachers might need to develop in order to understand and teach disciplinary literacy. While some authors have taken up studies to identify specific teaching practices related to PCK within history (cf. Monte-Sano & Budano, 2013), my findings act as a precursor by establishing the knowledge that might shape such practice.

My exploration of the challenges of designing PD (Chapter 4) emphasizes how difficult this enterprise of knowledge creation can be. Clearly, having teachers sit down with disciplinary experts was not sufficient for teachers to fully develop content knowledge for disciplinary literacy. There are many possible reasons why this was the case. For instance, the academic disciplinary experts that teachers met may not have seen their assignments for their undergraduate students as reflective of their own professional work. Even if such assignments did reflect their expert work, they may not have noticed that as a pedagogical stance. Most likely,

these academic disciplinary experts did not have an understanding of what goes on in secondary classrooms.

In addition to this opportunity with academic disciplinary experts, teachers also had multiple opportunities to learn from one another. This was the case when some teacher facilitators presented lessons from their own classroom to the rest of the participating teachers. Yet, these activities demonstrated the double-edged and potentially problematic nature of active learning. On the one hand, active learning promotes teacher buy-in by eliciting teacher participation in the design and facilitation of PD. On the other hand, active learning, insofar as it was enacted in this PD program, relies upon teachers to guide the learning experience of peers. In the case of learning about disciplinary literacy, none of the teachers identified as experts in disciplinary literacy. This meant that teachers with burgeoning conceptions of disciplinary literacy were responsible for guiding fellow teachers who were themselves developing their own burgeoning ideas of disciplinary literacy. Given this dynamic, teachers were not likely to make considerable gains in their development of PCK for disciplinary literacy.

What seemed like the best opportunities for teachers to learn PCK for disciplinary literacy came via in-session disciplinary book groups, out-of-session webinars, and in-session readings of disciplinary literacy pedagogy articles. However, the book groups did not really take place after the second PD session and did not provide the basis for teachers to carry on collaboration outside of the PD sessions through contributions to the online media platform. The webinars with professors who wrote the books used by the book groups were very poorly attended. And the scholarly pedagogy articles were read at the last PD session when only nine teachers attended from across four different content areas. Even though these may have been the best opportunities for learning about teaching disciplinary literacy, lack of teacher participation

likely hampered any potential effect. Related back to my initial findings on coherence and collective participation in the PD program, the absence of these core features may have played some role in the ultimate rate of teacher participation. Hence, I propose design principles for PD for disciplinary literacy that support developing teacher knowledge but also for building coherence and structures of participation among teachers.

Design Principles

Considering the challenges that are inherent in supporting teachers' thinking about disciplinary literacy, I propose a set of design principles for PD on disciplinary literacy (see Table 1). These design principles are meant to address the specific challenges noted throughout my findings regarding PD design focused on disciplinary literacy. These principles extend from three of the core features of Desimone's (2009) five-feature framework – content focus, coherence, and active learning. They do not represent a different way of thinking about PD. Instead, they translate the core features into actionable ways of supporting teacher learning about disciplinary literacy. The first four design principles suggest ways of working with the content foci of disciplinary literacy and the teaching of it. The fifth suggests ways to build coherence between the PD and what happens in teachers' classrooms. The sixth highlights ways to promote active learning among teachers. Taken as a whole, this set of principles promotes a level of specificity about PD program design for developing teacher learning about disciplinary literacy. It also provides some basis for the evaluation of such PD programs by suggesting what teacher activities might demonstrate teacher-learning outcomes (e.g., conversations with disciplinary experts, review of student work, collaboration around curriculum development).

Table 5.1
Design Principles for PD for Disciplinary Literacy

Design Principle

Actionable Items

1. *Provide opportunities for teachers to voice and develop their thinking about identity as teachers vis-à-vis disciplinary experts*

Elicit and revisit teacher thinking about their own orientation to teaching; document the demands teachers balance in their schools and districts; explore teacher thinking about the nature of knowledge in school subjects they teach

2. *Provide opportunities for teachers to learn what disciplinary literacy is as a concept by exploring the work of disciplinary experts in their content area*

Introduce teachers to research written in the discipline; provide examples of texts that disciplinary experts both consult and produce as mentor texts; have teachers conduct interviews or groups discussions with disciplinary experts; conduct activities that explore epistemology within their discipline

3. *Provide opportunities for disciplinary experts and teachers to clarify their areas of expertise*

Hold teacher-disciplinary expert sessions with the focus on exploring teachers' perspectives on instructional practice; introduce disciplinary experts to scholarly work on disciplinary literacy in schools

4. *Provide opportunities for teachers to explore how teachers and students engage in disciplinary literacy in classrooms through representations of instructional practice*

Conduct explicit concept formation and criteria making for “good” disciplinary literacy teaching; explore and evaluate curriculum; view student work; watch videos of classroom instruction; observe other teachers in their classroom while they attempt disciplinary literacy teaching

5. *Provide opportunities for teachers to connect their learning in the PD program to their instructional practice in schools*

Encourage teachers to discuss connections between concepts learned in the PD program and implications for their instruction; facilitate activities whereby teachers present their attempts to implement methods learned in the PD program; provide forums for teachers to receive feedback on their disciplinary instruction

6. *Provide opportunities for teachers to collaborate with other teachers about ideas of disciplinary literacy and to translate these ideas into activities and assignments that would be accessible and comprehensible to students*

Conduct activities that promote collaboration with other teachers in their department, school, or district; set aside time for structured discipline-specific groups so that teachers can connect disciplinary literacy learning to curriculum implementation

Moving Beyond Exploration

Based on the scope of this dissertation, there is still a need for studies that identify an “existence proof” (Borko, 2004, p. 5) of PD for disciplinary literacy. That is, the field of education is still in need of research that documents the existence of all five core features of Desimone’s (2009) framework within a PD program that aims to shift teacher knowledge, skills, and practice; we need models of PD for disciplinary literacy that we know are effective. Once this is substantiated, causal claims about the impact that PD has on teacher change, and by extension on student learning outcomes, can be developed through experimental research. Although I was unable to do that in this project, I have provided insight into ways of documenting core features of PD for disciplinary literacy as well as specific conceptions of social studies teachers that can be studied. Moreover, the challenges highlighted in my findings and the proposed design principles can inform PD design to proactively address obstacles to teacher learning.

Future study on the impact of PD on teacher learning about disciplinary literacy could also adopt a focus on teacher learning within their content area. The PD program I explored was open to all teachers from all content areas. Even so, there were numerous opportunities for teachers to work directly with teachers who teach similar content and grades. These included content-specific group discussions, book group activities, and articles read during the face-to-

face PD sessions. In addition, teachers met with disciplinary experts related to the subject matter they teach. Yet, in my exploration of the PD program and the challenges of PD design, I focused broadly on the participation of all teachers. The only time that I focused on a specific group of content teachers was for my study of teacher thinking.

Given the specialized nature of knowledge within disciplines, it would be worth exploring if the same PD design works for all subject areas. The notion that different subject areas might benefit from different PD designs for supporting knowledge of disciplinary literacy is an extension of the questions raised by Monte-Sano and Budano (2013) about the potential for PCK to look different from one discipline to another. Moreover, the idea of different PD designs matched to different disciplines questions the efficacy of having large groups of teachers from various content areas learning together. With the dominance of English language arts teachers in the PD program I studied, this question seems appropriate. Also, creating PD experiences for teachers within specific content areas may be more appropriate for collective participation and might result in more substantial gains in teacher and student learning.

Regardless of the design of PD programs for disciplinary literacy, future research should also pay attention to the ways that teachers make sense of various bases of knowledge. In this dissertation, I have highlighted the importance of considering teacher thinking about subject matter content, the work of disciplinary experts, the ways students can do disciplinary literacy, and the ways that teachers can teach disciplinary literacy. Rather than simply identify what teachers think about, research could investigate how teachers think across these various bases. By extension, research could also focus on how teacher educators or teacher leaders think about these aspects as they guide teachers to do the same.

Other factors to consider in future research include the role of context in teacher learning. Given that the work of disciplinary experts exists in a space separate from both where teachers conduct their practice and where teachers take up new learning, there is a possibility that the manner of interactions with disciplinary experts could affect teacher learning. If a varying effect was to be found between, say, face-to-face real-time interactions with disciplinary experts versus having to read or watch sources of information about the work of disciplinary experts, then one could question whether the simple proximity of schools to universities made a difference.

In addition, future research should dedicate efforts to establishing the link between teacher learning about disciplinary literacy and the impact this has on student learning. Since the main focus of PD is to provide students with rich opportunities to learn key skills and knowledge that will help them be successful, determining the effect of teacher PD on student outcomes should be the ultimate objective.

Taken as a whole, these suggestions for future research reiterate the complex nature of PD for teacher learning about disciplinary literacy. Unlike other topics in which teachers might learn from new practices already established in classrooms, disciplinary literacy necessitates that teachers start from a point of understanding concepts related to professional work that is not theirs. Yet, they might best understand these concepts through instructional practice, their own area of expertise. This, above all, must be remembered as a basic premise when designing any further study.

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APPENDICES

APPENDIX A Data Collection Timeline

Table A.1
Data Collection Timeline

Date	Data Source	Participants Present	Hours
August 17, 2015	Planning Session	1 PD Coordinator 1 University Faculty Member 8 Teachers	5
August 18, 2015	Planning Session	1 PD Coordinator 7 Teachers	5
August 20, 2015	Interview with PD Coordinator	1 PD Coordinator	1
August 31, 2015	Interview with PD Coordinator	1 PD Coordinator	1
September 21, 2015	Interview with PD Coordinator	1 PD Coordinator	1
September 24, 2015	PD Session 1	1 PD Coordinator 36 teachers	6
October 22, 2015	Planning Session	1 PD Coordinator 1 Teacher	5
November 19, 2015	PD Session 2	1 PD Coordinator 21 Teachers	6

December 17, 2015	Interview with PD Coordinator	1 PD Coordinator	1
January 14, 2016	PD Session 3 at University	1 PD Coordinator 7 University Faculty 18 Teachers	6
March 17, 2016	PD Session 4	1 PD Coordinator 16 Teachers	3
May 12, 2016	PD Session 5	9 Teachers	5
July 1, 2016	Interview with PD Coordinator	1 PD Coordinator	1

APPENDIX B

Sample Protocol for PD Coordinator Interview

Vision for the PD

1. In our previous interview(s), you mentioned certain aspects of your **vision for the PD program** (list these).
 - a. How has the PD program's process compared to your vision?
 - b. Do you still have the same vision for the IDLL network at this point in the year?
 - c. Has your vision changed in any way?
 - d. Are there any challenges you are facing?

Personal Conceptions of DL

2. In our previous interview(s), you mentioned your **conceptions about what disciplinary literacy** is (list these).
 - a. Has your understanding of disciplinary literacy changed at all this year? If so, how?
 - b. Has your understanding of disciplinary literacy in history or social studies changed at all this year? If so, how?

Structure of the PD Program

3. What aspects of the PD program do you think are supporting or have supported teachers' understanding of concepts of disciplinary literacy?
4. In our previous interview(s), you mentioned certain goals that you had for teachers that were participating in the PD program (list these).
 - a. Have teachers made progress toward these goals? If so, in what ways?
5. What aspects of the PD program do you think are supporting or have supported teachers in integrating disciplinary literacy into their classroom instruction?

Teachers' Conceptions

6. What do you think teachers have learned from the PD program?
 - a. What **concept of DL** do you think **teachers** have learned?
 - i. Specific to DL?
 - ii. Specific to student learning?
 - iii. Specific to history or social studies?
 - b. What **specific DL instructional practices** or strategies do you think **teachers** have learned?
 - i. Specific to reading?
 - ii. Specific to writing?
 - iii. Others concerning DL?
 - iv. Specific to history or social studies?
7. What **challenges** do you think **teachers** are facing/have faced in understanding the **concepts of DL**?
8. What **challenges** do you think **teachers** are facing or have faced when **teaching DL** into their classroom instruction?
9. What will it look like for a teacher to be successful at the end of her/his participation in the IDLL network?

APPENDIX C

Episodes within PD Sessions

- September 24, 2015 – PD Session 1
 1. Social dimension – *Getting to Know You* icebreaker – “Quotable quotes” – gallery walk of quotes about education, leadership, and literacy
 2. Reflective writing – capture own thoughts on literacy in the discipline
 3. Background on PDDL – how previous content-area literacy PD programs have blended into this disciplinary literacy PD program
 4. Text Rendering Protocol – Article *Collaborating for Success* on the role of content teachers in developing disciplinary literacy
 5. Social Dimension – *Getting to know you* icebreaker – line up alphabetically based on favorite book title
 6. Disciplinary groups – Group Agreements – setting norms
 7. Getting Smart in your discipline – breakout into disciplinary groups
 8. Book clubs – includes setting up online media platform

- November 19, 2015 – PD Session 2
 1. Children’s books – literature that could be used in the classroom
 2. Micro labs – Q1: How do you define academic writing in the discipline? Q2: How would you define real world writing? Q3: What are you currently working on with writing in the discipline and trying to improve? Debrief on what was significant, worked well, etc.
 3. Four “A”s Text Protocol – Article *Teaching from a Disciplinary Literacy Stance*, working in groups, .ppt questions: What is difference between content area literacy and disciplinary literacy?
 4. Social Dimension – *Getting to Know You* – social dimension, teachers choose one of a variety of photos to represent how feeling at moment
 5. Book Clubs – teachers filled out graphic organizer of “What we read” and “What we thought”
 6. *From the Classroom* – Disciplinary literacy writing for learning discourse – teachers presents a model for teaching new topic (Syrian Refugee Crisis), teachers fill out topic analysis packet
 7. Individual planning time

- January 14, 2016 – PD Session 3 (at local university)
 1. Introduction and initial conversations – 3 kinds of writing: Writing to learn, Learning to write, Writing to display knowledge... [*Teaching from a disciplinary literacy stance* article was pre-reading for this conference]
 2. Disciplinary discussions – What is writing like at your level and in your discipline? How do you teach the 3 kinds of writing?
 3. University faculty demonstrations of writing in disciplines – college faculty show their assignments
 4. Panel of university undergraduate honors students and peer-writing tutors from university writing center talk about college writing experiences and transitions from high school to college writing

5. Noticing session – University faculty present assignments and secondary teachers present their assignments; a “noticing” protocol is used
 6. Processing the day – protocol called Up and Down the Mountain used
- March 17, 2016 – PD Session 4*
 1. Social dimension – community builder
 2. Dissertation presentation – A prior graduate student research (now Ph.D.) presented an analysis of a previous content-area writing PD program as a teacher learning network; finding: major emphasis was on commonality (interdisciplinary) and not enough around how disciplines are different
 3. *From the Classroom* – Authentic audiences – use of *Genius* online public annotating tool; platform for modeling; break into disciplinary groups about how this could be used in the classroom

*NOTE: Day was cut short due to electric power outage.
 - May 12, 2016 – PD Session 5
 1. Social dimension – Reading Bingo
 2. *From the classroom* – Vocabulary in the discipline – “survival vocab” – teacher provides a math text; previewing the text, “talk to the text” to find what is challenging and become sentence detectives; questions of who reads this, etc.
 3. Disciplinary groups – *Text rendering protocol* – teachers break into disciplinary groups and read an article specific to their general discipline; the one for social studies is *Researching and Writing History through Community Collaboration*
 4. Book club
 5. Individual planning time

APPENDIX D
Application of Chapter 2 Coding Scheme

Table D.1
Application of Chapter 2 Coding Scheme

Code	Sub-code	Definition	Example from Data
Sustained Duration	Time	Time spent in planning sessions, PD sessions and webinars	During the first PD session, teachers spent six hours together.
	Span	The range of time for continuous PD experiences	The PDDL took place over an entire school year.
Collective Participation	School cohorts	Activities in which teachers participated as cohorts with teachers from the same department or schools	None
	Subject-matter cohort	Activities in which teachers participated with teachers in subject matter groups	PD Session 1, Episode 6: Disciplinary groups gather together in order to establish agreements of the work to be conducted and set norms for interacting
Content Focus	Disciplinary literacy as content	Activities that focus on conceptions about what disciplinary literacy is	PD Session 2, Episode 3: Four “A”s Text Protocol – Teachers read article <i>Teaching from a Disciplinary Literacy Stance</i> – Teachers discuss overarching question: What is the difference between content area literacy and disciplinary literacy?
	Teaching disciplinary literacy as content	Activities that focus on how disciplinary literacy is taught	PD Session 2, Episode 6: <i>From the Classroom</i> activity – Teacher facilitator presents a model for teaching new topic (Syrian Refugee Crisis) – Teachers fill out topic analysis packet
Active Learning	Planning	Teachers participate in PD planning and design	Planning Session 1: Seven teachers, PD Coordinator, and a university faculty member participate in an activity on setting goals for the PD program
	Facilitation	Teachers participate as	PD Session 5, Episode 2:

		facilitators during PD sessions by presenting and/or leading discussions	<i>From the Classroom</i> activity – Teacher facilitator presents “survival vocab” for understanding vocabulary in the discipline – teacher provides a math text, teachers preview the text, “talk to the text” to find what is challenging and become sentence detectives
	Reviewing Student Work	Activities where teachers collectively examine and/or assess student work	None.
	Observing and being observed	Activities in which teachers observe expert instruction or present their own instruction for feedback and discussion.	None.
	Planning classroom implementation	Working collaboratively to plan instruction through rehearsals, feedback on curricula, or meetings to discuss implementation.	None.
Coherence	Teacher prior beliefs	Eliciting of teacher prior beliefs	PD Session 1, Episode 2: Teachers participate in reflective writing – Teachers are to capture their own thoughts on literacy in the disciplines
	Discussion with others	Activities that prompt teachers to discuss the PD outside of the PD site with other colleagues or administrators in their school or other teachers attending the same PD	None.
	Alignment with state and district reform efforts	Eliciting of demands placed on teachers by schools or districts	None

APPENDIX E
Attendance of PD Coordinator, Teachers, and University Faculty

Table E.1
Attendance of PD Coordinator, Teachers, and University Faculty

	Summer Planning Session 1	Summer Planning Session 2	PD Session 1	Fall Planning Session	PD Session 2	Webinar	PD Session 3	Webinar	PD Session 4	PD Session 5
PD Coord.	Attended	Attended	Facilitated	Attended	Facilitated	Facilitated	Facilitated	Facilitated	Attended	
Teacher A	Attended	Attended	Attended	Attended	Facilitated		Attended		Attended	Attended
Teacher B	Attended	Attended	Facilitated		Facilitated		Attended		Attended	Facilitated
Teacher C	Attended	Attended	Facilitated		Attended		Attended		Attended	
Teacher D	Attended	Attended	Attended		Attended		Attended		Attended	Attended
Teacher E	Attended	Attended	Attended							
Teacher F	Attended	Attended	Attended		Attended		Attended		Attended	
Teacher G	Attended		Facilitated		Attended				Attended	
Teacher H	Attended	Attended	Attended				Attended		Attended	Attended
Teacher I			Attended		Attended		Attended		Attended	
Teacher J			Attended		Attended		Attended		Attended	Attended
Teacher K			Attended		Attended		Attended		Attended	
Teacher L			Attended		Attended					
Teacher M			Attended		Facilitated		Attended			Facilitated
Teacher N			Attended		Facilitated		Attended			
Teacher O			Attended						Facilitated	
Teacher P			Attended		Attended		Attended	Attended	Attended	Attended
Teacher Q			Attended							
Teacher R			Attended							
Teacher S			Attended		Attended	Attended	Attended		Attended	Attended
Teacher T			Attended							
Teacher U			Attended						Attended	

Teacher V			Attended							
Teacher W			Attended		Attended	Attended	Attended			
Teacher X			Attended							
Teacher Y			Attended				Attended		Attended	
Teacher Z			Attended		Attended					
Teacher AA			Attended		Attended		Attended		Attended	Attended
Teacher BB			Attended							
Teacher CC			Attended							
Teacher DD			Attended		Attended					
Teacher EE			Attended		Attended		Attended		Attended	
Teacher FF			Attended							
Teacher GG			Attended							
Teacher HH			Attended		Attended		Attended			
Teacher II			Attended							
Teacher JJ			Attended							
Univ. Fac. 1	Attended						Facilitated			
Univ. Fac. 2							Attended			
Univ. Fac. 3							Attended			
Univ. Fac. 4							Attended			
Univ. Fac. 5							Attended			
Univ. Fac. 6							Attended			
Univ. Fac. 7							Attended			
Univ. Fac. 8									Facilitated	
Univ. Fac. 9						Facilitated				
Univ. Fac. 10								Facilitated		

APPENDIX F

Sample Protocol for Teacher Interview

Previous PD Session

1. I'd like to get your reactions to the most recent PD session. Here is an agenda from the meeting and a set of artifacts: social dimension, [former graduate student's] research, *From the Classroom* by [a teacher] using *Genius*, authentic audiences, disciplinary groups on using *Genius*.
 - a. What do you recall from this PD?
 - b. What was your impression of this PD afterward?
2. Have you incorporated any skills or practices from the most recent PD session into any of your teaching?
 - a. If so, in what ways?
 - i. Planning?
 - ii. Instruction?
 - iii. Assessment?
 - b. Skills or practices from any other PD sessions?

Conceptions of Disciplinary Literacy

3. At this point, what is your **conception of disciplinary literacy**?
 - a. How do you define disciplinary literacy? What is it?
 - b. How do you define disciplinary literacy in history/social studies? What is it?
4. At this point, what is your **conception of instructional practices for teaching DL**?
 - c. How do you teach disciplinary literacy in the 6-12 history/social studies classroom?
5. Do you find it important to teach disciplinary literacy in your classroom? If so, why?
 - d. What are the virtues of teaching disciplinary literacy?
 - e. What do you find beneficial about teaching disciplinary literacy?
 - f. What do you find challenging about teaching disciplinary literacy?

Lesson Just Taught

6. Can you describe the overall arc of this unit?
7. If a parent was to walk in and ask what you did today in social studies class, how would you describe the lesson you have just taught?
 - a. What was the purpose of the lesson?
 - b. What were your objectives? What did you want students to accomplish?
 - c. What is project-based learning?

I've asked you to begin to invite me to see lessons that you consider to be aligned with the concepts and practices of DL.

8. Does this lesson exemplify DL?
9. Does this lesson typify your approach to literacy, or might it be novel for you?
 - d. Are there any ways that you use text, reading, or writing that are typical of your teaching?
 - e. Are there any aspect of this lesson that represent your thinking on disciplinary literacy?
10. What considerations did you take into account when planning this lesson?
 - f. What aspects of the lesson did you find to be effective?

General PDDL Questions

11. What are your perceptions of your **participation in the PDDL network**?
 - a. What has been most helpful about the PDDL network?

- b. What has been least helpful? Or what has not been working for you as you try to learn about disciplinary literacy?
 - c. What has been making the most sense?
 - d. What are you struggling with? Or what questions do you still have at this point?
 - e. Have you had any interactions with other teachers in the PDDL network *outside* of the PD sessions?
 - i. With whom?
 - ii. How often?
12. How has your book club participation been?
- a. How much of the book have you read so far?
13. Have you seen the webinar book chat with [the university professor] from last Thursday?
14. Is there anything in particular you hope the last PD session addresses?
- a. Is there anything you are excited about?
 - b. Anything that interests you?

APPENDIX G
Application of Chapter 3 Coding Scheme

Table G.1
Application of Chapter 3 Coding Scheme

Code	Sub-code	Description	Excerpt
Content-area literacy	Definition	Teacher defines literacy in terms of the reading or writing students encounter in school	“It’s being able to read and write in different content areas, not just ELA.” (Alex, Interview 06/21/16, 6:40)
	Texts used	Teacher references texts that students are likely to encounter in the classroom	“A lot of the text that you’re asked to read [in social studies] isn’t made for entertainment; it’s informational.” (Alex, Interview 11/09/15, 23:07)
	Thinking skills involved	Teacher mentions a thinking skill but it is not related to any specific discipline	When designing a project, students keep in mind “a theoretical audience.” (Alex, Interview 06/21/16, 13:30)
	Instructional practice around reading and writing	Teacher mentions a method or strategy for reading or writing that is primarily focus on text access or comprehension	“[There should be] multiple ways to teach organization. Some kids love graphic organizers, other kids hate them and want to do an outline.” (Lisa, Interview 01/07/16, 14:51)
Disciplinary Literacy	Definition	Teacher defines disciplinary literacy as approximations of the work of disciplinary experts	“Disciplinary literacy is how to read, write, and think like a historian or social scientist.” (Lisa, Interview 01/07/16, 12:38)
	Texts used	Teacher references texts that a disciplinary expert might use	“...I ask students to look at both primary and secondary sources.” (Ryan, Interview 10/27/16, 25:03)
	Thinking skills involved	Teacher mentions a thinking skill that disciplinary experts utilize although without direct attribution	“...it’s those basic things of thinking like a historian, looking at the sequence of events when they are happening.” (Taylor, Interview 03/14/16, 5:00)
	Instructional practice around reading and writing	Teacher mentions a method or strategy for reading or writing that	“I created a checklist as tool for being able to do the reading in class... [we used it

		promotes interpretation aligned to the work of disciplinary experts	to] determine whether something is reliable.” (Ryan, Interview 10/27/16, 09:30)
Teaching about the work of disciplinary experts	Idiosyncratic	Teacher relies upon thinking aloud to provide insight about work of disciplinary experts	“It’s probably more my modeling it, from what’s going through my head.” (Taylor, Interview 04/27/16, 10:53)
	Explicit	Teacher formally teaches students about the work or disciplinary experts	“So we talk about the fact that there are people doing this work in archives by building narratives, writing books, and creating documentaries.” (Ryan, Interview 10/27/16, 5:30)

APPENDIX H

Alex's Earth's Resources Project

Name: _____ Sci Pd: _____ SS Pd: _____

Earth's Resources Project

How can we solve the problem of _____ ?

- Choose a social or environmental issue related to one of Earth's resources. Research the issue and propose a solution. Your solution must have two parts. Part one will focus on how to solve the problem using scientific methods. Part two will focus on how to solve the problem using humanitarian efforts.
- Possible problems:**
 - Blood Diamonds (Unethical treatment of diamond mine workers)
 - Global Warming (consequence of burning too many fossil fuels)
 - Fracking (oil/gas mining method)
 - Mountaintop Removal (coal mining method)
 - Oil Spills
 - Black Lung (medical condition from breathing in too much coal dust)
 - Clean water shortage
 - Plasticide run-off
 - Ocean dead-zones
 - Urban Mining
 - Other (if you have another idea, ask a teacher)
- Your project must include the following parts:
 - A completed 'Research Sheet'
 - The 'Brainstorm' sheet
 - A visual that includes the following
 - Why it is a problem?
 - Info about the natural resource(s) involved
 - What have people done in the past to solve it?
 - Your plan for solving it

Options for your Visual

- Print
- Display board
- Website
- Brochure
- Infographic
- Anchor Chart
- Children's book
- Comic book
- Model
- Speech
- Newsreport
- Video
- Museum Exhibit

What you are being graded on...

Science:
Power Standard: Students will use evidence to construct an explanation on why Earth's resources are unevenly distributed.

Learning Target	No Evidence 0	Not Proficient 1	Partially Proficient 2	Proficient 3	Advanced 4
ESS-1 Earth's Resources	No Evidence	Identify examples of Earth's mineral resources	Describe how natural resources are distributed over Earth's surface	Use evidence from Earth's geoscience processes to construct an explanation of the distribution of natural resources	Evaluate the impact human use of natural resources has on the world

Social Studies:
Power Standard: Students will analyze the impact civilizations have on the natural world.

Learning Target	Not Proficient 1	Partially Proficient 2	Proficient 3	Advanced 4
Civics	Students will recognize that human civilization impact the natural world.	Students will compare the lives of people in various civilizations and how they impacted the natural world.	Students will analyze the ways in which human civilizations have impacted the natural world.	Students will evaluate positive and negative impacts that human civilizations have made on the natural world.
History	Students will recognize that early civilizations had less of an impact on the natural world than modern civilizations.	Students will compare differences in how early and modern civilizations have impacted the natural world.	Students will analyze changes to the natural world which have occurred as a result of human civilization.	Students will evaluate which aspects of human civilization have had the greatest impact on the natural world.
Geography	Students will recognize that civilizations rely on natural resources.	Students will express the ways that various civilizations have impacted the natural world.	Students will analyze which natural resources/features have been most impacted by human civilization.	Students will evaluate how civilizations can begin to minimize impact to the natural world.

Name: _____ Sci Pd: _____ SS Pd: _____

Research Sheet

The problem I am addressing is:	(sentences)
This is a problem because...	(sentences)
Where in the world is this a problem?	(loc)
What natural resource(s) does this problem involve?	(loc)
How is this natural resource formed?	(sentences, and/or drawing)
What do we use this natural resource for? (at least 3 examples)	1. 2. 3.
How have people addressed this problem in the past or how are they currently addressing it?	(sentences)
Do any of the current solutions seem to be working? Explain why or why not.	(sentences)
What are the short term effects of this problem? (10-20 years)	(sentences)
What are the long term effects of this problem? (will last longer than 20 years)	(sentences)

Brainstorm!!

What do you think should be done to solve this problem? Your solution must have two parts: a scientific part and a humanitarian part. Your solution must include a description (in sentences), and a drawing (with labels).

Scientific Part

Humanitarian Part

Figure H.1. Alex's Earth's Resources Project.

APPENDIX I
Lisa's *Roaring Twenties* Worksheet under a Document Camera

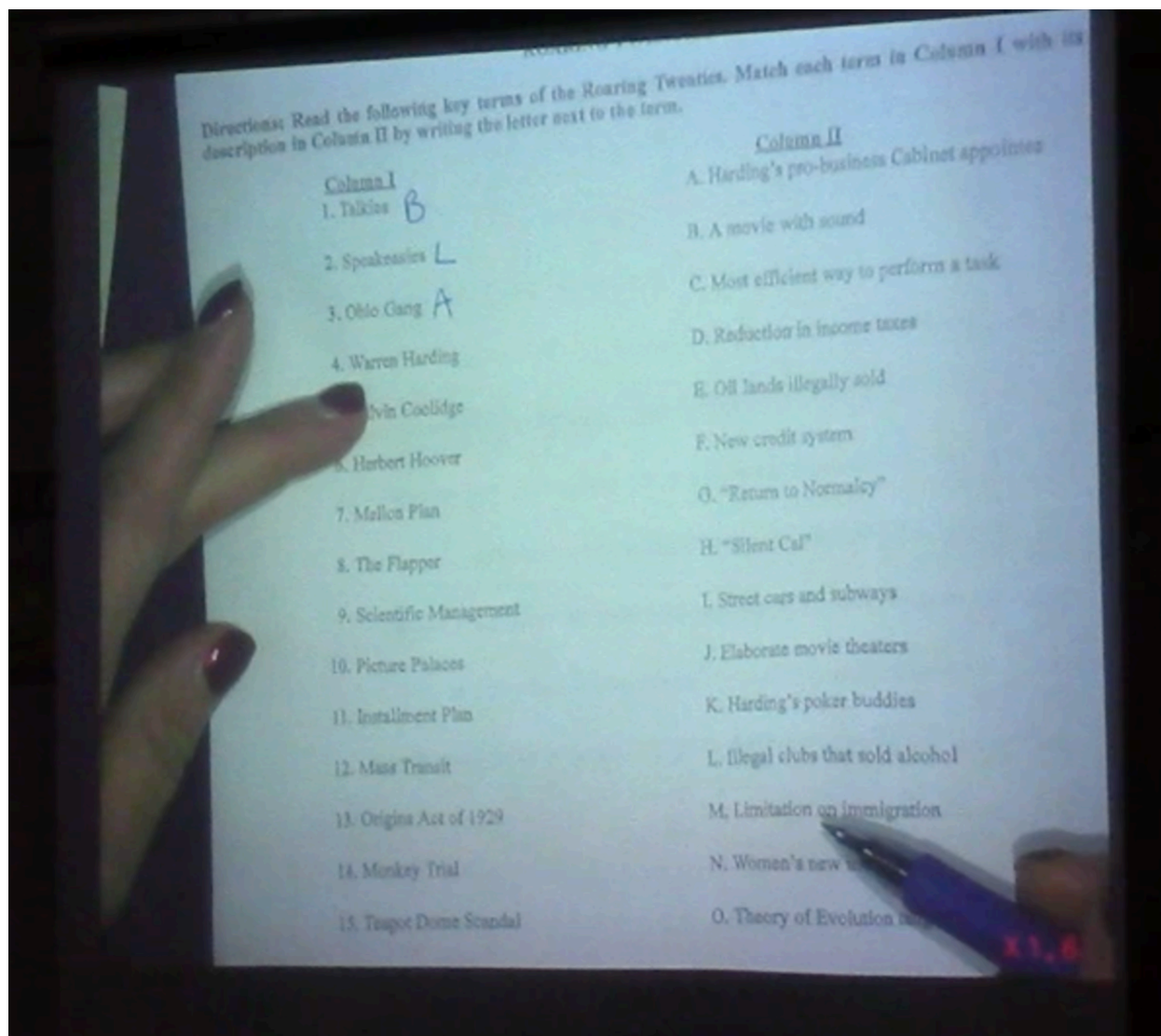


Figure I.1. Lisa's *Roaring Twenties* worksheet under a document camera.

APPENDIX J
Ryan's Source Evaluation Protocol Bookmark

[Front]

Website/Source Name:
<p>Credibility - Are the information and author authentic and reliable?</p> <ul style="list-style-type: none"> • Who is the publishing or sponsoring organization? _____ • Is there evidence that the author or organization is an expert on this subject? <input type="checkbox"/> Yes <input type="checkbox"/> No <hr/> <p>Accuracy - How do you know the information is up-to-date, factual, authentic, detailed, and thorough?</p> <ul style="list-style-type: none"> • Is there a publication or copyright date? <input type="checkbox"/> Yes <input type="checkbox"/> No • Does it acknowledge or respond to a variety of views? <input type="checkbox"/> Yes <input type="checkbox"/> No • Is there a conflict of interest between the author/organization and what is expressed? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, why do you think so? _____ _____ _____ <hr/> <p>Relevancy - Is the information useful?</p> <ul style="list-style-type: none"> • Is the information presented related to what you are looking for? <input type="checkbox"/> Yes <input type="checkbox"/> No <hr/> <p>Support - How well-supported is the information for your resource?</p> <ul style="list-style-type: none"> • Are there sources listed or links to other websites or references? <input type="checkbox"/> Yes <input type="checkbox"/> No • If yes, are the sources objective or are they biased? <input type="checkbox"/> Objective <input type="checkbox"/> Biased Why do you think so? _____ _____ _____ _____

Adapted from the CARS system

[Back]

Website/Source Name:
<p>Other Sourcing Questions to Ask Yourself</p> <ul style="list-style-type: none"> • Who wrote/created the source? • What is the author's perspective? • Why was the source created? • When was the source created? • Where was the source created? • Do you find the source to be reliable? <input type="checkbox"/> Yes <input type="checkbox"/> No • Why? Why not?

Adapted from the Stanford History Education Group "Sourcing" questions

Figure J.1. Ryan's Source Evaluation Protocol bookmark.

APPENDIX K
Application of Chapter 4 Coding Scheme

Table K.1
Application of Chapter 4 Coding Scheme

Code	Definition	Excerpt
Challenges of Professional Identity	Interviewee mentions that teachers struggle to shift identity either (a) away from teaching content-area literacy and toward teaching disciplinary literacy or (b) toward approximating a disciplinary expert.	I want them to get an idea that they've already got [a content-area literacy] foundation, that they're going to the next level and to start looking at themselves as a scientist who reads or a scientist who writes... and adopt a separate identity, I guess, or a dual identity. (PD Coordinator, Interview 08/20/15, 33:23)
Challenges of Teacher Knowledge about Disciplinary Expertise	Interviewee mentions that teachers speak about the limitations of their knowledge about what disciplinary experts do or how they think	I think teachers need to see expert work in action. I think they need to see a lot more examples. I'm hopeful for our next session because we're at [the university] and teachers are going to see what professors expect out of reading and writing from their students. (PD Coordinator, Interview 12/17/15, 14:49)
Challenges of Teacher Knowledge about Disciplinary Literacy Instructional Practice	Interviewee mentions that teachers struggle to translate their thinking about disciplinary literacy into instructional practices for the classroom	But that doesn't mean that they're going to be able to know as teachers how to teach the kids to read and write like scientists or like a historian or a mathematician. (PD Coordinator, Interview 08/20/15, 33:23)
Challenges of Teacher Participation and Attrition	Interviewee mentions issues associated with a lack of teacher participation or aspects that inhibit participation	That's been a huge challenge – just getting teachers other than English teachers engaged in this... It's a perpetual problem. It's been a problem because they're the ones who developed [one of our previous PD writing programs]... Even when asking for a planning team for this PD program, most were English teachers. (PD Coordinator, Interview 07/01/16, 19:30)