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Disciplinary Literacy and Content Area Reading Strategies:
Intentionality and Collaboration

Jamie L. Wojtowicz
The College at Brockport: State University of New York
Education and Human Development
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Abstract

Due to stagnate or falling adolescent reading scores as shown on the National Assessment of Educational Progress (2007) and the inclusion of literacy standards as part of the Common Core standards titled “Literacy in History/Social Studies, Science & Technical Subjects,” (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010a) an interest in adolescent literacy, and what it means to teach literacy in a core subject area, has reemerged. Even prior to the literacy standards being released, studies re-exploring the topic of content area literacy through a new lens, disciplinary literacy, had been published. Since then, much has been written about teaching from a disciplinary literacy stance. This literature review explores the following research questions relating to disciplinary literacy:

- What is the relationship between disciplinary literacy and content area reading strategies/literacy and why might it matter?
- Why might content area reading strategies and disciplinary literacy be presented as an “either/or” proposition?
- In what ways, if at all, does a disciplinary literacy approach impact student learning in the academic core, grades 6-12 and what are the implications for teachers?

Key Words: disciplinary literacy, content area reading strategies/literacy, literacy standards

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Chapter 1: Introduction

Rationale

On July 19, 2010, the New York State Board of Regents adopted the Common Core State Standards for Mathematics and English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010a). This was the first time literacy skills were specifically called out in a separate set of standards. Preceding the specific grade level standards, there is a sidebar explains the importance of reading in all content areas:

College and career ready reading in these fields requires an appreciation of the norms and conventions of each discipline, such as the kinds of evidence used in history and science; an understanding of domain-specific words and phrases; an attention to precise details; and the capacity to evaluate intricate arguments, synthesize complex information, and follow detailed descriptions of events and concepts" (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010a)

With the inclusion of these literacy specific standards, many school districts across the state revisited their current frameworks and approaches in secondary classrooms ensuring that teachers in science, social studies and technical subjects were incorporating research proven literacy strategies. As a result of schools giving greater attention to literacy, the subject of content area reading, and the best approaches to this kind of specific reading, resurfaced. Researchers and teachers had already visited this topic and had begun expanding the notion of "content area

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reading" to "disciplinary reading." With the amount of buzz occurring around just what it means to include literacy strategies in the content areas, a reignited interest in how to best do so emerged.

The concept of a “one size fits all” approach to content area reading instruction has been sparking debate among researchers and teachers, particularly those in the field of literacy education. Many argue that in order to help students successfully analyze various texts in different courses that "content reading strategies" are simply not enough and a more discipline-specific approach is called for. If so, then what does this mean for students and teachers?

Purpose of Literature Review

The purpose of this review is to analyze various perspectives on literacy in the content areas, specifically pertaining to the secondary classroom. The research regarding the importance of literacy to learning academic content (e.g., math, English, social studies, and science) has been well established; however, the discussion of instructional approaches geared toward increasing students' literacy skills is continuously evolving and changing. Is the term "disciplinary literacy" a matter of semantics? Should it replace content area literacy strategies as we currently know it? The guiding questions for this study are:

- What is the relationship between disciplinary literacy and content area reading strategies/literacy and why might it matter?
- Why might content area reading strategies and disciplinary literacy be presented as a “either/or” propositions?

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- In what ways, if at all, does a disciplinary literacy approach impact student learning in the academic core, grades 6-12 and what are the implications for teachers?

This literature review draws upon articles and books that have been peer reviewed, published in academic journals between 2005 and 2015, in which full text was available. This review seeks to analyze and synthesize different voices on the topic, identify possible gaps in research, and make recommendations based upon the findings.

My Positionality as the Researcher

I graduated with a Master's in Adolescent Education: English from the University at Buffalo in May 2008. Most of my courses analyzed pedagogy regarding the teaching of English Language Arts (ELA). We explored what it means to be "literate" and how the definition has changed based on the needs of society and the expansion of technology. Since graduating in 2008, discussion around literacy, how to define it, how to approach teaching it, have continued to evolve. Recently, the International Reading Association changed its name to the International Literacy Association in order to promote the idea that reading is just one facet of literacy. This change in terminology communicates that being literate goes beyond the ability to read and comprehend print text. On the organization's website in the "Why Literacy?" section it says, "Literacy is the ability to identify, understand, interpret, create, compute, and communicate using visual, audible, and digital materials across

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disciplines and in any context" (International Literacy Association, 2015b). For example, students also need to be taught visual literacy.

This explanation of literacy goes beyond the popular notion that "all teachers are teachers of reading," but it does not dismiss it. Clearly, all educators must bear the responsibility of explicitly teaching students how to read, write, think, and communicate within a specific discipline in order to be successful.

I became more interested literacy after the standards were released and from personal experience. I knew that one ELA teacher could not possibly teach all students all things relating to literacy in every subject area. New York State had certainly expressed its position on this matter by including specific literacy standards in the Common Core State Standards. I wanted to know what it all meant in action.

Summary

In order to help students navigate the literacy demands placed on them by technology, sophisticated texts, and in college and/or the workforce, it is important to understand what the research says on the topic. Today's students have different needs than students ten years ago. If we know more technical texts require a specialized set of skills in order to make sense of them, would it not make sense to be thoughtful about how we approach these specialized texts? For the purpose of this study, I will be addressing mainly print texts. This study seeks to analyze the current research on disciplinary literacy and discover in what ways, if at all, does a disciplinary literacy stance impact student learning in secondary classrooms and how might this stance

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compare to a traditional "content area reading strategies" approach? The guiding questions for this review are:

- What is the relationship between disciplinary literacy and content area reading strategies/literacy and why might it matter?
- Why might content area reading strategies and disciplinary literacy be presented as a “either/or” propositions?
- In what ways, if at all, does a disciplinary literacy approach impact student learning in the academic core, grades 6-12 and what are the implications for teachers?

Chapter 2: Methodology

This review examines a shift in the discussion of "reading in the content areas" or "content area reading strategies" to "disciplinary literacy." It is not intended to be a complete and exhaustive review given the breadth of literature available on the topic. Additionally, due to the complexity of the definition of "literacy," this review sought to understand disciplinary literacy as pertaining to reading. I searched for studies through the *Education Source* database available through the State University College at Brockport. Only peer reviewed, full text articles published in academic journals between 2005 and 2015 were considered. Search terms included "disciplinary literacy" and "secondary or high school," "disciplinary literacy" and "content area reading strategies or content area literacy" and "disciplinary literacy."

Results of the initial search using "disciplinary literacy" and "secondary education" yielded 317 studies. Next, article titles were skimmed and the number of articles were reduced to include only articles written about the core academic areas (math, science, English, history) in grades 6-12 and that specifically had the term "disciplinary literacy," or a close variation such as "disciplinary reading" in the title. Articles that focused on a specific kind of science or history, rather than a broad view of the subject area, were not considered. Articles focused more on socio-cultural trends (i.e. gender) were also eliminated. I cross-referenced the list with the search results using the key terms "disciplinary literacy" and "content area reading strategies or content are literacy." Articles appearing on both lists were more carefully

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examined and considered. From there, I skimmed each abstract and further narrowed the list by excluding articles regarding pre-service teacher preparation, articles that focused on specific approaches, such as using contemporary texts to support disciplinary literacy, or articles that were published outside of the United States.

After choosing a select few to serve as the anchor texts based on the authorship (respected and widely known educator-researchers in the field) or articles that appeared in multiple searches, those articles' reference lists served as starting points for additional searches. Articles were also eliminated that beyond the scope of questions this literature review seeks to answer. Additionally, the following books were included: *Comprehending Math: Adapting Reading Strategies to Teach Mathematics, K-6* Hyde (2006), *Developing Readers in the Academic Disciplines* (Buehl, 2011) and *Adolescent Literacy in the Academic Disciplines: General Principles and Practical Strategies*, Jetton and Shanahan (2012). Lastly, articles were included as recommended by experts in the field and research professors.

At first, articles were organized alphabetically. Then, by subject, and finally by sub-topics pertaining to the research questions. After reading several articles, it seemed some classroom examples provided of disciplinary literacy in action blurred the lines between a general content area reading strategy and a disciplinary literacy approach. I wondered why disciplinary literacy approaches were sometimes viewed as the next step to "content area reading strategies," or even, at times, suggested as an alternative to, rather than perhaps a complementary approach? It turns out I was not the only one wondering about this. I found articles challenging the idea that we must

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take a disciplinary literacy approach *instead of* teaching general reading strategies.

Some articles suggest we need both and others seem to confuse the terms and use them somewhat interchangeably. Based on this trend, I began collecting articles that addressed disciplinary literacy strategies/approaches in comparison to content area reading strategies; I revised my research questions accordingly.

Chapter 3: Findings/Discussion

Why is Adolescent Literacy a Topic of Focus?

In the last few decades, greater emphasis on research regarding reading instruction has been a focus in education. As a result, studies and have emerged from colleges, teachers, and various organizations such as the National Reading Panel and The International Literacy Association. For example, in 2000, The National Reading Panel report provided recommendations on specific reading strategies that should be taught to help foster comprehension based on a review of hundreds of studies. The report concluded that teaching reading comprehension strategies and approaches such as self-monitoring for comprehension, can increase comprehension and raise scores. The panel also recommended that teachers in content areas embed comprehension during instruction (National Institute of Child Health and Human Development, 2000).

Additionally, since research has shown that early reading success is often a strong predictor of future school success (as quoted in Shanahan & Shanahan, 2012), many studies emphasized the importance of strong, research-based instructional practices focused specifically on the foundational reading skills that would be part of a strong, early reading instruction program. However, though gains have been made due to efforts geared toward strengthening early reading, this focus at the exclusion of adolescent reading might have provided a false sense of security about later

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adolescent reading outcomes. Timothy Shanahan and Rebecca Barr describe this as the vaccination effect:

Early interventions are supposed to operate like a vaccination, preventing all future learning problems, no matter what their source or severity. It appears, however, that early interventions, no matter how successful, are more similar to insulin therapy. That is, substantial treatment effects are apparent right away, but these gains can be maintained only through additional intervention and support" (T. Shanahan & Barr, 1995, p. 982).

Though this statement was made in regard to findings related to the effectiveness of Reading Recovery, the analogy can be extended to discuss trends in adolescent literacy. Research related to adolescent reading seems to support this sobering truth as well.

The National Assessment of Educational Progress (NAEP) measures and reports its findings in three levels: basic, proficient, and advanced. According to a report from Carnegie Corporation of New York's Council on Advancing Adolescent Literacy:

NAEP scores for 17 year olds consistently show the same pattern: a majority of students achieve the basic level of reading skills, and at this basic level there are no significant differences based on race/ethnicity and SES. At the most advanced level, less than 10 percent of 17 year olds, regardless of race/ethnicity or SES, are able to comprehend complex texts" (Lee & Spratley, 2010, p. 2).

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Research has also shown that students often struggle in college courses. The main purported reason? An increase in complex, informational texts students are required to read independently. According to "Appendix A" of the Common Core State Standards, students requiring remedial courses often did not fare as well as their peers who did not require remediation:

Only 30 percent of 1992 high school seniors who went on to enroll in postsecondary education between 1992 and 2000 and then took any remedial reading course went on to receive a degree or certificate, compared to 69 percent of the 1992 seniors who took no postsecondary remedial courses and 57 percent of those who took one remedial course in a subject other than reading or mathematics. Considering that 11 percent of those high school seniors required at least one remedial reading course, the societal impact of low reading achievement is as profound as its impact on the aspirations of individual students (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010b, p. 3).

In response to adolescent and college reading performance, surveys of readers and teachers, and research regarding adolescent literacy, the Common Core State Standards developed literacy standards (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010b) intended to specifically call attention to literacy practices within subject areas. Included in the introduction of the Standards English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects, the authors state the Standards "insist that

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instruction in reading, writing, speaking, listening, and language be a shared responsibility within the school...the grades 6–12 standards are divided into two sections, one for ELA and the other for history/social studies, science, and technical subjects" (p.4). Additionally, under the section "Students Who are College and Career Ready in Reading, Writing, Speaking, Listening, and Language," a list of bullet points captures how students might demonstrate various habits of mind related to literacy skills. One such point states that students should "know that different disciplines call for different types of evidence (e.g., documentary evidence in history, experimental evidence in science) (p.5). The specificity of these discipline-specific standards, as well as the expressed belief that the teaching of literacy is the responsibility of all content area teachers, was the first time any standards' documents explicitly stated what many researchers have been saying for years: adolescent literacy needs (re) attention.

What is the Relationship Between Disciplinary Literacy and Content Area Reading Strategies/Literacy and Why Might it Matter?

Content area reading strategies/literacy is certainly not a new topic. Many subject-specific textbooks even offer guidelines for how teachers can employ instructional strategies to assist students in unlocking meaning from complex, informational texts. A number of articles providing classroom examples have been published within the last few decades on the topic and plenty of school-based professional development has been provided.

The reading comprehension strategies Ness refers to are those strategies that have been identified as helping to support comprehension of any text, that is to say, strategies that might be employed to assist in reading to learn. In chapter 1 of *Adolescent Literacy in the Academic Disciplines*, chapter authors Tamara L. Jetton and Richard Lee review the history of strategic reading and how our understanding of how to explicitly teach students to employ these strategies has evolved over the years (Jetton & Shanahan, 2012). The authors begin by describing an early framework:

In 1989 Pressley, Johnson, Symons, and McGoldrick provided a framework for understanding these strategies. They included summarization, in which students use their knowledge of story structure to determine important elements in the literature; student questioning in which students question the text to clarify their understanding and glean the content; and activating prior knowledge, in which students use knowledge they already possess to help them learn the new content in the text (Jetton & Shanahan, 2012, p. 4).

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Focusing on content area reading is certainly not a new term or construct. Much has been written and explored about the topic. Terms and phrases such as "reading and writing across the disciplines," "reading in the content areas," or "adolescent literacy in the content areas" are just a few of the ways this issue has been framed and discussed. In chapter one titled "Learning from Text" in the book *Adolescent Literacy in the Academic Disciplines* (Jetton & Lee, 2012). The authors offer this brief history of the teaching of strategies:

Since the early 1980s, researchers have been studying reading comprehension strategies that effective adolescent readers employ to understand text...they included summarization, in which students determine the most important content in text; imaging, in which students create representational images or pictures of the text material; story structure, in which students use their knowledge of story structure to determine important elements in the literature; student questioning in which students question the text to clarify their understanding and glean the content... (p.4).

The authors continued to review the evolution of reading strategies and the eventual connection to instructional strategies. Strategies such as explicitly introducing and modeling to students through demonstrations and read alouds followed by the use of specific frames to help encourage students to be strategic, such as a K-W-L chart (p.5). Interestingly, the authors found that in the last two decades, "many of the articles that discuss these reading and instructional strategies have started confusing the two" (p.5). The issue the authors are raised is one of

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intentionality; the organizer or frame can only be successful if the purpose behind it is explicitly shared with students. For example, the authors cite the K-W-L chart which is intended to help students activate prior knowledge (Know, Want to Know), ask questions (What do you want to know), and determine what is important (Learned). The issue of confusion between what is a reading strategy and what is an instructional strategy may seem like a minor issue, however, the authors argue that:

The reason there needs to be a clear understanding of the difference between a reading strategy and an instructional strategy is because teachers need to understand the reading strategies that they need to teach explicitly. Readers do not need to know the instructional strategy explicitly; they need to know the reading strategies that are taught through them" (p.7).

Jetton and Lee continued to provide a synthesis of the metamorphosis of the field's understanding of reading comprehension strategies and related frameworks, such as Reciprocal Teaching. Out of this work came suggestions for strategy instruction geared toward specific disciplines. According to the authors, several instructional strategies began being adapted to meet the specific content demands of various disciplines. For example, the RAFT (Role, Audience, Format, Topic) model was suggested for use during social studies writing instruction, "...through RAFT, adolescents assume the role of a bill (Role) writing to other bills (Audience) through a travelogue (Format) about how it became a law (Topic)" (Jetton & Shanahan, 2012, p. 9).

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Although the authors contended that these instructional practices *have* led to an increase in comprehension scores and have helped students to engage in a more purposeful and close reading of a text, they acknowledged that more work needs to be geared toward high school and that training needs to be provided to teachers that "is tailored to their particular disciplines" (Jetton & Shanahan, 2012, p. 18). The recommendation is not unique in that it does not call for more training in just strategies, but ones that are geared toward a specific subject. It is a recommendation that many in the field of adolescent literacy have supported and suggested.

In Molly K. Ness'(2009) study "Reading Comprehension Strategies in Secondary Content Area Classrooms: Teacher Use of and Attitudes Towards Reading Comprehension Instruction," the findings showed that the majority of teachers observed and interviewed felt that the teaching of reading comprehension felt isolated from content or detracted from learning content. This attitude toward reading comprehension was evidenced during the first phase of the study in which the following observations were observed, "Of 600 total minutes observed in middle school social studies classrooms, reading comprehension strategies made up 60 minutes (10%) of instruction. Reading comprehension instruction in middle school social studies classrooms far exceeded comprehension instruction in other grades and in science" (p.153). During the second phase of the study, teacher responses to interview questions regarding their perceptions of reading comprehension showed that although all teachers felt reading was an important part of their instruction, teachers were mixed in their self-reported use of strategies. Some stated they felt they

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had not received adequate training to use such strategies. Some felt they were using strategies appropriately and frequently, though the researcher observations during the first phase did not match these perceptions. Regarding the surveys, the researchers noted, "absent in their discussions about reading comprehension instruction were explanations of teacher-led think-alouds to model reading strategies, explicit explanations for when and why to use strategies, or coaching students on how to apply strategies to their independent reading (p. 156). As a result of the study, Ness recommended that high quality professional development and support would need to be provided in order to better support and encourage teachers to utilize and explicitly teach reading strategies, "Unless avenues of teacher training and professional development convince teachers of the value of reading comprehension instruction, content coverage may trump the explicit strategy instruction which promotes students' understandings of text" (p.161).

It's important, however, for the limitations of strategy instruction to be considered. Margaret G. McKeown, Isabel L. Beck, and Ronette G.K. Blake (2009) published a research study titled "Rethinking Reading Comprehension Instruction: A Comparison of Instruction for Strategies and Content Approaches." In this study, the word "content" refers to a topic or curriculum. Therefore, in this context, "content" does not necessarily denote a particular content *area*, but rather generally refers to the information, skills, and ideas we want students to understand and apply within each course.

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In the study, the researchers compared two teaching approaches: one that used a content approach, and one that used a strategy approach. The authors' distinguished the instructional approaches as follows:

The strategies approach centers on the direct teaching of specific procedures, such as summarizing, making inferences, and generating questions, and using them in working with text. The other approach to comprehension, which we have labeled a content approach, focuses on keeping students' attention directed toward the content of what they are reading and working through the text to build a representation of the ideas through discussion" (McKeown, Beck, & Blake, 2009, p. 118)

The study also compared these two approaches to the basal program approach the teachers had already been using. In order to better compare the approaches, the researchers reviewed the provided questions and teaching points in the basal and removed questions that did not pertain directly to comprehension.

The researches provided training and scripted lessons in order to ensure consistency in implementation. The results showed that in some areas, specifically in recall, students in the content and basal approach classrooms outperformed the strategy approach, "even though differences among approaches were limited to the recall measure, we view these results as meaningful because the contrast between the lessons was restricted..." (McKeown et al., 2009, p. 233). The results section of the Year 1 and Year 2 studies showed similar outcomes, though many of the outcomes were similar for all three approaches (content, strategy, basal). The researchers

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wondered why the basal and content area approaches yielded more similar results than that compared to basal-strategy or content-strategy. The researchers asserted that in an attempt to create consistent teaching approaches, they may have inadvertently given the basal approach a hand up due to the format of questions being interspersed throughout the lesson rather than only at the end of the lesson. The researchers stated that during observations of the teachers prior to the study, "...none of them followed the kind of lesson we planned to provide-that is, reading interspersed with questions about the story" (McKeown et al., 2009, p. 233).

The findings are interesting, however, because the idea of placing content at the forefront of teaching, rather than a strategy, seemed to yield better results. This could also explain what some of the teachers interviewed in Ness' study were trying to articulate: it's hard to teach a strategy or approach if one feels it is disconnected from the bigger picture.

Victoria Gillis (2014), the literacy chair at the University of Wyoming and former science teacher, write extensively about the role of literacy in the content areas. In one such article, she captured the sentiment that so many teachers seem to have expressed in response to the oft repeated refrain: 'we are all teachers of reading':

Secondary teachers are experts in specific disciplines, and as such have no desire, let alone sufficient knowledge, to teach literacy (Moje 2008; Ridgeway, 2004). Although literacy professionals may not mean to turn science or history or mathematics teachers into reading teachers, this is what secondary teachers hear when we say, "Every teacher is a teacher of reading."

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This sort of pronouncement just turn secondary teachers against ideas that, when implemented, can improve student learning and their literacy simultaneously (Gillis, 2014, p. 614).

Though these are the words of one person, this perception about what literacy's role is in content area teaching is one that Ness' study also showed. In response to these widely held perceptions, the reality of adolescent reading scores, and so forth, several researchers have looked for another way to frame the discussion to honor the discipline itself and the literacies embedded within a particular discipline. The Common Core State Standards reflect this shift in thinking with the inclusion of standards that specifically pertain to individual subject areas. Timothy Shanahan and Cynthia R. Shanahan explain the literacy standards as follows:

A careful perusal of the new English language arts Standards reveals that they don't require the teaching of reading comprehension strategies or anything else that smacks of the usual buffet of content area reading lessons or approaches. These new Standards evidently are not an attempt to get all teachers involved in the teaching of reading, but are instead an effort to ensure that students learn to engage in the specialized uses of literacy in each subject area (Shanahan & Shanahan, 2015, p. 10)

This stance is referred to as "disciplinary literacy" and supporters are adamant that it is not simply a pedagogy fad or semantics, but an approach that helps address the sophisticated literacy demands that content area reading requires. In comparison

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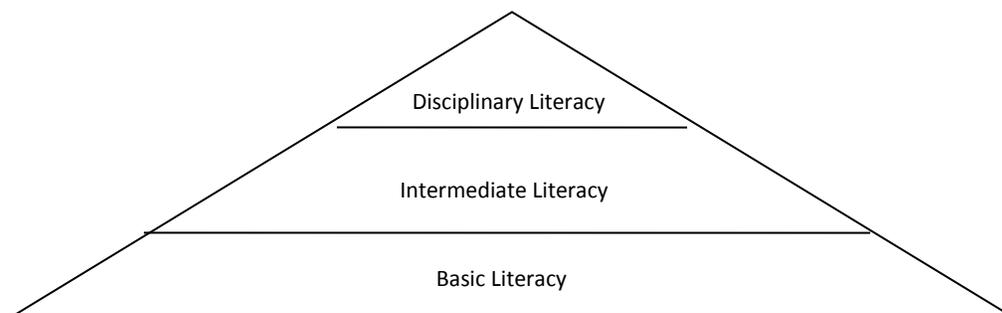
to content area reading strategies/literacy, Timothy Shanahan and Cynthia Shanahan (2012) explored the differences:

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. 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).

Prior to this article, in what many might consider the first publication to formally define and distinguish the two, Timothy Shanahan and Cynthia Shanahan explained disciplinary literacy through a pyramid structure.

Figure 1. Shanahan's Model of Literacy-

Adapted from: "Teaching Disciplinary Literacy to Adolescents: Rethinking Content-Area Literacy," by T. Shanahan and C. Shanahan, 2008, *Harvard Educational Review*, 78 (1), Copyright by the President and Fellows of Harvard College.



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Shanahan and Shanahan state that during the intermediate phase of literacy acquisition, students are using previously learned skills to help break down multisyllabic words, attend to more sophisticated uses of punctuation, and increase their vocabulary. During this stage, students employ comprehension strategies and “develop the cognitive endurance to maintain attention to more extended discourse, to monitor their own comprehension, and to use various fix-up procedures if comprehension is not occurring (e.g., rereading; requesting help, looking words up in the dictionary)

According to Shanahan and Shanahan, "in literacy development, progressing higher in the pyramid means learning more sophisticated but less generalizable skills and routines" (T. Shanahan & Shanahan, 2008, p. 45). The authors assert that students often do not possess the appropriate literacy skills to construct knowledge. The authors explain that the image of the pyramid not only represents the more specific literacy demands become, but also the "declining amount of instructional support and assistance that is usually provided to students as they progress through the grades" (T. Shanahan & Shanahan, 2008, p. 46).

Shanahan and Shanahan do not argue against commonalities among reading in disciplines, but rather through the ways in which certain knowledge is privileged, synthesized, and used to construct new understanding, "there are differences in how the disciplines create, disseminate, and evaluate knowledge, and these differences are instantiated in their use of language" (T. Shanahan & Shanahan, 2008, p. 48). In order to determine the ways in which members of a discourse community create and

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build knowledge, the Carnegie project in which this article is centered on, was created.

The project was one of many funded by the Carnegie Corporation in order to investigate ways adolescent literacy might be improved. This particular project sought to "rethink the basic curriculum of adolescent literacy instruction, particularly with regard to reading comprehension strategy instruction within the disciplines" (T. Shanahan & Shanahan, 2008, p. 46). The study began its first year working with representatives in the fields of math, chemistry, and history. Each discipline included two representatives from each of these categories: university professors, teacher educators, high school teachers, and literacy experts (the authors). This study is teased out in greater detail in an "Analysis of Expert Readers in Three Disciplines: History, Mathematics, and Chemistry" (C. Shanahan, Shanahan, & Mischia, 2011). The researchers describe how participants in those fields approach, work through, and extrapolate information from text. The results showed that although each of the field's experts employed similar approaches or strategies while working through a text (i.e. rereading), the purpose and frequency in which particular strategies were employed often differed. For example, "sourcing/authorship" was mentioned in all three subject areas. Sourcing was integral in history reading and functioned as an interpretative lens. In science, though sourcing was important, it functioned more as way to make a selection of text not necessarily as a way to analyze its credibility (at least not immediately). Math, on the other hand, felt authorship was not nearly as important as what the paper and results actually showed, mathematically speaking (C.

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Shanahan et al., 2011, pp. 405–408). Interestingly, while reflecting upon the idea of sourcing, the researchers reported that the chemists thought it “...better that readers focus on coming to terms with the unfamiliar scientific information...but also in their stated beliefs that school science time should not be devoted to critical analysis of science texts-texts, that they note, should be ‘nearly authoritative’” (C. Shanahan et al., 2011, p. 422). This is an interesting finding to note as it points out the importance of reading as a novice (i.e. a student or someone new to the field) and reading as an expert (i.e. someone working and/or researching in the field).

Why Might Content Area Reading Strategies and Disciplinary Literacy be Presented as “Either/Or” Propositions?

While some argue in favor of a disciplinary literacy stance due to the lack of specific discipline-specific approaches that generalizable, non-specific content area reading strategies encourage (Lee & Spratley, 2010; Moje, 2008; T. Shanahan & Shanahan, 2008, 2012), others argue in favor of a balance between both approaches, contending that struggling readers are still in need of foundational reading skills (Brozo, Moorman, Meyer, & Stewart, 2013; Faggella-Luby, Sampson Graner, Deschler, & Valentino Drew, 2012).

The idea that people approach a text differently is not new, but the way in which we are talking about those differences is. The focus on disciplinary literacy goes beyond the nuances in language, though that is certainly a major part of it. Disciplinary literacy focuses not just on how a text says something or what a text says, but the way in which knowledge is constructed and built within a discipline. Supporters of this stance view it as surpassing understanding the words on the page. They want students to be able to think, communicate, read, and write in ways that are similar to how those actively participating in those fields might. Some have felt that is not the right approach because our educational system is not set up to be exactly like a college. In response to Elizabeth Moje's (2010) "Foregrounding the disciplines in secondary literacy teaching and learning: A Call for Change," Rafael Heller (2010) points out that high schools are not "unquestionably disciplinary in nature" (p.268) and "that there are useful distinctions to be made between the middle and high school

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content areas and the academic disciplines" (p.268). Heller acknowledges that Moje, too, concludes high school classrooms may not currently function like college classes, but perhaps they should. Heller, in contrast argues, "...rather than trying (and, inevitably, failing) to make secondary reading and writing instructional more like postsecondary literacy instruction, why not ask whether there is something to be gained by defining secondary literacy as a category unto itself?" (p.270). Heller's supports his point by stating that colleges usually require students to declare one or two focuses, and "even then, students are not expected to arrive on campus already having been trained in the disciplinary discourse" (p. 270). Heller advocates for secondary schools to be a place where students can be given the

Opportunities to read, write, discuss, and argue about matters of civic, political, and personal importance, and to do so in ordinary, non-technical language, without having to defer to specialists possessed of technical knowledge and jargon (p.271).

Interestingly, Heller supports the notion that reading, writing, thinking, and discussing should not be so generalized that it is devoid of any connection to a particular content area. However, he feels this can be accomplished by "teaching discursive flexibility and teaching metadiscursive awareness-by assigning students to read, write, discuss, and debate texts that only hit at the kinds of disciplinary language, presentation, and content that are the stuff of college majors" (p.272). Moreover, Heller astutely points out that many texts already exist that are "not so overly disciplinary, allowing nonspecialists to read, enjoy, and respond to

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them,"(p.272) such as articles discussing science topics featured in a popular magazine.

To be fair, Moje responded to Heller's counter-argument by presenting one of her own. Most notably, she clarifies the aim of disciplinary literacy is not to make all students experts in a particular field, that it is "not about producing junior literary theorists, historians, scientists, or mathematicians" and it instead aims to provide students "with the opportunity to engage in the kinds of knowledge production and representation, on a limited scale, of course, that members of the various disciplines enact on a regular basis"(Moje, 2010, p. 275)Most importantly, in her conclusion, Moje acknowledges the work teachers have already been doing and instead focuses on literacy educators, "be we [literacy educators] need to first understand that literacy instruction at the secondary level should be in the service of learning in the subject areas and that all students-not just those who are assured of advancing to postsecondary education-have the right to become critical thinkers across the curriculum" (p. 277).

Others have also challenged the idea that disciplinary literacy should replace generalizable reading strategy instruction. Some researchers argue that teaching from a disciplinary literacy stance will widen the gap for struggling readers. In their article "Building a House on Sand: Why Disciplinary Literacy Is Not Sufficient to Replace General Strategies for Adolescent Learners Who Struggle," authors Michael N. Faggella-Luby, Patricia Sampson Graner, Donald D. Deschler, and Sally Valentino Drew (2012) argue that there is promise in taking a disciplinary literacy approach to

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"improve depth of content area knowledge" but that it "cannot replace general strategy instruction for adolescent learners who struggle with reading and writing" (p.70). The authors assert that struggling readers lack foundational skills, something they believe a disciplinary literacy does not address. In order to test their theory, they reviewed meta-analyses from 2007-2010 regarding the efficacy of reading strategy instruction and struggling readers. It is important to note that the authors acknowledged that none of studies focused specifically on disciplinary literacy. Meta-analyses were included in the review because the authors contended that "their broad focus on interventions for struggling learners should capture any discipline-specific interventions studies with this population" (p.73).

Of the studies reviewed, the authors found that "of more than 150 articles examined on reading and writing strategy instruction involving struggling learners, only 12 involved any methods that could be coded as offering discipline-specific strategy instruction" (p.76). As a result of this analysis, the authors posit that there is not enough evidence to "justify a sole reliance on discipline-specific strategies to improve outcomes for struggling adolescent learners" (p.76) whereas years of research supports the "efficacy of instruction in the use of general strategies in approaching and solving problems for students who struggle in learning" (p.77). In summation, the authors conclude that more research needs to be conducted regarding the efficacy of disciplinary literacy before teachers abandon teaching general reading strategy instruction. In addition, and perhaps most interesting, the authors' state:

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Content teachers are masters of critical content within their disciplines. However, a benefit of embedding general strategies into their classrooms is that content teachers can draw upon the expertise of speech-language pathologists, special educators, and reading specialists. In this way, content teachers who lack the literacy expertise to teach reading per se can rely on educators who do have strong literacy backgrounds...content teachers, then, can focus on teaching the disciplinary literacy features that can inform students about how to read varied disciplines (p.79).

It would seem, then, that the Faggella, et al. are not arguing against teaching the features of disciplinary literacy, but rather, seem to support a collaboration between content teachers and the literacy teachers in order to better support all students through providing both general and discipline-specific supports.

Other researchers have raised concerns about struggling students in classrooms that teach from a disciplinary literacy stance. In one such article, “Content Area Reading and Disciplinary Literacy: A Case for the Radical Center” (Brozo et al., 2013), the authors present counter-arguments in regard to the criticism many disciplinary literacy advocates have regarding general reading strategies. The authors assert that one of the arguments against general reading strategies centers on teacher resistance. In response, the authors state,

In our own experience we have come to recognize that resistance is often related to how generic strategies are offered to teachers. If they are forces on teachers blindly and uncritically then resistance may be more likely. If

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offered with sensitivity to context, teacher agency, and purpose, then there is likely to be less resistance (Brozo et al., 2013, p. 355).

The authors provided several examples of powerful experiences in which teachers used what some would consider general reading strategies in order to help students better understand, and function as part of, a disciplinary community. Interestingly, the anecdote shared involves a teacher using a RAFT strategy successfully in which rather than using to frame writing, the teacher asked students to “create dioramas of the systems of the body and then assume the role of docents guiding ‘museum goers through lungs, intestines, and arteries’” (p.355). It should be noted that according to the research previously discussed in this paper, that Jetton and Lee (2012) would likely consider the RAFT framework as an instructional strategy intended to engage students in strategic reading processes such as visualization, summation, and contextualization, but not a reading strategy in and of itself.

The second argument presented by the authors in response to critiques regarding general reading strategies pertaining to the claim that “the real goal of disciplinary instruction is to develop in students the capacity to think, read, and write like an insider or expert, and that generic literacy strategies are inadequate tools for meeting this goal (Moje, 2008; Shanahan & Shanahan, 2012)” (Brozo et al., 2013, p. 355). In response, the authors counter argue that generic reading approaches “can, indeed, be of infinite value to students when content area teachers and literacy specialists engage in thoughtful dialogue about how to contextualize these strategies” (Brozo et al., 2013, p. 355). The authors conclude by recognizing the conversation

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around content area literacy has moved beyond the idea that every teacher is a teacher of reading and this presents great opportunity for conversations around meeting the needs of all students, however, the authors contend that “this dialogue should focus on how to teach in ways that build on what we have learned about strategy instruction *and* create classroom activities that highlight the process that discipline experts use to engage in their disciplines” (Brozo et al., 2013, p. 356).

As previously discussed, those in favor of moving toward a more discipline-specific approach emphasize the importance of privileging the ways in which knowledge is built in different disciplines. As stated by Timothy Shanahan and Cynthia Shanahan (2008),

Historically, instructional efforts in literacy have focused on highly generalizable skills and abilities, such as decoding, fluency, and basic comprehension strategies that can be applied to most texts and reading circumstances across the content areas. This is reasonable with younger children, but it becomes increasingly problematic as students advance through the grades because many literacy skills and texts are highly specialized (Shanahan & Shanahan, 2008, p. 57)

The authors conclude by recommending that greater emphasis be placed on secondary teacher education programs. In addition, the authors argue for literacy certification standards for content area teachers as well as “closer relationships between the faculties of education and the liberal arts and sciences (who too often separately prepare these teachers), and sufficient resources to allow preservice

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teachers to practice their teaching in varied disciplinary situations and classroom contexts” (Shanahan & Shanahan, 2008, p. 57).

Elizabeth Birr Moje (2008) concurs with Shanahan and Shanahan (2008) in her conclusion and recommendations as well. Moje, however, takes it a step further and calls for a reimagining of secondary learning through “requiring conceptual changes in our definitions, cultural changes in our practices, and structural changes in the enduring institutions of the secondary school and secondary teacher education” (Moje, 2008, p. 105). For example, Moje argues that it is important for students to “come to understand that knowing how knowledge is produced is as important as access to knowledge itself” which would, therefore, change our focus “toward understanding how texts represent both the knowledge and the ways of knowing, doing, and believing in different discourse communities” (Moje, 2008, p. 103).

One of the most interesting reports in support of both reading strategy instruction and a disciplinary literacy approach can be found in the aforementioned Carnegie report, “Reading in the Disciplines: The Challenges of Adolescent Literacy” (Lee & Spratley, 2010). In the “Time to Act” section, the authors conclude that “there are many potential areas of instruction that can have a rippling effect for the expansion of readers’ repertoire of skills, including pre-reading, predicting, testing hypotheses against the text as it unfolds, asking questions, summarizing, etc. Instruction can also build prior content knowledge and vocabulary, as well as a broad knowledge of syntax” (p.16). The authors refer to a figure included on the page in which generic reading strategies, such as “monitor comprehension” and “pre-read”

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are listed on the left and discipline-specific reading strategies, such as “build prior knowledge” and “build specialized vocabulary” are listed on the right. The authors essentially took a list of reading strategies and demonstrated how those might function differently while reading a content-area text. The authors conclude with a list of current work occurring around the country in regard to disciplinary literacy and adolescent readers. Some of the projects utilize technology to help students learn to annotate science texts (Lee & Spratley, 2010, p. 19), some, such as the Cultural Modeling Project, seek to identify

The kinds of strategies and concepts that readers need in order to interpret canonical literatures over a range of national traditions (Lee, 2007). The Cultural Modeling Project designs interventions that draw on relevant knowledge that ethnic minority students develop in their out of school experiences to scaffold rich literary reading (Lee, 1995a). As with the other subject matter specific interventions, the Cultural Modeling Project makes explicit what good readers need to know...(Lee & Spratley, 2010, p. 19).

In What Ways, If at All, Does a Disciplinary Literacy Approach Impact Student Learning in the Academic Core, Grades 6-12 and What are the Implications for Teachers?

Many of the studies reviewed provided classroom examples of the disciplinary literacy approach in action, or had suggested what this approach might look like in practice. However, very few reported empirical data showing the impact on student learning. For example, a recent study titled “Using Disciplinary Literacy Strategies to Enhance Student Learning” by Terrie Dew and Susie Teague (2015), utilized observations and anecdotal notes to review the effectiveness of embedding discipline-specific strategies in a science classroom. The study reported the results of a two year action research study in which teachers across 10 middle schools implemented discipline-specific strategies in order to determine how the use of disciplinary literacy strategies impacted student learning, if at all, in math and science classes. Through this project, teachers investigated “the use of reading, writing, and dialogue strategies to promote the comprehension and retention of content, as well as formative assessment of learning” (p. 33). According to this study, this approach requires both purposeful selection *and* placement of disciplinary strategies within the lesson, “Teachers in the IQ-MS project have learned it is the intentional planning for use of literacy strategies during their instruction that best supports the teaching and learning of science content” (p. 34).

Teacher participants felt the intentional matching of a strategy to the learning outcome was helpful and increased student understanding. For example, if the

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teacher's goal was to have students summarize a chapter or passage, a GIST protocol proved to be an effective strategy to help students reach this goal. Teachers then modeled the strategy and provided appropriate scaffolds while students practiced applying the strategy.

Interestingly, this action research study employed an instructional strategy, the GIST tool, to assist students in determining importance and summarizing the text. Many would consider this a general reading strategy and not a disciplinary literacy practice essential to building knowledge in the sciences. Perhaps the application is disciplinary in nature, but this protocol is certainly not confined to science. Furthermore, one might argue that students could very well have summarized the article without deepening their understanding of the underlying scientific concepts, something proponents of disciplinary literacy warn happens all too often in secondary classrooms.

In his groundbreaking book linking literacy and math titled *Comprehending Math: Adapting Reading Strategies to Teach Mathematics, K-6* Arthur Hyde (2006) describes the importance of asking questions in math class and creating a community in which posing questions is welcomed and encouraged. Hyde asserts that when students hypothesize and pose questions about possible answers to math problems, it requires the student to activate background knowledge, consider multiple possibilities, and thoughtfully approach a problem rather than waiting for the teacher to explain the problem. One such way Hyde suggests teaching this is grounded in literacy theory, “there are several ways of helping students learn how to ask questions

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that the reading folks have found very useful...the teacher thinks aloud as she reads and models her own use of a particular strategy with the whole class..." (p.18).

Hyde states that all too often in math classrooms, a single correct answer is valued more than the reasoning and thinking behind the answer. To strengthen students' capacity to create mathematical knowledge and reasoning, educators have to help students become literate in the ways in which they might think about and solve problems.

In chapter 3, "Visualization," Hyde discusses visualization in a way that goes beyond picturing mental images or shapes, as one might assume would occur in math class. Hyde explains that it's often helpful to take a visual scenario students are familiar with, and create a problem that otherwise would have felt abstract. In one of his examples, he shares a problem in which he had students envision when the top five Chicago Bulls players are announced as they enter the court. Hyde walks students through the problem while acting out parts with other students and then states the problem relating to how many high-fives occurred during the line-up (pp.83-86). What's fascinating about this problem is not only does Hyde provide a visual in which to contextualize the math problem, but he tells a story. Following this, Hyde has the students complete a "K-W-C" (Know, Want to Know, Constraints) and work through the problem whole group and in small groups. The students in the example are clearly focused on coming to a conclusion together.

Hyde's variation on the K-W-L is purposeful, and discipline-specific. It's not a change that could be applied to social studies. However, the underlying strategic

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actions behind it, organizing information in a way that helps a reader better identify what is already known and most important and what is yet to be known, are common across disciplines.

Though there is little empirical data proving that a disciplinary literacy approach promotes student learning, or that it is even favorable to content area reading strategies, all studies point toward a need for stronger teacher preparatory programs and stronger collaborations among literacy experts and content area teachers as well as literacy educators and content area teacher educators. In Fang's (2014) article "Preparing Content Area Teachers for Disciplinary Literacy Instruction," he advocates for changes to teacher preparatory programs in service of a disciplinary literacy approach. He states that:

An emphasis on disciplinary literacy presents new challenges for teacher education because it requires deep understanding of both disciplinary content and disciplinary habits of mind. Few content area teacher educators (CTEs) or literacy teacher educators (LTEs) have been trained to be specialists in both domains, however. This augurs the need for LTEs to collaborate with CTEs and to restructure their content area literacy course (p.444).

Fang particularly focuses on the role of LTEs and how it is important they possess content knowledge as well as pedagogical knowledge such as an awareness that "a key component of this knowledge is deep understanding of the role of language and literacy in disciplinary learning and socialization" (p.445).

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Additionally, since texts at the secondary level introduce unique challenges, students need to develop more sophisticated reading strategies, which mean teachers need to be better prepared to do so. Fang recommends that LTEs “become familiar with a range of discipline- specific language/ literacy strategies and practices” (p.446) in order to support content area educators understand “how language and other semiotic uses vary across disciplines in ways that are functional for making discipline- specific meanings” in order to help teachers learn how to develop strategies for supporting students and helping them to “cope with the language demands of disciplinary reading and writing” (p.446).

In his conclusion, Fang frames the shift from content area reading strategies to that of a disciplinary approach as a paradigm shift requiring teacher educators to collaborate more and reimagine their courses in support of “students’ acquisition of disciplinary content and habits of mind” (Fang, 2014, p. 448). Fang reiterates that instruction relating to literacy is the charge of all, not just literacy educators, teachers, and teacher candidates in order to reach the ultimate goal, “to support students’ disciplinary learning and socialization” (p.448). To do so, Fang asserts we must change how we view the roles of language and literacy:

Instead of seeing language/literacy merely in a supportive role serving content learning, we should consider the two as not only central to but also equal partners in disciplinary learning and socialization because they are inextricably intertwined in the development of modern disciplines (p.448).

Chapter 4: Conclusions & Implications

The review of literature regarding content area reading strategies/literacy and disciplinary literacy demonstrates a need for additional empirical research as well as a stronger consensus of working definitions of each. Several studies demonstrated a deep understanding of strategic reading strategies through applying in a discipline specific way. Other studies discussed at length the ways in which historians and sciences build knowledge in their respective disciplines, but often failed to provide clear guidance in how to translate that learning into high school appropriate lessons.

There were three common themes in nearly every study: the importance for stronger, more discipline-specific teacher preparation and support in literacy instruction, and stronger, more collaborative (between literacy educators and content area educators) programs.

Another common theme, though not always explicitly stated, was the importance of intentionality when selecting a strategy to introduce to students. The more intentional a teacher was when using any kind of strategy or approach, students tended to comprehend text better.

Positioning disciplinary literacy and general reading strategies in competition has many dangers. First, teachers may feel frustrated with yet another mandate regarding literacy. Second, it undermines years of research demonstrating the value of purposefully introducing and modeling reading strategies when appropriate (i.e. when a text is challenging). It also might help students to see when strategies are generalizable (i.e. using various skills-context clues, etymology, or utilizing

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resources-to determine word meanings) and when a more discipline-specific critical stance is called for. Rather than an “either/or,” all students would likely benefit from teachers flexibly going between general strategies and discipline-specific strategies. Teachers should continue to carefully consider why one strategy and related instructional approach is appropriate for a particular text. Researchers in the field concur, “Although the disciplinary literacy framework is well reasoned, the need for additional confirmatory evidence as to its efficacy with at-risk students is considerable. Therefore, the most practical suggestion for moving forward is to consider how both types of strategy instruction are necessary, rather than placing them in competition with each other or advocating for one to replace the other” (Faggella-Luby et al., 2012, p. 79).

The field of literacy education needs stronger, more targeted secondary education literacy programs that links literacy experts with content area experts. In schools, a stronger, more intentional collaboration between content area teachers and reading specialists needs to occur in support of disciplinary literacy while still providing support to struggling students through helping them improve their foundational reading skills, “the importance of preparing prospective teachers for standards-based educational context cannot be overstated...no doubt, these novices would be well served by having some familiarity with the disciplinary literacy standards” (International Literacy Association, 2015a).

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Lastly, a consensus in the field about the definitions of content area reading and a disciplinary literacy would be beneficial for continued dialogue since a review of studies shows confusion at times among the terms within the field.

Disciplinary literacy is a promising framework in that it privileges and honors the uniqueness of each content area, something most content area teachers would likely celebrate. However, used in conjunction, when appropriate, with appropriate, well-selected and purposed “general” reading strategies, the knowledge gained from the past few decades, and especially the last, regarding adolescent literacy can be honored as well. Since so many strategic practices, such as helping students to activate prior knowledge through various instructional strategies as knowledge inventory or K-W-L have been used in content areas, a better goal might be to revisit their original intent and help teachers use these practices to deepen content knowledge and help students learn about the attributes and specific language demands of specific discipline.

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