

C O M M E N T A R Y

Foregrounding the Disciplines in Secondary Literacy Teaching and Learning: A Call for Change

This month's issue of the Journal of Adolescent & Adult Literacy adds an audio dimension to the online experience. Visit the JAAL home page and click on the current issue. Accompanying the Commentary is a podcast in which the author, Elizabeth Birr Moje, pursues the question of Disciplinary Literacy based on her extensive research and experience in the field. Both the article and the supplementary audio file are free and downloadable for all readers.

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The last five years have seen unprecedented attention given to the literacy achievement of adolescents in secondary schools in the United States. Spurred by the release of flat or declining reading scores on national tests (e.g., Donahue, Daane, & Grigg, 2003), policy initiatives such as the Striving Readers program have not only promoted supplemental interventions for identified struggling readers but also have sought methods for improving the literacy instruction of secondary school subject area teachers. In many cases, solutions have focused on training such teachers to use literacy practices and to teach reading strategies within their content instruction. These practices and strategies, although important to improving literacy learning, overlook an important question: What does literacy instruction *do* for learning in the subject areas? Moreover, what does it really mean to integrate literacy instruction with those areas? What does it mean for teachers? What does it mean for schools? And what does it mean for the young people who are the targets of such instruction?

In this commentary, I suggest that it may be most productive to build *disciplinary literacy* instructional programs, rather than to merely encourage content teachers to employ literacy teaching practices and strategies. Some may question the focus on disciplinary literacy, especially at a time when new forms of text and new literacy practices seem to abound. I have pursued the question of disciplinary literacy teaching for two reasons. First, in the current sociopolitical context wherein secondary subject area teachers are being exhorted to take up literacy teaching practices (often called *strategies*) and literacy coaches are being groomed for work in middle and high school classrooms, it is incumbent on secondary school literacy researchers to argue for a complex view of disciplinary literacy instruction (cf. Lee & Spratley, 2006; Shanahan & Shanahan, 2008).

Second, scholars in the disciplines themselves are taking up new media and literacy practices. English departments at major institutions, for example, analyze popular cultural texts such as online fanfiction as almost as eagerly as they embrace canonical texts of English literature (e.g., Jenkins,

2006). Natural science disciplines employ the newest and most advanced technologies for modeling scientific phenomena. Historians explore digital archives and increasingly employ visual representations to produce rich historical accounts. In sum, new media and new literacy practices are important to the disciplines. Thus, it may be that beginning with disciplinary practices in efforts to bring literacy instruction into secondary schools will better position secondary school researchers, teacher educators, and teachers to draw from the new texts and literate practices of adolescent students' lives as well.

Finally, as Lee (2007) has eloquently argued, knowledge and skill in the subject areas is essential to supporting young people in becoming active participants in a democratic society. Although literacy educators and researchers acknowledge the value and power of the knowledge, practices, and texts young people bring to school, it is also critical that we work to expand youth knowledge, practices, and texts as a function of education. Young people do not need to go to school to learn what they already know; content literacy instruction can help youth gain access to the accepted knowledge of the disciplines, thereby allowing them also to critique and change that knowledge.

As Bain (2006) argued, for example,

Conducting historical investigation demands knowledge, skill, and “a modicum of irreverence toward the received wisdom,” because, “if you are willing to accept unquestioningly what ‘everyone’ says, then the story is over before the investigation begins.” (p. 2080, citing Ravitch, 2003)

Disciplinary learning is, from Lee's and Bain's perspective (and that of many others who advocate for a disciplinary stance toward secondary school learning) a form of critical literacy because it builds an understanding of how knowledge is produced in the disciplines, rather than just building knowledge in the disciplines.

In what follows, I present some historical background on secondary school literacy research (variously labeled *subject area* or *subject-matter* or *disciplinary literacy* depending on the scholar and the time period) and on the constraints on secondary subject area literacy integration. I then return to the idea of reconceptualizing learning and literacy in the subject areas by

starting with the disciplines and subjects themselves. Within that discussion, I discuss key components of learning, using, and producing texts in the subject areas of the secondary school.

Constraints on the Integration of Literacy Instruction in the Subject Areas

The exhortation to integrate literacy instruction and the various subject areas of the secondary schools is not new. Since the early 1900s, educational practitioners, researchers, and policymakers have grappled with questions about the role of instruction in reading and writing in the secondary school. For almost 50 years, educators interested in secondary school literacy have experimented with strategies designed to help students learn to read and write with proficiency in the subject areas (Alvermann & Moore, 1991; Moore & Readence, 2001). Secondary literacy researchers have examined how strategies work in classrooms, why teachers do or do not enact the strategies designed by content literacy researchers, and whether students transfer their use of strategies in one subject area to another (Bean, 2000; Phelps, 2005).

We have studied teachers' and students' literacy practices, attempting to understand what motivates teachers' decisions to highlight literate practice in various subject areas, or to analyze why and how young people read and write various kinds of texts. Although more recently many researchers have turned to questions about the role that literacy—and, increasingly, “new literacies”—play in the in- and out-of-school lives of adolescents, questions about integrating literacy instruction and the subject areas have not been forgotten. Indeed, recent policy initiatives suggest renewed attention to students' school-based literacy skills, making questions about the integration of literacy and the subject areas more salient than ever.

With this research base, it may seem odd that secondary schools and teacher education programs have not been more successful in developing integrated secondary literacy programs. Teachers and administrators are aware of the need to do something different in classrooms, and teacher educators are generally committed to teacher education around content literacy. Why, then, has it been so difficult to integrate

literacy teaching with the secondary school disciplines in any widespread or sustained fashion?

Historically, the reasons offered for the failure to successfully teach literacy in secondary schools range from explanations rooted in knowledge, beliefs, or cultural values among teachers and students to the structures of secondary schools and the dominance of subject area norms (see Alvermann & Moore, 1991; Moore, 1996; O'Brien, Stewart, & Moje, 1995). Although my basic premise is that the reason for a lack of integration is that secondary content literacy has focused more on literacy than on the subject areas (cf. Conley, 2008), I review each of these points briefly because they each have important connections to what I argue is the key challenge, that of reconceptualizing how we think of disciplinary learning and literacy instruction.

Students' Knowledge, Beliefs, and Practices: Learning Literacy Against the Grain

O'Brien et al. (1995) argued that *students'* beliefs, values, and knowledges support and constrain teachers' practices and the dominant structures of the secondary school. Few students, for example, question the fact that little reading is assigned in their mathematics classrooms. Few students expect to construct charts and graphs about novels they read in English class. Students bring ideas about what counts as learning to their disciplinary classrooms, and teachers make decisions about classroom practices in interaction with students and in the context of the secondary school as an institution (Moje, 1996).

Students also engage in literacy practices and learning outside of school, learning they consider powerful and important. Typical approaches to secondary school content learning often overlook the learning and literacy practices that youth engage in apart from their school-based, content learning (e.g., Hull & Schultz, 2002; Leander & Lovvorn, 2006; Lee, 2007; Moje, 2002; Tatum, 2008).

Teacher Knowledge, Beliefs, and Practices: Resistance to Content Literacy

A significant body of research over the last 20 years has demonstrated that preservice teachers are skeptical about the efficacy of teaching and learning strategies

offered by content literacy research, and inservice teachers rarely enact such strategies in their subject area classrooms (Alvermann & Moore, 1991; Holt-Reynolds, 1992; O'Brien & Stewart, 1990; Ratekin, Simpson, Alvermann, & Dishner, 1985). According to these and other studies, pre- and inservice teachers often argue that the strategies are time consuming, especially given the pressure they feel to cover content information and concepts. In addition, pre- and inservice teachers argue that even if they had more time, the strategies offered by content literacy researchers are not particularly efficient for the kinds of classes they teach and for the demands they face as purveyors of content. Many argue for a "pedagogy of telling" (Sizer, 1984; see also O'Brien et al., 1995), which allows them to cover vast amounts of information in short periods of time.

In addition, a number of teachers feel that the strategies place an unfair burden of teaching reading on them when they should be teaching content (Readence, Bean, & Baldwin, 1989). In other words, teachers hold cultural beliefs about the appropriate practices of their respective disciplines. Many science, social studies, and mathematics teachers in my teacher education courses initially reject the idea that they are the best people to teach the conventions of literacy in their disciplines, arguing that language education is a discipline unto itself. It is not uncommon, for example, to hear teachers in such subject areas argue that they should not be expected to assess a student's ability to construct a well-argued essay for their class: "What matters is the content," they say, "I'm not the English teacher." By contrast, English language arts teachers—particularly at the high school level—might argue that their discipline revolves around understanding themes in literature or rhetorical devices in composition, not around acts of reading and writing in other disciplines.

School Structures and Subject Matter Dominance: Time, Space, and Departments as Obstacles to Secondary School Literacy

Teacher knowledge and beliefs about content and about literacy are not the only explanations for the failure to integrate literacy and the subject areas, however. In an attempt to explain the obstacles to

secondary school literacy instruction, O'Brien and colleagues (1995) argued that the secondary school as an institution cannot be ignored. More to the point, teachers do not operate in a vacuum: The structures of the secondary school, an amazingly stable and enduring institution that has changed little over the course of its existence (Cuban, 1986), constrain and support the ways that teachers and students carry out their day-to-day classroom practices.

In particular, the division of secondary school learning into subject areas drawn from the disciplines reifies a belief (and constructs sets of practices) that implies knowledge is inherently different in different disciplines. Subject areas become subcultures of the secondary school, with their own ways of knowing, doing, and believing. What's more, the structures of time and space shape how subject areas are used and how knowledge gets constructed within them; science classrooms filled with lab tables, mathematics classrooms covered with chalkboards, and English classrooms with tables for writing groups all suggest that particular textual practices are valued or allowed in such spaces. Moreover, structured class periods suggest that young people should simply march through the day open to information that will be offered in the most efficient and painless manner possible, supporting the pedagogy of telling.

These constraints, even taken together, however, fail to pinpoint a central problem in secondary school literacy: Without careful attention to what it means to *learn* in the subject areas and what counts as knowledge in the disciplines that undergird those subjects, educators will continue to struggle to integrate literacy instruction and those areas. That is, in the past, secondary literacy has been approached from the standpoint of literacy theory, rather than from the standpoint of the disciplinary learning theory. What we have not done is to examine and challenge what it means to *learn* in the subject areas or disciplines. We have not acknowledged that the disciplines themselves are replete with cultural practices and can be considered discourse communities students must navigate. Finally, we have not thoroughly conceptualized language and literacy practice as an integral aspect of subject area learning, rather than as a set of strategies for engaging with texts.

Questions about the struggle to integrate the teaching and learning of literacy with secondary school subject areas beg additional questions. What does it mean to talk about *literacy* in the disciplines from which subject areas are derived? Does literacy simply refer to the cognitive processes of decoding, comprehending, encoding, and composing informational print texts? Or is literacy in different disciplines something more complex? In particular, what does it mean to engage in literate practice in disciplines or subject areas?

This turn toward literacy as an essential aspect of disciplinary learning, requires the acceptance of a key premise that “the disciplines are constituted by discourses” (Luke, p. xii, 2001; cf. O'Brien, Moje, & Stewart, 2001). This premise assumes that producing knowledge in a discipline requires fluency in making and interrogating knowledge claims, which in turn require fluency in a wide range of ways of constructing and communicating knowledge. Literacy thus becomes an essential aspect of disciplinary practice, rather than a set of strategies or tools brought in to the disciplines to improve reading and writing of subject-matter texts.

A reconceptualized view of secondary school literacy suggests that a person who has learned deeply in a discipline can use a variety of representational forms—most notably reading and writing of written texts, but also oral language, visual images, music, or artistic representations—to communicate their learning, to synthesize ideas across texts and across groups of people, to express new ideas, and to question and challenge ideas held dear in the discipline and in broader spheres.

An Alternative Conception of Literacy and Learning in the Subject Areas: Disciplinary Literacies

If those interested in secondary school education were to reconceptualize learning in the subject areas as a matter of learning the different knowledge and ways of knowing, doing, believing, and communicating that are privileged to those areas, then perhaps a more compelling argument for integrating literacy teaching and subject area teaching could be made. It may even be the case that no argument would need to be made,

but rather, that teaching young people how to access, interpret, challenge, and reconstruct the texts of the disciplines would become accepted practice. The work of reconceptualizing will require that teachers, teacher educators, and researchers alike recognize the role of three central aspects of disciplinary learning: discourses and practices, identities and identifications, and knowledge.

Discourses and Practices in Disciplinary Learning and Literacy

To accept this reconceptualization, however, requires a radical rethinking of what constitutes a discipline and, in turn, a secondary school subject area. A number of theorists have argued that the subject areas can be viewed as spaces in which knowledge is produced or constructed, rather than as repositories of content knowledge or information (Foucault, 1972; Halliday & Martin, 1993; Hicks, 1995; Lemke, 1990; Luke, 2001). Even more important, knowledge production in the disciplines needs to be understood to be the result of human interaction.

Knowledge production in the disciplines operates according to particular norms for everyday practice, conventions for communicating and representing knowledge and ideas, and ways of interacting, defending ideas, and challenging the deeply held ideas of others in the discipline. For example, in science, a norm of practice is that researchable problems be carefully defined and systematically and repeatedly studied before claims can be made about phenomena. Particular forms of evidence—typically empirical or observable forms that derive from experimental study—are required to make claims.

In history, by contrast, the norms of practice differ. Historians, like natural scientists, study researchable problems systematically, but the means of obtaining evidence and the forms that provide warrant for claims differ. The time period in which a claim is situated matters tremendously to an historian; thus, temporal context is one dimension—among many other dimensions—a reader of historical texts must know, uncover, or examine as she or he reads (Bain, 2000; Wineburg, 1991). To read a history text requires particular metacognitive and cognitive processes to come into play, processes that are demanded

by the social and cultural practices, or the discourses, of the discipline itself (Wineburg, 2005; Wineburg & Martin, 2004). According to Bain (2006), for example, “Historians have long defined history as investigation, casting themselves in the role of detectives seeking plausible explanations for historical events, trends, and controversies” (p. 2080). This investigative work requires interactions with texts, but these interactions take on specific practices unique to the work of historians (Shanahan & Shanahan, 2008; Wineburg, 1991).

Mathematicians engage in what seem like similar practices of questioning, contextualizing, representing, proving, and consulting (Bass, 2008), but the actual practices and forms of representation used to convey concepts in mathematics are radically different from those of history. Mathematicians would not consider themselves investigators, but would rather be seen as problem solvers or proof seekers who work through the logic of a problem context to arrive at claims regarding mathematical abstractions. How mathematicians read texts also differs from the reading practices of other disciplines (Shanahan & Shanahan, 2008). Moreover, how claims are made public differs across subject areas, as are the types of texts produced and the role that various texts play in providing warrant for claims (Bass, 2008).

Part of learning in the subject area, then, is coming to understand the norms of practice for producing and communicating knowledge in the disciplines (Bain, 2000, 2006; Gee, 2001; Hicks, 1995; Lemke, 1990; Moje et al., 2004; Wilson & Wineburg, 1988; Wineburg, 2005; Wineburg & Martin, 2004). Part of that learning also involves examining how disciplinary norms for practice are similar to or different from the everyday norms for practice. Such learning requires understanding deeply held assumptions or themes of the discipline (Lemke, 1990). Equally important is the ability to navigate across the practices and discourses valued in the disciplines and those valued in young people’s everyday lives.

The task of literacy education, relative to these goals of learning the discourses and practices of the discipline, then becomes one of teaching students what the privileged discourses are, when and why such discourses are useful, and how these discourses and

practices came to be valued. For example, in a high school chemistry classroom I studied (Moje, 1996), the teacher, Ms. Landy, routinely reminded students that scientists required accuracy and precision in experimentation. She also stressed organization, prediction, classification, and explanation as hallmarks of scientific experimentation and communication. Although some might question the norms she chose to emphasize (see Moje, 1997), Landy did make explicit certain conventions and assumptions of scientific experimentation. She also used literacy strategies that emphasized those norms. For example, she taught students how to take notes from text and from lectures as a way of organizing the different concepts about which they read and heard. She also taught them strategies for organizing their laboratory investigations in written form. Each of Landy's strategies made organization and precision central to the reading and writing processes in her science classes.

Similarly, in middle-school science classrooms that several colleagues and I have studied, teachers emphasize the scientific practices of data representation, analysis, and interpretation as they teach students how to write scientific explanations of phenomena (Moje et al., 2004). Even as they engaged in inquiry around the phenomena, these teachers helped students learn the literate practices required to make scientific investigation meaningful. Together with students, for example, they constructed criteria for producing scientific explanations, criteria that included the following:

- making a claim
- providing evidence drawn from experimentation or research of others
- reasoning through the evidence back to the claim
- writing the explanation in precise and accurate language

Identities and Identifications in Disciplinary Learning and Literacy

Equally important is the realization that learning in a discipline requires people to enact particular identities, at least at some level. Gee (2007) argued that

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, that is, to see themselves as the *kind of person* who can learn, use, and value the new semiotic domain. (p. 54)

In a typical school day, young people in secondary school are expected to participate in the discourses of the disciplines, to incorporate those discourses with other discourses and identities they experience throughout the day, and to forge, or at least try out, new identities as they take up those discourses (cf. Gee, 2000/2001; Luke, 2001). What this suggests is that teachers of subject areas need to provide young people with opportunities to examine the discourses they are learning in the discipline in relation to the practices, discourses, and identity enactments of everyday life.

In a task designed for a unit on communicable disease (Moje et al., 2004), my colleagues and I asked students to analyze data from a hypothetical experiment designed to test a mother's advice that two young women wash their hands for at least 15 seconds to reduce bacteria growth. In their conclusions, we asked students to both write a scientific claim based on the data and to write what they would tell their mothers about their experiment. As a literacy activity, students had to read data from charts, and then make their claims. An exemplar from one student illustrates one kind of claim (spelling, punctuation, and grammar intact): "They should tell there mom that she was right and they were wrong and they should of believed her in the first place 'cause mama knows best!" (Moje et al., 2004, p. 241). With the opportunity to write two different claims, the assignment makes explicit different kinds of warrants necessary to make convincing claims in different discourse communities.

Knowledge in Disciplinary Learning and Literacy

To fully integrate literacy instruction and the subject areas, however, 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. Moreover, young people will struggle to read complex disciplinary texts without some developed domain knowledge because, as Alexander and Judy (1988) argued, the ability to employ reading strategies is, to a large extent, dependent on knowing something about the subject.

To argue for recognition of the role of knowledge in enacting identities and learning in the discipline is not to argue for a “pedagogy of telling” (Sizer, 1984) that transfers knowledge from the head of the teacher into the student. Indeed, Stevens and colleagues (in press) argue that different forms of knowledge count as knowledge depending on the situation, the temporal context, and the people involved, suggesting that there is no one simple set of knowledge that can be called disciplinary knowledge, thus making rote transfer of knowledge virtually impossible (cf. Stevens & Hall, 1998).

That being said, being able to make sense of texts in the disciplines does require some background knowledge. In a recent teaching experience I observed firsthand the critical role of knowledge in adolescent students’ abilities to make sense of even short segments of primary source texts (Moje & Speyer, 2008). As our students read immigration laws, for example, they needed basic information from immigration history, world geography, political theory, cultural studies, and mathematics, not to mention vocabulary, discursive knowledge, and knowledge of how and when to question texts and search for additional information (what we labeled “pragmatic knowledge”).

The role of knowledge and information as described here has, I believe, often been backgrounded in literacy research and teaching in an attempt to avoid communicating the idea that knowledge should be simply transferred from teacher to learner. This fear of reifying knowledge has resulted in a great deal of talk about disciplinary identity development and strategy instruction without attention to how being a certain kind of person (developing a disciplinary identity) and engaging in strategic practice is dependent on knowing some things about the domain in which one is practicing.

What I argue for here is a way of thinking about constructing knowledge in action or practice. Drawing from their study of engineering students, Stevens and colleagues (in press) suggested that disciplinary learning is a matter of simultaneous intersections of constructing knowledge, identifying with a domain, and navigating different pathways toward goals. They demonstrated that these engineering students developed engineering knowledge in multiple sources and practices, and that the knowledge itself contributed to whether and how they identified as engineering students and, ultimately, as engineers.

To this conceptualization, those interested in developing disciplinary literacy skills might add engagements with text as another key ingredient. That is, we might argue that adolescent students learn in the disciplines by simultaneously navigating through various practices and texts of the disciplines, thus supporting the construction of knowledge in practice and identification with the discipline. Disciplinary texts, however, can be extremely challenging to the reader with little prior knowledge of the discipline, thus producing the conundrum mentioned previously. How does a subject area teacher simultaneously build knowledge and engage students with texts of the discipline? This conundrum points to the importance of considering multiple text types and new media available to the disciplines. Teachers can employ many different forms of representation to construct knowledge of one concept—different genres (e.g., narrative, expository, poetics, music), different symbol systems (e.g., print, graphs, tables), and different semiotic tools (image, sound, and performance). Each of these forms—now readily available through digital venues—can support the construction of knowledge necessary to access the abstract and dense print texts of the disciplines.

Key to preventing the construction of knowledge-in-practice from devolving into the transfer of rote information is providing opportunities for young people to examine how the norms of knowing, doing, and communicating are constructed. Each of these norms is not only an important aspect of “doing” the discipline, but each norm is also socially constructed. That is, the norms are constructed, practiced, and enforced by people; they are not a set of immutable rules that cannot be questioned or changed. Indeed,

members of the different disciplines and professions often reconstruct rules, especially in their day-to-day practices. To learn deeply in a subject area, then, young people need to have access to the ways that conventions of disciplinary knowledge production and communication can be routinely or more explicitly challenged and reshaped; such knowledge gives young people the power to read critically across various texts and various disciplines. Through this access, they can become critical readers and thinkers (cf. Lee & Spratley, 2006).

This is complicated work. In reflecting on his work with high school history students learning to question the authority of classroom texts, Bain (2006) argued,

To talk differently to the sources of classroom authority, students must not only appropriate the tools of the discipline but must also disturb their conventional interactions with classroom authority, assuming new status, role, and voice in relationship to texts and teachers. (p. 2086)

In other words, knowledge, identities, and critical literacy skill develop iteratively; this development requires scaffolding and mediation by teachers who know the content well and understand the role that language and literate practice play in producing knowledge within it.

In sum, we need to reconceptualize subject area learning as a matter of learning new ways of knowing and practicing, not merely as a means to expose students to new ideas or bits of information or to new texts and reading and writing practices. Disciplinary literacy then becomes a matter of teaching students how the disciplines are different from one another, how acts of inquiry produce knowledge and multiple representational forms (such as texts written in particular ways or with different symbolic systems or semiotic tools), as well as how those disciplinary differences are socially constructed. Bain (2000) calls this the generation of an epistemically grounded curriculum and pedagogy, or one in which students come to understand that knowing how knowledge is produced is as important as access to the knowledge itself. The focus moves away from accessing or generating texts only to obtain or produce information, toward an understanding of how texts represent both

the knowledge and the ways of knowing, doing, and believing in different discourse communities.

Preparing Metadiscursive Youth

Just as secondary school teachers do not teach in a vacuum, young people do not learn in one; they encounter many different forms of text and employ many different literate practices throughout a given day. In recently conducted surveys of adolescent literacy practices among youth in one large midwestern U.S. city, the average young person reported engaging in roughly nine different family and community activities outside of school each week, and reported reading books, websites, music lyrics, and magazines several times per week, in addition to the reading they did for school (Moje, Overby, Tysvaer, & Morris, 2008). In other words, these youth routinely negotiated demands for their time and attention. More to the point, the texts they had access to outside of school were often more compelling to them than those they were presented with in school.

Consequently, in addition to reconceptualizing the disciplines as being about learning practices and discourses, developing identities associated with the discipline, and constructing knowledge, subject area teachers may also need to provide opportunities for students to hone their metadiscursive skills. To be *metadiscursive* means that people not only engage in many different discourse communities but also know how and why they are engaging, and what those engagements mean for them and others in terms of social positioning and larger power relations (New London Group, 1996).

Although it is incumbent upon teachers of the disciplines to teach young people how to cross disciplinary and other discourse communities and to be aware of how discourse communities work, we should not ignore the powerful ways that young people already use to negotiate multiple discourse communities and literacies in their lives. A number of studies illustrate that youth demonstrate remarkably flexible, and often metadiscursive, literacy practices in their lives outside of school (e.g., Black, 2005; Finders, 1997; Gustavson, 2007; Hull & Schultz, 2002; Ingalls, 2005; Knobel & Lankshear, 2002; Leander & Lovvorn, 2006; Moje, 2000). What's more, many studies of youth literacy

outside of school demonstrate proficiency among those who do not appear to be proficient readers and writers in school (Alvermann, 2001; Gustavson, 2007; Moje, 2008). These studies demonstrate that the youths' knowledge of and identifications with the domain both support their skill in reading and writing and motivate them to persevere even when confronted with a challenging text or writing task.

It seems, then, that we continue to have much to learn from young people about how we could develop a metadiscursive approach to disciplinary literacy. At the same time, my own work with young people in one urban community (Moje et al., 2008) suggests that youths' transfer of proficient skills from popular texts that interest them—and for which they have constructed extensive domain knowledge in practice—is compromised when they find themselves confronted with texts for which they have little sophisticated domain knowledge and for which they have little context or purpose. This point suggests that discursive navigation and metadiscursive awareness in and across the secondary school disciplinary domains might be shaped by the ways teachers invite learners into disciplinary domains and by the practices we enact for developing practices, discourses, knowledge, and identities.

Persistent Challenges to Developing Disciplinary Literacy Practices

Even with a reconceptualization of secondary literacy instruction as being in the service of subject area learning, the everyday realities that have historically limited the integration of literacy—or in the case put forward here, disciplinary literacy practices—and subject area teaching should not be ignored. Myriad questions arise when one considers how to develop disciplinary literacy teaching practices. For example, what opportunities do teacher education and inservice professional development provide teachers to learn about the discursive basis of their subject areas? How many disciplinary teachers have a deep understanding of the knowledge producing practices of their disciplines? How many secondary literacy teacher educators have that knowledge for each of the different disciplinary majors they might meet in a typical secondary literacy course in teacher education programs?

In addition, secondary school teachers will face challenges at the classroom level with the question of how to support young people as they construct identities across different disciplines. How are teachers to work with a notion of disciplinary literacy as they encounter resistance from students who are quite comfortable with the idea that learning in the subject areas is a matter of memorizing and reproducing information? What “repair work” (Gee, 2007, p. 57) needs to be done to support young people in engaging with the texts of the disciplines? The question of repair work—or the idea that students may enter classrooms and schools with gaps in knowledge, skill, or motivation—operates at multiple levels. For some students, requisite disciplinary background knowledge is lacking and so reading upper-level texts and textbooks is challenging. For others, literate skill is undeveloped, creating a similar challenge but one with a different etiology. Finally, motivation to take on or engage with the identity as historian, scientist, mathematician, or literary critic/writer may be waning as students enter secondary schools with little evidence that disciplinary knowledge or practice is meaningful for their lives.

What is the role of new media (and accompanying literate practices) both in developing domain knowledge and in accessing and representing the knowledge of those domains? As indicated previously, disciplinary scholars have turned increasingly to new media, which demand new literacy practices, to conduct disciplinary investigations. Are those new media available to classroom teachers? What will it take to access those new media? What affordances do the media offer? In what ways might adolescent students be able to teach their teachers how to engage with these new texts?

This last question reminds me of Orellana and colleagues' (2003) analysis of young Latino/a children co-constructing meaning of complex English-language documents with their Spanish-speaking parents: The children could access the language codes of English, but could not make meaning of words and concepts; their parents brought sophisticated world knowledge to the decoding process, and thereby the parents and children co-constructed understandings of complex documents. In the same way, classroom

teachers might be able to learn from their adolescent students' facility with accessing various digital or visually rendered text forms even as they help the students make meaning of the forms by providing historical, mathematical, literary, or scientific background knowledge necessary to fully understand the content of the texts and media.

At a broader level, what school structures need to change to enable teachers to support students as they navigate, critique, and weave together the discourses of the disciplines? The issues of the subject area subcultures, limited opportunities for teachers to work across disciplines, and the implacable structure and timing of the typical secondary school day all work to challenge a metadiscursive approach to content literacy, just as they challenge strategy-based approaches. Indeed, a metadiscursive pedagogy calls for teachers to work across disciplines and contexts outside of school, to develop courses of study that examine ideas from many different disciplinary and domain perspectives as a way of questioning the norms of their primary discipline of study. Without a change in the typical school structures of 50-minute classes, relative isolation of teachers in single classrooms, and confinement of classes within the physical school space, a broad, metadiscursive pedagogy and curriculum will be difficult to develop.

The work and commitment required for developing an integrated approach to literacy teaching and learning in the secondary subject areas is enormous, 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. These constraints do not exist in some sort of hierarchical form (i.e., changes in structures lead to changes in culture or vice versa) and, therefore, each set of constraints needs to be addressed simultaneously as interlocking pieces of the disciplinary/secondary school literacy puzzle. These pieces include teacher educators, school administrators, teachers, researchers, local and national policymakers, and the young people themselves. No one group can act alone. The integration of literacy instruction in the secondary schools is a complex change process that will require collaboration, com-

munication, and a commitment to major conceptual, structural, and cultural changes.

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