Recent scholarship on secondary reading calls for a shift from teaching generic literacy strategies to teaching discipline-specific language and literacy practices (Fang & Coatoam, 2013). This call reflects the growing recognition that literacy instruction in the content areas should aim to promote the development of students’ ability to engage in social, semiotic, and cognitive practices compatible with those undertaken by disciplinary experts and that such advanced literacy development work is best done in the context of disciplinary learning and socialization. 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. This column identifies some of the roles that LTEs can play in this important endeavor.

The Role of Literacy Teacher Educators

Cohort the Literacy Course by Discipline

Most U.S. states now require secondary teacher credential candidates (TCCs) to take at least one content area literacy course as part of their planned program of study (Romine, McKenna, & Robinson, 1996). Traditionally, TCCs from all content areas (e.g., English, science, social studies, mathematics, economics, music, agriculture, arts) are mixed and take the same literacy course together. The course typically focuses on learning the same set of generic literacy strategies (e.g., paraphrasing, SQ3R, concept mapping, and note taking) for application pell-mell to different content areas. Regardless of majors, TCCs read the same textbook(s) and complete the same assignments.

With the new focus on disciplinary literacy, TCCs are cohorted by content areas for literacy instruction so that LTEs can foreground, differentiate, and address the unique literacy demands and habits of mind related to specific disciplines. For example, science uses genres, registers, and literacy practices in ways that differ from history or mathematics (Fang, Schleppegrell, & Moore, 2014; Shanahan, Shanahan, & Misichia, 2011). These differences can be brought out and explored more fully in discipline-specific cohorts. The new cohort structure enables LTEs to craft learning goals, select instructional materials, and design assignments and field experiences in ways that are more appropriate to and focused on specific disciplines. It also facilitates collaboration between LTEs and CTEs as well as tracking and support of TCCs during their program of study. As Bain (2012) reported in his description of the history teacher education program at the University of Michigan, cohorting the literacy course by discipline “improved our ability to make more explicit connections between work in our students’ major field, literacy and learning theory, instructional practice, professional courses, and their field-based experiences in secondary classrooms” (p. 523). As a consequence of cohorting, TCCs will be more likely to embrace—and be motivated to learn...
about—literacy because they can see more closely the relevance of literacy to their particular discipline and are afforded more time to explore the literacy-content connections in greater depth and in more substantive, discipline-specific ways.

One of the challenges in cohorting for disciplinary literacy instruction is finding instructional materials for content areas outside the core subjects of science, history, language arts, and mathematics because there seems to be far fewer literacy-related resources for subjects such as physical education, music, economics, and agriculture (see Moxley, 2012, and Weekes, 2014, for rare examples). Another challenge is that enrollment numbers or institutional resources may not always permit the forming of disciplinary cohorts for the content area literacy course. In places where (or at times when) that is the case, it is still possible to enact a disciplinary literacy focus that enables TCCs in each discipline to learn about discipline-specific literacy practices and pedagogies while also developing an appreciation for how disciplines differ (see, for example, Fang, Sun, Chiu, & Trutschel, in press). LTEs can assign common, as well as discipline-specific, readings and experiences. Such cross-disciplinary interaction and discussion can help TCCs see connections across disciplines, engender deeper understanding of the literate practices within their own discipline, and stimulate further inquiry into disciplinary ways with words.

**Broaden Conceptions of Text and Literacy**

Promoting disciplinary literacy instruction also requires that LTEs pay due respect to how text and literacy are conceptualized and used in each discipline. Each discipline has its own culture, evolving unique definitions of, as well as ways of using, text and literacy. This means what counts as text and literacy varies considerably across disciplines. For example, history is constructed primarily through language (and increasingly visuals) in primary sources, textbooks, and other written documents. However, other historical residuals in the form of nonprint texts—photographs, maps, oral recordings, artwork, music, and architecture—are also important to historical understanding (Draper, Broomhead, Jensen, & Nokes, 2012). Becoming historically literate means not just learning about events, facts, and historical figures through reading and comprehending but, more important, developing a sophisticated understanding of historical time, agency, and causality by asking significant questions, assessing authors’ perspectives, evaluating evidence across multiple sources, making judgments within the confines of the context in question, and determining the reliability of different accounts on the same event (VanSledright, 2012).

The texts that music students create and interact with are much more varied, including not only compositions, concert programs, instrumental methods books, CD liner notes, and music theory texts but also fingering charts, vocal and instrumental musical scores, sounds, and symbols (Moxley, 2012). To be literate in music, students must, according to the National Association for Music Education, be able to (a) sing, alone and with others, a varied repertoire of music; (b) perform on instruments, alone and with others, a range of music; (c) improvise melodies, variations, and accompaniments; (d) compose and arrange music within specific guidelines; (e) read and notate music; (f) listen to, analyze, and describe music; (g) evaluate music and music performances; (h) understand relationships between music and other disciplines; and (i) understand music in relation to history and culture (http://musiced.nafme.org/resources/national-standards-for-music-education/).

These varied conceptions and uses of text and literacy should inform the design and delivery of the content area literacy course. They require that LTEs go beyond the traditional conceptions of text, literacy, and literacy pedagogy, recognizing the cultures and demands of different disciplines and tailoring curriculum and instruction to the ethos and goals of each discipline.

**Expand Literacy Pedagogical Content Knowledge**

Effective preparation of TCCs for disciplinary literacy instruction requires that LTEs demonstrate strong “pedagogical content knowledge” (Shulman, 1986). In addition to sound understanding of “the conceptual domains of each discipline, how the conceptual domains are pedagogically framed to support learning, and how [TCCs] construct their understanding of literacy practices within disciplines” (Dillon, O’Brien, Sato, & Kelly, 2010, p. 641), LTEs need to know a range of teaching practices that are effective for making disciplinary texts accessible to diverse groups of learners and for developing their advanced literacies. A key component of this knowledge is deep understanding of the role of language and literacy in disciplinary learning and socialization. This knowledge, referred to as “literacy pedagogical content knowledge” (LPCK), consists of three components: “knowledge of how spoken and written language can
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be best structured for effective learning, recognition that subject areas have their own characteristic language forms and hence entail distinctive literacy practices, and capacity to design learning and teaching strategies that account for subject-specific literacies and language practices” (Love, 2009, p. 541).

LPCK is especially important for LTEs because disciplinary content in secondary schools is typically presented through texts in language (and other modalities) that are often simultaneously technical, dense, abstract, metaphorical, and specialized (Fang, Schleppegrell, & Moore, 2014). These texts present new challenges for disciplinary learning, and to handle these challenges, adolescents need to develop new language skills and literacy strategies beyond those they have learned in the elementary grades. To support TCCs in meeting this need, LTEs need to go beyond the traditional approach that typically emphasizes the teaching of basic language skills and generic literacy strategies. They need to become familiar with a range of discipline-specific language/literacy strategies and practices, helping TCCs not only understand how language and other semiotic uses vary across disciplines in ways that are functional for making discipline-specific meanings but also develop effective strategies for assisting students to cope with the language demands of disciplinary reading and writing. Acquiring this new knowledge is also crucial for guiding TCCs to enact “close reading” (Fang & Pace, 2013) and to effectively support diverse learners’ language and literacy development (Valdés, Bunch, Snow, & Lee, 2005).

Support Content Area Teacher Educators for Literacy Instruction

The development of modern western disciplines is heavily dependent on language and text (Fang & Schleppegrell, 2008). Being literate in a discipline means not only knowledge of disciplinary content but also the ability to read, write, think, and reason with texts in discipline-specific ways. Traditionally, CTEs have focused their job on helping TCCs learn how to teach the body of disciplinary content these candidates are expected to have mastered in their baccalaureate studies. With little formal training in the reading and writing demands of their disciplines, CTEs rarely make literacy an explicit or central part of their courses, nor do they typically consider literacy pedagogy within the purview of their responsibilities. As one middle school science teacher revealed about her teacher preparation program:

As a first-year teacher, I came straight from a collegiate education program that stressed hands-on, inquiry-based activities. When being observed by my advisors, I felt they would be most impressed with lessons that involved labs and other hands-on activities. I felt that these advisors would frown upon textbook-based lessons. This led me to believe that teaching using the text was not ideal. Therefore, I used the text very little and even tried to avoid it. (Fang et al., 2008, p. 2079)

LTEs can help ameliorate this situation by raising their CTE colleagues’ consciousness about the essential and pervasive role of literacy in disciplinary practices and about the role of TCCs in supporting students’ advanced literacy development, encouraging them to take up literacy instruction in their courses, and offering assistance in a supportive manner. Draper et al. (2012) described an institution-wide effort at Brigham Young University, where one LTE worked with a dozen CTEs to address issues of central concerns in their preparation of secondary teachers. These teacher educators met bimonthly as a Literacy Study Group to explore answers to such questions as “How can teacher educators adequately prepare prospective teachers to support the literacy development of adolescents? What does literacy instruction look like for content area classrooms? How can literacy instruction remain true to the basic principles and values of the various disciplines? How can harmony be created between the work of the literacy teacher educator and content teacher educators?” (p. 368). During these meetings, the LTE selected materials for common readings, facilitated discussion of these materials, and modeled literacy strategies. She also interviewed CTEs, observed their classrooms, and provided feedback about their teaching. As a result of this collaborative work, the CTEs were able to revise their preexisting theories about texts, literacies, and literacy pedagogies; and they made positive changes to their teacher preparation programs, course designs, classroom instruction, and assessment practices. They enacted and supported literacy instruction in their content area courses, reinforcing the central

The ultimate goal of literacy instruction is to support disciplinary learning and socialization.
message from the literacy course that literacy and literacy instruction are essential to developing disciplinary literacy. TCCs are more likely to embrace literacy and implement literacy instruction when the same message is also emphasized by their CTEs.

Build Connections Between Content Area and Literacy Courses
A key feature of an effective teacher preparation program is coherence (Darling-Hammond, 2006). One way to achieve programmatic coherence is to build connections between literacy and content area courses. As part of joint planning, LTEs and CTEs can together identify disciplinary knowledge, skills, habits of mind, and other research-based practices that are valued in the target discipline or recommended by relevant professional organizations and government agencies. They then discuss how these standards and competencies are to be distributed, cross-referenced, and reinforced across various courses in the program. Such efforts help build an iterative, spiraling curriculum in which key knowledge, skills, and dispositions are systematically introduced, developed, mastered, and refined over the entire secondary teacher preparation program (usually one year). They also enable LTEs and CTEs to “consider and understand programmatic trajectories, sequences, and learning progressions, while collaboratively working on curriculum and problems of professional practice” (Bain, 2012, p. 525).

Given the need to foreground the disciplines in disciplinary literacy instruction, it is important that what is taught in the literacy course serves the goals of the target discipline. This means that “conceptual and instructional frameworks that originate from within the field of literacy no longer enjoy an elevated status” (Dillon et al, 2010, p. 641). Instead, LTEs need to think about how the language and literacy knowledge, strategies, skills, and practices that they expect TCCs to master can in fact support adolescents in developing essential knowledge (e.g., core ideas, key relationships, unifying themes) and habits of mind (e.g., reading, writing, thinking, reasoning) in the discipline. To this end, LTEs would benefit from consulting with their CTE colleagues to identify concepts, skills, and dispositions that are central to the discipline. For example, if questioning, contextualizing, and corroborating sources is a key goal of history education, then LTEs need to design reading/writing assignments that highlight this skill, such as providing opportunities for TCCs to assemble text sets consisting of primary and secondary sources, read and analyze multiple accounts of the same event, compare perspectives, and create (orally and in writing) evidence-based argument about issues involved.

LTEs and CTEs can also develop shared vision and goals in other ways. They can observe one another’s classes, discussing how each could build on, reinforce, or extend what the other is doing. They can also design common assignments and experiences that repeatedly expose TCCs to core concepts and practices in the target discipline across multiple courses. For example, TCCs can develop one unit plan that satisfies the learning objectives of both content area and literacy courses (Fang et al., in press). Specifically, TCCs assemble an annotated bibliography of rich, significant texts on a grade-appropriate topic that is important to the discipline. They then analyze sample texts from the list for their reading challenges and discuss how these challenges can be addressed pedagogically. Next, TCCs plan sample lessons that achieve the content goals while also addressing the reading challenges identified earlier. Lastly, the unit is implemented in a common field placement and evaluated by both CTE and LTE for its significance to the discipline, appropriateness of lesson activities, strength of literacy-content connections, conceptual coherence, effectiveness of delivery, and impact on student learning.

Conclusion
Teacher education programs across the United States are searching for new ways of preparing secondary teachers who are capable of effectively promoting advanced literacy development among diverse groups of students (Braunger, Donahue, Evans, & Galguera, 2005). Disciplinary literacy instruction represents a paradigm shift in content area literacy pedagogy, requiring LTEs to reenvision and redesign their course in ways that support students’ acquisition of disciplinary content and habits of mind. It underscores the notion that literacy instruction is a shared responsibility between CTEs and LETs and that the ultimate goal of literacy instruction in the content areas, much like that of content area instruction, is to support students’ disciplinary learning and socialization. In this context, the relationship between language/literacy and content must be reconceptualized. 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. After all, content is made prototypically of language; and without language and literacy, the social and cognitive practices that make the modern disciplines possible could not be engaged. Only until this reconceptualization is embraced by both CTEs and LTEs can the role of LTEs in the preparation of secondary TCCs be truly valued and not marginalized. Finally, although there is still a dearth of empirical studies documenting the impacts of this new approach on secondary teacher preparation, preliminary data (e.g., Bain, 2012; Fang et al., in press) suggest that a focus on disciplinary literacy instruction enables TCCs to build deeper understanding of the literacy-content connections in their disciplines, higher motivation to learn language/literacy strategies that make disciplinary texts accessible to their students, and greater capacity for designing and implementing units and lessons that develop truly literate individuals in target disciplines. Clearly, disciplinary literacy instruction opens up a fertile ground for those seeking innovation and improvement in secondary teacher preparation.

Note
The term content area is used interchangeably with discipline in this article, with the former considered the latter recontextualized for educational purposes.

References
