Mentoring Preservice Teachers in Disciplinary Literacies: A Model of Content Area Literacy Instruction

Steven Kushner and Nathan C. Phillips

University of Illinois at Chicago, Chicago, Illinois, USA

ABSTRACT

Despite the growing body of literature emphasizing the specialized literacy practices within the disciplines, the literature concerning how to prepare preservice teachers for disciplinary literacy instruction is less clear. In this article, we present a mentorship model for content area teacher preparation that Steve (first author) developed and that we implemented in a university content literacy course. In this pedagogical framework, university faculty – i.e., historians, mathematicians, and scientists – mentor preservice teachers into modes of thinking, reading, and problem solving that are consistent with their disciplines. We focus here on presenting the model as a pedagogical innovation for literacy teacher educators, underscoring the need to build collaborative relationships across departments, colleges, and faculty to support preservice teacher literacy development.

Introduction

In this article, we present a mentorship model for content area teacher preparation that Steve (first author) developed and that we implemented in a university content literacy course. We focus here on presenting the model, the foundational curricular innovation of the content literacy course, rather than on reporting findings from the study that investigated teaching and learning during the model’s implementation. Our purpose is to suggest a way that literacy educators teaching content area literacy courses might better support discipline-specific literacy teaching and learning. The model emphasizes the need to build collaborative relationships across departments, colleges, and faculty to support preservice teacher literacy development and suggests that this learning framework is one way of doing this.

CONTACT Steven Kushner skushner228@gmail.com Social Studies Teacher, Bremen High School District 228, 15203 Pulaski Rd, Midlothian, IL 60445, USA.
*Present title for Nathan C. Phillips is Assistant Professor, Literacy, Language, and Culture
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**Background and rationale**

Despite the growing body of literature emphasizing the specialized literacies of history, mathematics, and science (Brozo & Crain, 2018; Monte-Sano et al., 2017; Paul, 2018; Rainey, Maher, Coupland, Franchi, & Moje, 2018), preservice teachers across the content areas traditionally do not receive specialized literacy instruction within their teacher education programs (Fang, 2014). Although there are some teacher education programs that offer discipline-specific literacies courses (Bain, 2012), preservice teachers across the disciplines are most often enrolled together in a single course, requiring instructors who teach these courses to be knowledgeable in multiple fields of study (Fang, 2014). It is unrealistic, however, to assume that literacy educators teaching these courses possess the kind of disciplinary knowledge that is required to adequately prepare preservice teachers for disciplinary literacy instruction in every content area. Moje (2008) underscores this issue in asking, “How many secondary literacy teacher educators have that [specialized disciplinary] knowledge for each of the different disciplinary majors they might meet in a typical secondary literacy course in teacher education programs?” (p. 104).

In an effort to support our own preservice teachers in secondary history, math, and science who were enrolled in our content literacy course, we created an opportunity for them to collaborate with university faculty – i.e., historians, mathematicians, and scientists – to consider and engage in disciplinary ways of thinking and practice. In this way, preservice teachers could explore and develop disciplinary literacies through “enculturation (apprenticeship) into social practices through scaffolded and supported interaction with people who have already mastered the Discourse” (Gee, 1996, p. 139). This mentorship model was grounded in the belief that preparing secondary content area teachers for disciplinary literacy instruction is improved when disciplinary experts (e.g., university faculty) model literacies of their disciplines for preservice teachers and support preservice teachers in both engaging in these literacies themselves and in designing instructional supports for secondary learners related to disciplinary literacies.

In building this mentorship model for our students, university faculty from disciplinary departments at a large research-intensive university were recruited to mentor preservice secondary content area teachers enrolled in a disciplinary literacies course taught in the College of Education. This mentoring took place over the course of three scheduled meetings spread out across a fall semester (see Table 1). As examples, teacher candidates in history were paired with historians, teacher candidates in chemistry were paired with chemists, and teacher candidates in mathematics were paired with mathematicians. Each meeting lasted 45 minutes to 1 hour and involved a one-on-one interaction between a preservice content area teacher and a university faculty member in a similar field of study. These meetings
were purposefully designed and structured to offer opportunities for teacher candidates to “peek inside” the mind of professionals as they (1) discussed disciplinary discourse histories and practices, (2) thought aloud while interpreting discipline-specific texts, and (3) offered feedback on literacy-focused lesson plans the teacher candidates had prepared.

The faculty who participated in the partnerships described here were not teaching methods courses for preservice teachers. Rather, they were teaching content area courses for majors and advanced students in their fields of study (e.g., advanced chemistry, biology, history, mathematics). While it is possible that university faculty within disciplines do include strategies in their own teaching that can be adopted by preservice teachers (e.g., think-alouds of primary source documents in history courses), content area teachers teaching university courses taken by majors in those fields help preservice teachers learn content knowledge not disciplinary literacy skills. While our model focuses on connecting with these disciplinary faculty who are not teaching methods courses to content area teachers, even faculty who do teach these courses from within disciplines do not typically focus on literacy. Fang (2014) writes, “With little formal training in the reading and writing demands of their disciplines, CTEs [content area teacher educators] rarely make literacy an explicit or central part of their courses, nor do they typically consider literacy pedagogy within the purview of their responsibilities (p.446). Furthermore, even if preservice teachers are exposed to disciplinary literacy instruction in their content area classes, being exposed to explicit mentoring and demonstrations in multiple settings is highly valuable for beginning teachers (ILA & NCTE, 2017). In other words, learning a particular skill in one context should

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| Mentorship Meeting | Task Description | Scheduled date (fall semester), duration | Task | Purpose |
|--------------------|------------------|-----------------------------------------|------|---------|
| 1                  | Disciplinary Expert Interview | September, 1 hour | Preservice teachers interviewed university faculty about what it means to be/become, a competent member of their disciplinary community of practice | To explore disciplinary ways of thinking and practice and trajectories of learning disciplinary practices |
| 2                  | Think-Aloud /Modeling Using a Discipline-Specific Text | October, 1 hour | University faculty performed a think-aloud while cold reading a discipline-specific text (e.g. article, lab report, table/chart, book chapter) of their choice | To explore discipline-specific interpreting and thinking processes of professionals engaging with disciplinary texts |
| 3                  | Literacy-Focused Lesson Design Support | November, 1 hour | After designing a lesson plan, preservice teachers sought guidance from university faculty on ways to improve the learning goals, activities, assessments | To explore interactions of disciplinary practices with contexts of teaching and learning for secondary learners in content area courses |

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Table 1. Content literacy course mentorship model.
not lessen the importance or value of learning the same skill in another. And, again, the value added in our model comes from interactions with disciplinary experts who are focused on content teaching and learning and are not specifically thinking about relationships to secondary teaching. These relationships are created by the collaborations supported in the model.

Below, we first identify the theoretical frame and literature that undergirded the development of the model. We then identify specific steps we took in enacting the model with our students. We present this background and enactment as a pedagogical innovation that we believe provides the following supports for teacher educators and preservice teachers: 1) the model affords communication and connection between disciplinary faculty and teacher education faculty to allow for a more cohesive approach to teacher education; 2) the model supports preservice teachers in learning discipline-specific literacies through interactions and engagement with disciplinary insiders; 3) the model makes it possible for literacy educators, who will not be insiders in all disciplines, to provide instruction and support for preservice teachers across content areas.

**Theoretical frame**

This mentorship model for content area teacher preparation was developed in harmony with our commitments to an understanding of literacies as social practices embedded in larger social and cultural relationships (Barton, 1994; Gee, 1990; Heath, 1984; Scribner & Cole, 1981; Street, 1984). This view includes an emphasis on how reading, writing, thinking, communicating and other cultural practices of textual interpretation and production (e.g., viewing multimedia and production of multimedia; listening to spoken discourse) are used to participate in various Discourse communities. Approaching disciplinary literacy as a set of social practices, as opposed to a collection of isolated reading and writing skills allows preservice teachers to view the discipline they teach as part of a larger Discourse community with shared ways of speaking, thinking, believing, acting, knowing and using language (Gee, 1990). Through this lens, our understanding of disciplinary literacy shifts from distinct reading and writing practices to a collection of distinct social and communicative practices (Moje, 2015).

The model was also developed with a foundational proposition that people are best able to participate in a Discourse community when they immerse themselves in these communities through enculturation or apprenticeship. In this framework of literacy teacher preparation, preservice teachers have modeled for them the unique language, tools, and norms of practice that are consistent with each discipline (Moje, 2008). Through this socialization process, preservice teachers enact particular identities, engage in specific literacy activities associated with that identity, and come to identify oneself
as a member of their Discourse community (Gee, 1990). Our assumption in developing the mentorship model for disciplinary literacy instruction was that a content area literacy course could potentially serve preservice teachers by supporting their access to disciplinary discourse communities and practices of expert engagement with disciplinary texts by embedding into the curriculum opportunities for preservice teachers to interact with university faculty in the disciplines. Experts use and apply different thinking and problem-solving strategies from novices (Bransford, Brown, & Cocking, 2000), suggesting the importance of providing preservice teachers with learning experiences to observe and connect with subject area experts. The mentorship model is grounded in this core belief that in order to develop competency in particular subject areas, learners must immerse themselves in the language, texts, interpretation and production practices, and ways of thinking that are consistent with each discipline. And, further, that one way of developing subject area competencies is for disciplinary experts to make these otherwise hidden languages, texts, interpretation/production practices, and ways of thinking visible to learners.

The Reading Apprenticeship (RA) framework (Schoenbach, Greenleaf, & Murphy, 2012) was also adopted to bridge the course curricula with students’ one-on-one mentorship outside the classroom. Emerging from the belief that expert’s implicit thoughts should be made visible to students, RA focuses on “apprenticing” students to become more confident and proficient readers and thinkers in their subject area. The Reading Apprenticeship framework is embedded within subject area teaching through metacognitive conversations – that is, conversations about the thinking processes both students and teachers engage in as they read. Steve engaged teacher candidates in various metacognitive activities within the content literacy course to better understand how to adopt this kind of instruction in their own classrooms. The Reading Apprenticeship Framework was used to guide the course curricula because (1) it created a space for students to reflect on their mentorship experiences and (2) it reinforced the fundamental principles of literacy, disciplinary learning and enculturation.

**Review of the literature**

For several decades, researchers have examined and suggested improvements to the organizational structure, curricula, and program design of teacher education programs (Cochran-Smith & Zeichner, 2005; Martin & Mulvihill, 2017; Norton & Hathaway, 2015). The design of programs can be diverse, varying in coursework, learning standards, licensure, clinical experiences, and overall philosophy and vision of teaching and learning. While all teacher education programs are designed to develop highly-qualified teachers for classroom instruction, certain features of programs appear to be more
instrumental than others in supporting teacher development. Most notably, effective teacher education programs are designed around a clear, shared vision of good teaching among all faculty (Darling-Hammond, 2006; Goodlad, Soder, & Sirotnik, 1990; Hammerness & Darling-Hammond, 2002).

However, one of the primary issues concerning teacher education is the lack of cohesiveness among courses, coursework, and university faculty (Darling-Hammond, 2006; Howey & Zimpher, 1989). Darling-Hammond (2006) explains, “Elements of teacher learning are disconnected from each other. Coursework is separate from practice teaching, professional skills are segmented into separate courses, and faculties in the arts and sciences are insulated from education professors” (p. 279). A central goal of the study that included the development of the mentorship model for content area teacher preparation was to unify these “fragmented” spaces to create a more cohesive learning experience for students preparing to teach in secondary content areas. We have designed and tested a model that promotes the development of pathways for university faculty in the disciplines to become more directly involved in the teacher learning process as it relates to supporting literacy teaching and learning.

Establishing collaborative instructional and learning spaces in teacher preparation experiences that connect disciplinary learning and content area teaching preparation also addresses the need for specific attention to secondary literacy instruction (Draper, Nokes, & Siebert, 2010). Traditionally, preservice teachers across the disciplines (e.g. English, mathematics, science, social studies) are combined in a single literacy course and are exposed to the same set of generic literacy strategies, like SQR3 (Survey, Question, Read, Recite, Review) and concept mapping (Fang, 2014). However, with the new emphasis on disciplinary literacy, teacher preparation programs are embracing discipline-specific cohorts, whereby preservice teachers are separated by content area (Bain, 2012). This allows literacy teacher educators to focus on the specialized reading, writing, and language demands unique to each discipline. Moving beyond generalizable reading and writing strategies adaptable across the subject areas, disciplinary literacy underscores the specific literacies used to build and explore knowledge within disciplinary discourse communities, with specialized knowledge, language, and sets of rules governing norms of reading and writing (Fang, Schleppegrell, & Moore, 2014; Moje, 2008; Shanahan & Shanahan, 2014).

Developing collaborative instructional and learning spaces within teacher education programs allows preservice teachers to explore disciplinary ways of thinking and practice through the lens of multiple stakeholders, including peers, field supervisors, literacy teacher educators, and university faculty in the arts and sciences. Draper, Broomhead, Jensen, and Nokes (2012), for example, created a collaborative space at Brigham Young University, where literacy teacher educators worked alongside and consulted with content area teacher educators to develop a shared vision of literacy teacher preparation. The goal was to reinforce
the belief that literacy is fundamental to disciplinary learning and to (re)shape teacher educators’ thinking about literacy in their own instruction. This allowed literacy teacher educators and content area teacher educators to develop common readings, instructional materials, and assessments to build programmatic coherence for preservice teachers.

While collaborative spaces and discipline-specific cohorts are effective approaches to literacy teacher preparation (Bain, 2012; Draper et al., 2012), universities often face several barriers to implement similar frameworks, including low enrollment numbers in specific disciplines and a lack of institutional resources. In addition, there tends to be a lack of attention, pedagogical materials and literacy-based resources for disciplines outside the core subjects of mathematics, science, ELA, and social studies, like physical education, music, and economics (Fang, 2014; Wickens, Manderino, Parker, & Jung, 2015).

**Developing a mentorship model**

Figure 1 illustrates the collaborative model of disciplinary literacy teacher preparation we present here in which preservice content area teachers engage with university faculty who understand the meaning-making practices inherent to specific disciplines as structured and supported in collaboration with literacy educators. Some of the experiences, opportunities, and structured supports afforded by this model are identified in the bullets between each of the three actors in the model (preservice teachers, literacy educators, disciplinary faculty), highlighting the interactional and intersectional nature of the model.

![Figure 1. A collaborative model of literacy teacher preparation.](image-url)
This model for literacy educator instruction, including the three tasks completed with university disciplinary faculty (see Table 1) were designed by Steve with support from Nate (second author) over the course of a year, and some of the tasks were piloted in a course that we taught together prior to full implementation in a university content literacy course. Steve’s goal in designing the mentorship model was to support prospective teachers in learning at the side of disciplinary experts, engaging in disciplinary practices, and honing both practices and instructional methods to teach and engage adolescent learners. Given the time constraints on both teacher candidates and university disciplinary faculty, Steve designed a collaborative model for literacy teacher preparation that takes this apprenticeship framework and adapts it to a structured mentorship context with a defined number of meetings in a given semester. Designing specific tasks for preservice teachers and university faculty to engage in together outside of class time was not easy. We had to take into account the limited time frame (i.e., 15-week semester), the amount of time university faculty were willing and able to give to take on the role of mentors, and how the assignments would fit into course curricula. We decided that three meetings, each with an associated task for the preservice teachers to complete, were appropriate. In presenting the model here, we are not claiming that three one-hour meetings is the precise number to elicit significant changes in preservice teachers’ dispositions and teaching practices; rather, we are attempting to demonstrate a potential design of an effective content area teacher education framework rooted in mentorships.

To inform future implementation of this framework, we begin with a description of our process for recruiting university faculty to participate and the process for matching up secondary preservice teachers with faculty mentors. We then describe each of the three meetings and associated tasks in more detail.

**Recruiting and preparing university disciplinary faculty**

University faculty were recruited to participate as mentors during the spring and summer leading up to the fall semester. Steve initially sent emails to the department heads of each discipline (science, mathematics, and history) asking to be put in contact with university faculty who either worked with preservice teachers as mentors or had a strong passion for education. Faculty members identified taught disciplinary courses for students in those majors and did not teach secondary methods courses. He subsequently sent an introductory email to those faculty members introducing himself, outlining their potential role as disciplinary mentors, and requesting a meeting to discuss their participation in this project. Steve eventually met with each university faculty member who agreed to join us during the fall semester, where he further explained their roles in supporting preservice teachers’ disciplinary literacy development.
Surprisingly, recruiting university disciplinary faculty to act as literacy mentors was not a challenge. We initially presumed that due to time constraints, the majority of university disciplinary faculty would not participate in a semester-long mentorship. In addition, we thought that supporting preservice teachers’ literacy development would not be of great interest to content area specialists. However, we did not experience any type of resistance or skepticism among university disciplinary faculty. On the contrary, the majority of university disciplinary faculty were eager to participate and expressed the importance of using literacy in their own classrooms.

As stated previously, Steve met with each university faculty member who agreed to participate in the mentorship before the onset of the literacy course. During this meeting, each of the three tasks between preservice teachers and university faculty were outlined and discussed in depth. All subsequent communication was done via email throughout the fall semester. This included discussions of when to meet with their mentee outside of class (i.e., what week during the fall semester), the purpose of each task, and their role and responsibilities during the task.

**Secondary preservice teachers**

Secondary preservice teachers enrolled in the content literacy course were in junior standing or above. Per course requirement, preservice teachers are required to complete 10–15 hours of field experiences in secondary classrooms. While the number and types of courses required of each teacher candidate varies by discipline (e.g. history, mathematics, ELA), the university requires teacher candidates to complete approximately 30–40 credit hours in their “major,” 8–10 credit hours in “prerequisite” courses (e.g., microeconomics), 25–30 credit hours in “teacher licensure” courses (e.g., Education Policy) and 45–50 credit hours in “general education and electives” to complete their degree.

We embedded the mentorship model – including assignments, student learning objectives, and assessments – within the curricula of the content literacy course. The first time we met as a class (week 1 of 15), we outlined specific mentorship tasks (e.g. Think-Aloud/Modeling Using a Discipline-Specific Text), the role of disciplinary university faculty, and the overall purpose of developing a mentorship model of literacy teacher preparation. It was important for us, both as instructors and researchers, to justify the potential usefulness of the model and clearly articulate to preservice teachers why participating in a mentorship relationship was beneficial to their disciplinary teaching practices and critical to understanding and making sense of disciplinary literacies and texts.

We paired preservice teachers with university disciplinary faculty who shared common interests. However, the pairing process proved to be more challenging than we had originally intended. We discovered that preservice teachers across the disciplines of history, mathematics, and science had developed a strong rapport with specific faculty members at the university based on prior encounters.
Consequently, some students openly expressed apprehension about who they were paired with while others requested to work with the same mentor as a classmate. To address these demands, we allowed preservice teachers to contact a different mentor and request a partnership; as a result, some university disciplinary faculty agreed to work with more than one preservice teacher during the semester.

Although we designed each mentorship task, preservice teachers were required to contact their mentor to schedule a time and place for these tasks outside of class, which was in line with fieldwork expectations in other preservice teaching courses.

**Mentorship meetings and tasks**

**First mentorship meeting: Disciplinary expert interview**

Being or becoming competent in a field requires more than advanced content knowledge. Mastering a Discourse requires distinct ways of speaking, thinking, acting, and knowing (Gee, 1996). The purpose of the first mentorship meeting was to help preservice teachers recognize that expertise involves embodying a particular “identity kit” (Gee, 1996) including disciplinary practices and trajectories of learning and becoming into disciplinary communities of practice.

In the first meeting, preservice teachers conducted a semi-structured interview with their paired university faculty mentor to explore and better understand how university faculty identified themselves within their fields of study, what learning pathways they took into expertise in the field, how they thought about and made meaning with texts, how they developed disciplinary knowledge, and how they collaborated with other members of their disciplinary communities. We prepared the questions for this interview and gave the protocol to students (see Table 2 for example questions). Within the first two weeks of the course, preservice teachers were responsible for contacting their assigned university faculty mentor and scheduling a place and time to meet. The interview protocol covered four key domains modeled after the Reading Apprenticeship framework (Schoenbach et al., 2012):

1. **Personal dimension** focused on the personal or identity aspects of expert work in each discipline
2. **Cognitive dimension** focused on the ways in which an expert thinks and makes meaning with texts
3. **Knowledge dimension** focused on the disciplinary knowledge unique to each discipline
4. **Social dimension** focused on the expert’s role within a disciplinary community and the social practices involved with being a disciplinary expert
We designed the Disciplinary Expert Interview for preservice teachers to explore disciplinary way of thinking and practice and learn the multiple pathways to achieve disciplinary competency. In addition, we wanted pre-service teachers to view learning as a process. The interview also served as a friendly, welcoming introduction between preservice teachers and university faculty before participating in more complex tasks (i.e., Think-Aloud/Modeling Using a Discipline-Specific Text).

Second mentorship meeting: Think-aloud/modeling using a discipline-specific text

Disciplinary experts approach texts quite differently from novices (Chi, Feltovich, & Glaser, 1981; Wineburg, 1991). For instance, novices tend to focus on specific details or isolated facts whereas experts organize their thoughts around large conceptual ideas. Additionally, experts remain flexible and are able to apply their knowledge to novel situations (Bransford et al., 2000). This process is often referred to as “adaptive expertise” (Hatano & Inagaki, 1986). The second meeting (scheduled in week 8 of 15; see Table 1) intended to make visible the reading processes of disciplinary professionals so that preservice teachers could explore these processes, consider how to apply them to their own disciplinary practices, and eventually work to model those processes to their own students.

Because thinking about one’s own thoughts while reading can be an unnatural process, Steve brought a sample text and think-aloud instructions with him (or sent it via email) when he met with each university faculty member prior to the fall semester to explain each of the tasks and the procedures for the study that semester. Steve provided a brief description of the think-aloud method and explained what would be expected of faculty

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**Table 2. Interview protocol example questions.**

| Domain   | Example Questions                                                                                                                                 |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal | ● What are the possible pathways to expertise in your discipline? How does someone come to be an expert in your discipline?                    |
|          | ● What criteria/values/attributes define an expert in your field? How do you know, identify, or recognize a disciplinary expert?                |
| Cognitive| ● Can you walk me through a disciplinary problem/issue/area of work that you are currently investigating/working on?                         |
|          | ● Can you describe for me a text that you read with some regularity or would read as an important part of your work? (A text can be visual, audio, paper, a chart, a graph, a journal article, output from a technical device, a primary source, a novel, a film, etc.). What is your process for reading this text? |
| Knowledge| ● What would you say are essential categories, areas, or kinds of information that an expert must know in order to do the work of your discipline? |
|          | ● What is the process for coming to know what is essential to know in your discipline?                                                          |
| Social   | ● How do you share knowledge with other members of your disciplinary community (e.g. publishing, writing, speaking, mentoring, etc.)?         |
|          | ● What texts are important to this community?                                                                                                  |
mentors during the activity. Steve presented each faculty member with a sample text within their area of expertise (e.g., an amino acid diagram was distributed to chemists; a copy of the 1947 "Marshall Plan" speech was presented to historians) and suggested they either practice reading and thinking out loud during their meeting or take it home and practice before the fall semester.

For the think-aloud meeting, university faculty were instructed to choose a discipline-specific text that they had not yet read but were intending to read in the near future. The text could take the form of an article, academic journal, graphic, spreadsheet, chart, book chapter, primary source, or any other text relevant to their disciplines. University faculty were prompted to "think out loud" while reading their chosen text as their mentees observed, took notes, and audio recorded the session. They were encouraged to say whatever thoughts came to mind after reading each sentence or while examining a diagram or visual, and to consider describing what the text reminded them of, areas of confusion they had while reading and interpreting, questions they asked themselves, the predictions they were making as they read, and/or any main points they identified while reading. Preservice teachers were asked to remind university faculty to think out loud while reading; that is, if the mentor made no comment after 15 seconds, preservice teachers were directed to ask, "What are you thinking right now?" See Figure 2 for a photo of one of the second meetings.

The purpose of this task was to explore discipline-specific interpreting and thinking processes of professionals engaging with disciplinary texts. By making visible to teacher candidates the inherent ways university faculty conceptualize content knowledge, read texts, and solve problems, we aimed to better prepare preservice teachers to advance their own students' disciplinary literacy practices. As stated previously, because thinking out loud can be an unnatural process, we suggest literacy educators help coach university faculty by modeling this strategy themselves, and then offering several opportunities for university faculty to verbalize their thoughts when reading a discipline-specific text.

Third mentorship meeting: Literacy-focused lesson design support

The third and final mentor meeting occurred in week 12 (see Table 1). Studies have shown that experts notice features of problems that are not noticed by novices (Chi et al., 1981; Sabers, Cushing, & Berliner, 1991). This may be attributed to experts' deeper schema and how they organize their knowledge into meaningful patterns. One area where this type of thinking may prove useful is during teacher lesson planning. Because of their limited background knowledge and experience in teaching literacy, beginning teachers may overlook how discipline-specific literacy practices are manifest in content area instruction. With an understanding that expert teachers notice features of problems that novice teachers tend to overlook (e.g., Doyle, 2006),
and are able to recognize the kinds of difficulties that students are likely to face (Bransford et al., 2000), our aim was for university faculty to offer guidance on the types of practices and ways of thinking that should be present (or not present) during instruction that is intended for middle and high school students. Disciplinary experts, for example, could help preservice teachers anticipate when students may get lost in a text or how to break down complex terms/concepts in ways that students can understand.

Preservice teachers were asked to design a 20–25 minute mini lesson that specifically aimed at disciplinary thinking and meaning making. Preservice teachers were instructed to complete their literacy-focused lesson prior to meeting with their mentors for the third time. During the third meeting, preservice teachers brought with them the completed lesson plan, sharing step-by-step the objectives, learning goals, and activities. They were also instructed to have their mentor run through some of the activities to see for themselves how the lesson would unfold in the classroom. Throughout the demonstration, university faculty provided feedback on the activities in relation to disciplinary thinking.

It is reasonable to assume that university faculty had limited knowledge in the specific topic their mentee wished to use for their mini lesson. For example, a preservice history teacher may have wanted to design a lesson around the Civil Rights Movement of the 1960s, while the university faculty member’s area of expertise was in the U.S. involvement in World War II. Consequently, we stressed to university faculty that their responsibility was
not to offer guidance on disciplinary knowledge; rather, their task was to express the ways of thinking a professional in their field would use to make sense of the texts the preservice teachers had chosen and the insights these ways of thinking could offer preservice teachers when addressing strategies with their secondary students for interpreting and producing texts in the discipline. For example, university faculty in history and science pointed out that their reading of journal articles did not follow a linear path through the article. Rather, they would begin with the abstract and then read findings and conclusions. Preservice teachers learned through this process that when teaching their students in history or science to read, they could support reading that involved summarizing key details and arguments when reading disciplinary content.

The underlying purpose of this meeting was for preservice teachers to share with their mentor how the previous meetings shaped their understanding of literacy within the discipline and, ultimately, how it could manifest into an activity that is intended for middle and high school students. University faculty were invited to provide insight into the types of skills and disciplinary ways of thinking a professional in the field would use to make sense of the texts and concepts found in each lesson. The rationale being that preservice teachers would then be able to address student misconceptions and areas of confusion using similar cognitive strategies.

**Implications of a mentorship model for literacy teacher preparation**

This mentorship model we developed has placed a spotlight on not only teacher education courses but the design and organization of teacher education institutions. Effective teacher education programs are designed around a coherent, shared vision of teaching and learning among all faculty (Darling-Hammond, 2006). In addition, our pedagogical framework calls attention to all stakeholders in the teacher learning process. We invite literacy educators, teacher educators, and content area faculty to play an active role in the social-emotional, cognitive, and literacy development of aspiring teachers.

**Moving forward**

While the focus of our mentorship model of literacy teacher preparation centers on learning from disciplinary experts, we acknowledge that preservice teachers might also benefit from learning from non-disciplinary experts, especially when it comes to addressing the needs of struggling adolescent readers. Literacy specialist or reading teachers, for example, can provide invaluable knowledge and skills on how to navigate the types of texts youth are likely to encounter in schools. Furthermore, we recognize that preservice teachers might also find value in learning from education faculty who have extensive experience working directly with youth in real classroom settings.
Nonetheless, we see this project and Steve’s collaborative model of teacher preparation as a unique contribution to disciplinary literacies instruction. We offer this model as a gateway into iterations, adaptations, and future projects that are rooted in similar ideas and experiences, and we invite others to critique, expand, and iterate models like this of disciplinary literacy teaching and learning. As an example, in our future work, we would like to examine the concept of “expertise” in disciplinary learning. More specifically, what constitutes a “disciplinary expert” across the disciplines and how would using different kinds of experts (e.g. university faculty, specialists outside of academia) impact preservice teachers’ disciplinary literacy development? We have begun to investigate this question in the disciplinary literacies courses that Nate teaches regularly. Additionally, we would like to continue designing new, authentic experiences between preservice teachers and university faculty to support disciplinary literacy development in addition to those we have already designed.

Developing, and ultimately maintaining a mentorship model of literacy teacher preparation, will be dependent on unifying colleges and departments across universities, and fostering open dialog among university faculty about the needs of prospective content area teachers. Increasing the number of meetings between preservice teachers and university faculty, and extending the length of the overall mentorship, could provide a more sustainable and impactful experience for both parties. Time constraints and sensitivity to university faculty needs limited the number of meetings we could design and ultimately implement during the semester. With support from department chairs and administration across the university, we believe it is possible to integrate an ongoing mentorship within a teacher preparation program. In addition to a traditional adviser/mentor in education, we propose a type of teacher preparation where a university faculty member in the arts and sciences is paired with a new student to “apprentice” them into the ways of thinking, reading, writing, and communicating in their field. As co-advisers, both faculty members could collaborate to address the individual needs of each student.

**What can literacy educators do?**
We conclude here with several suggestions for literacy educators who wish to implement a similar course design. Foremost, we invite literacy educators to reach out to university faculty outside the College of Education to show interest and commitment to student learning. Literacy educators can then begin to have conversations about what knowledge, skills, and practices are being taught in content area courses and how these skills and practices overlap with their own instruction. We encourage literacy educators to spark conversations about the importance of teaching literacies in all subject areas. Literacy educators can also try to align or bridge their
course curricula with the curricula of methods courses to create a cohesive experience for students. This entails connecting course goals, objectives, and learning experiences so students can practice specific skills repeatedly. Bridging course curricula also provides opportunities for students to see different university faculty think about and make sense of similar concepts. The end goal is to develop a sustainable mentorship program year after year.

It is also important to note that while our model is grounded in disciplinary literacy instruction, there is still a need for literacy educators to promote generalizable or universal literacy strategies to support the needs of struggling adolescent readers. In other words, there is still value in offering preservice a toolkit of comprehension strategies, like generating questions, making inferences, visualizing, and predicting that can be adapted across the disciplines (Buehl, 2011). Good readers, like historians, scientists, and mathematicians, utilize both generalizable and discipline-specific literacy practices when making sense of various texts.

**Disclosure statement**

No potential conflict of interest was reported by the authors.

**ORCID**

Nathan C. Phillips [http://orcid.org/0000-0003-1571-5503](http://orcid.org/0000-0003-1571-5503)

**References**

Bain, R. B. (2012). Using disciplinary literacy to develop coherence in history teacher education: The clinical rounds project. *The History Teacher, 45*(4), 513–532.

Barton, D. (1994). *Literacy: An introduction to the ecology of written language*. Oxford, UK: Wiley-Blackwell.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academy Press.

Brozo, W. G., & Crain, S. (2018). Writing in math. A disciplinary literacy approach. *Clearing House, 91*(1), 7–13. doi:10.1080/00098655.2017.1342435

Buehl, D. (2011). *Developing readers in the academic disciplines*. Newark, DE: International Reading Association.

Chi, M. T. H., Feltovich, P. J., & Glaser, R. (1981). Categorization and representation of physics problems by experts and novices. *Cognitive Science, 5*, 121–152. doi:10.1207/s15516709cog0502_2

Cochran-Smith, M., & Zeichner, K. M. (Eds.). (2005). *Studying teacher education: The report of the AERA Panel on Research and Teacher Education*. Mahwah, NJ: Lawrence Erlbaum.

Darling-Hammond, L. (2006). *Powerful teacher education: Lessons from exemplary programs*. San Francisco, CA: Jossey-Bass.
Doyle, W. (2006). Ecological approaches to classroom management. In C. M. Evertson & C. S. Weinstein (Eds.), Handbook of classroom management: Research, practice, and contemporary issues (pp. 97–125). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Draper, J. R., Broomhead, P., Jensen, P. A., & Nokes, D. J. (2012). (Re)imagining literacy and teacher preparation through collaboration. Reading Psychology, 33, 367–398. doi:10.1080/02702711.2010.515858

Draper, R. J., Nokes, J. D., & Siebert, D. (2010). (Re)Imagining collaborations for content-area literacy. In R. J. Draper, P. Broomhead, A. P. Jensen, J. D. Nokes, & D. Siebert (Eds.), (Re) Imagining content-area literacy instruction (pp. 159–171). New York, NY: Teachers College Press.

Fang, Z. (2014). Preparing content area teachers for disciplinary literacy instruction. Journal of Adolescent & Adult Literacy, 57(6), 444–448. doi:10.1002/jaal.269

Fang, Z., Schleppegrell, M. J., & Moore, J. (2014). The linguistic challenges of learning across academic disciplines. In C. A. Stone, E. R. Silliman, B. J. Ehren, & G. P. Wallace (Eds.), Handbook of language and literacy: Development and disorders (2nd ed., pp. 545–568). New York, NY: Guilford Press.

Gee, J. P. (1990). Social linguistics and literacies: Ideology in discourses, critical perspectives on literacy and education. London, UK: Falmer Press.

Gee, J. P. (1996). Social linguistics and literacies: Ideology in discourses (2nd ed.). London, UK: Falmer.

Goodlad, J. I., Soder, R., & Sirotnik, K. A. (1990). The moral dimensions of teaching. San Francisco, CA: Jossey-Bass.

Hammerness, K., & Darling-Hammond, L. (2002). Meeting old challenges and new demands: The redesign of the stanford teacher education program. Issues in Teacher Education, 11 (1), 17–30.

Hatano, G., & Inagaki, K. (1986). Two courses of expertise. In H. Stevenson, H. Azuma, & K. Hakuta (Eds), Children development and education in japan (pp. 262–272). New York, NY: W. H. Freeman & Co.

Heath, S. B. (1984). Ways with words: Language, life, and work in communities and classrooms. Cambridge, MA: Cambridge University Press.

Howey, K. R., & Zimpher, N. L. (1989). Profiles of preservice teacher education: Inquiry into the nature of programs. Albany, NY: State University of New York Press.

International Literacy Association & National Council on Teachers of English. (2017). Literacy teacher preparation (Research Advisory). Newark, DE: International Literacy Association.

Martin, L. E., & Mulvihill, T. M. (2017). Current issues in teacher education: An interview with Dr. Linda Darling-Hammond. Teacher Educator, 52(2), 75–83. doi:10.1080/08878730.2017.1294921

Moje, E. B. (2008). Foregrounding the disciplines in secondary literacy teaching and learning: A call for change. Journal of Adolescent & Adult Literacy, 52(2), 96–107. doi:10.1598/JAAL.52.2.1

Moje, E. B. (2015). Doing and teaching disciplinary literacy with adolescent learners: A social and cultural enterprise. Harvard Educational Review, 85(2), 254–278. doi:10.17763/0017-8055.85.2.254

Monte-Sano, C., De La Paz, S., Felton, M., Piantedosi, K. W., Yee, L. S., & Carey, R. L. (2017). Learning to teach disciplinary literacy across eight-grade history classrooms within a district-university partnership. Teacher Education Quarterly, 44(4), 98–124.

Norton, P., & Hathaway, D. (2015). In search of a teacher education curriculum: Appropriating a design lens to solve problems of practice. Educational Technology, 55(6), 3–14.
Paul, C. M. (2018). Building disciplinary literacy: An analysis of history, science and math teachers’ close reading strategies. *Literacy*, 52(3), 161–170. doi:10.1111/lit.v52.3
Rainey, E. C., Maher, B. L., Coupland, D., Franchi, R., & Moje, E. B. (2018). But what does it look like? Illustrations of disciplinary literacy teaching in two content areas. *Journal of Adolescent & Adult Literacy, 61*(4), 371–379. doi:10.1002/jaal.669
Sabers, D. S., Cushing, K. S., & Berliner, D. C. (1991). Differences among teachers in a task characterized by simultaneity, multidimensionality, and immediacy. *American Educational Research Journal, 28*(1), 63–88.
Schoenbach, R., Greenleaf, C., & Murphy, L. (2012). *Reading for understanding: How reading apprenticeship improves disciplinary learning in secondary and college classrooms*. San Francisco, CA: Jossey-Bass.
Scribner, S., & Cole, M. (1981). *The psychology of literacy*. Cambridge, MA: Harvard University Press.
Shanahan, C., & Shanahan, T. (2014). The implications of disciplinary literacy. *Journal of Adolescent & Adult Literacy, 57*(8), 628–631. doi:10.1002/jaal.297
Street, B. (1984). *Literacy in theory and practice*. Cambridge, MA: Cambridge University Press.
Wickens, C. M., Manderino, M., Parker, J., & Jung, J. (2015). Habits of practice. *Journal of Adolescent & Adult Literacy, 59*(1), 75–82. doi:10.1002/jaal.429
Wineburg, S. S. (1991). Historical problem solving: A study of the cognitive processes used in the evaluation of documentary and pictorial evidence. *Journal of Educational Psychology, 83*(1), 73–87. doi:10.1037/0022-0663.83.1.73