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## JOURNAL OF LANGUAGE & LITERACY EDUCATION

### This is What We Do: Emphasizing Discipline-Specific Literacy Practices in Teacher Education

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**Abstract:** This article describes a recent practitioner-research study of secondary preservice teachers' development of literacy instruction in a content area literacy course at a large university in the Southwest United States. The study utilized a sociocultural approach that focused on discipline-specific literacy practices that define what it means to be literate within a content area. After sharing perceptions of their ability to use literacy practices to design effective literacy instruction in an open-ended survey, participants created a series of lesson plans by focusing on literacy practices they identified as vital to their disciplines in a text analysis assignment. Finally, participants completed a second survey following the unit and took part in semi-structured interviews. Qualitative content analysis was conducted on survey responses, essays, lesson plans, and transcribed texts. Findings conclude that a focus on disciplinary literacy practices invites social and cultural connections between the ways in which people make meaning and the contexts surrounding those operations, and that those practices inspire new kinds of instructional strategies designed to enhance literacy achievement.

**Keywords:** content area literacy, literacy practices, literacy instruction, sociocultural



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## Introduction<sup>1</sup>

**T**he things we do in math helped me think about how to teach literacy in math. What I learned was teaching math literacy was just good math teaching. Knowing how to conduct and interpret measurement, to recognize the need for an equation, and solve it. This is what we do.

--Sophia, secondary math major.

The Common Core State Standards for English Language Arts and Literacy (CCSS) (2010) have prioritized literacy integration across the content areas. In an effort to equip preservice teachers with literacy strategies to facilitate the delivery of subject matter within their disciplines, most United States' education state departments now require secondary education majors to complete content area literacy coursework as part of their certification programs (Draper, 2008; Friedland, Kuttensch, McMillen, & del Prado Hill, 2017). These courses are important for preservice teachers because they help dispel the notion that literacy learning is exclusive to certain disciplines and offer textual strategies that can build content knowledge (Defrance & Fahrenbruck, 2016; Gillis, 2014; Hynd-Shanahan, 2013; Lester, 2000).

Despite these efforts in policy and practice, many new teachers are still reluctant to promote literacy in their content areas (Barry, 2012). Research on this hesitancy suggests that skepticism of literacy instruction is due to a combination of factors (Shanahan & Shanahan, 2008). Part of the problem is philosophical, with some educators lacking an understanding of the importance of literacy (Alger, 2007; Spencer, Carter, Boon, & Simpson-Garcia, 2008), while others enter the profession unprepared to deal with the pedagogical challenges of

implementing literacy strategies (Fisher & Ivey, 2005; Lesley, 2014). Institutional obstacles also prevent wholesale changes in literacy across content areas. New teachers are especially susceptible to the pressures of teaching toward achievement on standardized tests to demonstrate effectiveness and accountability (Au, 2007; Mitton Kukner & Murray Orr, 2015), and many educators feel constrained by the demands of covering prescribed amounts of curricula (Darvin, 2007; Soares, 2012). In response, continued effort is needed on the part of teacher educators to provide discipline-specific strategies for improving the literacy instruction of preservice teachers.

While many teacher educators have bolstered their emphasis on literacy strategies in recent years, more work is needed to ensure that teacher candidates are prepared to provide literacy instruction that is not only centered on content area subject matter, but also contextualized around the interactive ways in which meaning is made in academic spaces. All disciplines have their own opportunities for students to demonstrate knowledge. From a text-based perspective, each content area presents its own set of terminologies, vocabulary skills, and textual features. From a sociocultural perspective, students collaborate through constructive literacy practices to make meaning and accomplish tasks within content areas that are more interdisciplinary than isolated and more reflective of communication in social settings than traditional notions of reading and writing. By approaching literacy instruction as the things we do in our disciplines, teacher educators can perhaps better prepare candidates across content areas to meet the present challenges of literacy integration. This study sought to answer the question: How does an emphasis on discipline-specific literacy practices impact preservice teachers'

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<sup>1</sup> I acknowledge that there is a gender spectrum and that myriad pronouns exist that I can use when referring to individuals in my writing. Throughout this article I use

pronouns to refer to individuals that correspond with the pronouns that they use to refer to themselves.

confidence and competence in designing content area literacy instruction?

### **Leveraging Disciplinary Literacies for Content Literacy: A Sociocultural Approach**

A sociocultural perspective of teaching and learning is helpful for content area literacy teachers interested in discipline-specific practices because such a view emphasizes the social, historical, and cultural contexts in which communication occurs (Perry, 2012). Literacy in and out of academic spaces involves thinking and doing that is socially situated within the contexts of meaning-makers and their communities (Gee, 2012).

Although social contexts may not fully explain the process of how people learn to read and write, they can illuminate the types of knowledge and skills needed to effectively engage in given literacy practices within respective disciplines. Content area literacy courses feature myriad disciplines, all shaped by social and cultural contexts that define what it means to successfully navigate as a member of its community.

Instructors who facilitate these courses may better position preservice teachers for instructional strategies by encouraging a focus on the practices that collectively define literacy within disciplines.

Bogard, Sableski, Arnold, and Bowman (2017) describe disciplinary literacies as the “ways of speaking, thinking, reading, and writing that are consistent with those of experts in a domain” (p. 44). While these operations are largely school-based and can be understood as occurring within academic settings, Chauvin and Theodore (2015) add “habits of practice” (p. 2) to their definition of disciplinary

literacies. This addition attends to the hands-on applications of learned skills as well as the transference to real world situations that disciplinary abilities enable, while also accounting for the discipline’s social contexts wherein knowledge and aptitudes are developed. Disciplinary literacies, including a domain’s academic and practical knowledge, are cultivated alongside subject matter knowledge through content literacy instruction (Bogard et al., 2017).

Traditionally, content literacy has privileged the learning of subject matter and skills students can apply across content areas through strategies

centering on text-based comprehension, interpretation, and responsiveness (Chauvin & Theodore, 2015). Teaching content literacy explicitly through reading and writing alongside texts can help students develop disciplinary literacies by helping them learn how to understand vocabulary, interpret textual features such as graphs and tables, and explore deeper thinking and comprehension (Moss, 2005).

However, a text-first approach

to disciplinary literacy may prevent some students from learning the content by failing to address their social or cultural needs (Gee, 2012). Many students’ culturally defined perceptions and applications of literacy may be inconsistent with those prioritized at school (Heath, 1983). School structures including literacy curriculum and instruction that do not respond to students’ linguistic or cultural identities are not supportive in their development of disciplinary literacies (Cochran-Smith, 2009; Gay, 2010; Ladson-Billings, 2006; McNaughton, 2002).

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For reluctant readers or students who struggle with decoding, or for learners whose home lives feature a greater emphasis on hands-on experiences, prioritizing reading and writing tactics may not provide the greatest pathway to disciplinary literacies. And while students come to school with diverse literacy contexts, the content areas themselves vary greatly in how text-based materials and strategies are positioned within curriculum and instruction. Certain disciplines such as English Language Arts (ELA) and social studies are inherently more literacy-based than other content areas like mathematics and science; thus, learning activities designed by their instructors may be more likely to contain direct links to literacy instruction. As a result, literacy components may be stronger in some content areas than others, even as CCSS encourage interdisciplinary literacy integration. Foregrounding the actual practices that individuals and groups engage in while performing competently within the content area, in conjunction with text-based approaches, is perhaps an ideal way to ensure the inclusion of literacy instruction across the disciplines.

### **Discipline-Specific Literacy Practices in Content Area Teacher Education**

When emphasized in learning environments, literacy practices allow for the integration of both content literacy involving academic subject matter knowledge and disciplinary literacies including skills and competencies, many of which are cultivated outside of school (Curry, Reeves, & McIntyre, 2016; Mitton Kukner & Murray Orr, 2015). Content area teachers who incorporate the literacy practices of their disciplines not only expose students to the hands-on processes of becoming literate, but they subsequently improve students' text-based content knowledge through vocabulary command and reading capacity (Brozo, 2010). In teacher education, positioning field-based literacy practices as the

foundation of knowledge and skills within a discipline offers direct disciplinary training while allowing for the design of literacy strategies and new perceptions of literacy which emerge from those experiences (Daisey, 2009; Husband, 2014).

In their longitudinal study of preservice and early career high school content area teachers, Mitton Kukner and Murray Orr (2015) track the changes over time in how educators across disciplines infuse literacy practices in their teaching. By clearly articulating how and why literacy practices are important to curriculum and instruction, Mitton Kukner and Murray Orr (2015) argue that teachers achieve “expanded understandings of how literacies are integral to their content areas; regular use of literacy strategies as opportunities for high school students to deepen their thinking and learning about topics in the content area classroom; and clear connections to curriculum outcomes along with appropriate assessment plans” (p. 46). The present study seeks to utilize this framework within the context of a single, interdisciplinary cohort using literacy practices as a vehicle for preservice teachers to not only think of themselves as literacy instructors, but to also apply in their learning designs discipline-specific literacy practices as operations that are demonstrative of literacy.

This study also responds to Johnson, Watson, Dalhanty, McSwiggen, and Smith (2011), who call for content area preservice teachers to understand that disciplinary knowledge and skills can be promoted through content-specific literacy strategies of instruction and assessment, and builds upon the work conducted within content area literacy teacher education courses by Friedland et al. (2017) who find that a focus on linking literacy integration with disciplinary demands can position preservice teachers to feel more open to teaching through a literacy lens, especially within content areas which have at times underestimated the importance of

literacy. Demonstrating the link between literacy integration and the learning of a discipline during teacher education coursework can encourage preservice teachers to recognize literacy instruction and disciplinary instruction as inclusive, interdependent operations (Conley, 2012; Hillman, 2014; Masuda, 2014). Renewing an emphasis on cultivating preservice teachers' confidence and competence in designing literacy instruction presents challenges for teacher educators, many of whom must redirect their own traditional notions of text-based literacy to be rooted in aptitudes and actions of specific disciplines (Fang, 2014).

## Method

### Context

As a required course for secondary education majors at my large university in the Southwest United States, Content Area Literacy emphasizes development of literacy instruction for preservice teachers from all disciplines. Positioning all students to see themselves as literacy professionals, regardless of their previous experience with literacy education, is an early step in this process. This involves not only a shift in how many preservice teachers approach literacy in their methods, but it is also a departure from the ways in which they have *thought* about literacy. A major objective in this course is to encourage preservice teachers to move beyond a perception of literacy instruction that involves merely teaching students to read and write into a more complex, sociocultural perspective regarding the things we do as meaning makers and actors in our respective content areas. Sophisticating an approach to literacy instruction positions preservice teachers to develop pedagogies more

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reflective of the social realities of secondary classrooms.

### Participants

Thirty-four secondary preservice teachers from a range of content areas were enrolled in the course, and I recruited participants using convenience sampling (Merriam, 2009). Six individuals agreed to be focal participants in the study, which was conducted at the start of the semester and lasted for six weeks. Individually, each student selected three seminal texts they felt best illustrated the literacy practices of their content area and wrote a short essay analyzing the literacy practices central to their discipline. When the class convened a week later,

students met in content areas to discuss their texts and compile a master list of disciplinary literacy practices. They then individually constructed three original lesson plans emphasizing one or more of their seminal literacy practices. Students were given autonomy to target content area learning objectives and CCSS of their

choice, but their design had to be supported by and supportive of one or more of the literacy practices they identified in the texts. Participants had one week to complete each of their lesson plans before presenting a summary of the plans in interdisciplinary groups.

All six participants were senior undergraduates in their early 20s from different content areas and will be discussed using pseudonyms. Katerina, a science major with an interest in teaching upper level chemistry courses, identified as a white female. Max was an agriculture (AG) major hoping to teach high school agronomy and identified as a Latino male. Lisa, a physical education (PE) major hoping to



teach high school health and fitness classes, identified as a Latina female. Sophia also identified as a Latina female and was a math major interested in teaching freshmen algebra and senior statistics. Ally, a music education major pursuing a band director position, identified as a white female. And Ivan, an ELA major interested in teaching poetry and creative writing at the junior high level, identified as an African American male.

The unit was student-driven and facilitated by participants acting individually and in groups. While I offered feedback on students' progress as needed and helped to keep projects on schedule, my positionality was that of an investigator collecting data in the research site

### **Data Collection**

Because my research question focused on understanding how an emphasis on literacy practices could impact literacy instruction both in participants' perceptions of themselves as literacy teachers as well as in their instructional design, I needed to analyze participants' incorporation of literacy practices across a variety of texts (Creswell & Plano Clark, 2011). Five sets of data were collected during the study: 1) two surveys: the first completed prior to the unit, the second completed after, 2) essays analyzing content area literacy practices, 3) lists of literacy practices compiled within each content area based on selected seminal texts, 4) three lesson plans inspired by each seminal text and its featured literacy practices, 5) transcriptions of semi-structured interviews.

**Surveys.** Two open-ended surveys were collected from each participant. The first was completed prior to participants' work with seminal texts and analyses of literacy practices while the second was completed following the unit. The first survey asked students to describe with accompanying details the challenges

they felt when thinking about designing effective literacy instruction in their content areas. In the second survey, participants were asked to describe with accompanying details whether or not their work with literacy practices helped them think about how to deal with the challenges of designing effective literacy instruction in their content area.

**Analysis Essay.** Toward the objective of encouraging preservice teachers to revisit their conceptions of literacy, a number of course assignments were pivotal in helping students develop instructional skills for literacy learning over time. One such activity was the Content Area Literacy Practices Analysis Essay in which students collaborated within content areas to cultivate an understanding of how literacy is demonstrated and reflected through communication skills, knowledge operations, and hands-on actions within their disciplines. Individually, students selected three texts to analyze which they understood as seminal in their fields.

**Lists of literacy practices.** Following their reading and analysis of each of the three seminal texts, participants formed content area groups to share findings from their essays and to compile lists of no fewer than 10 literacy practices they identified in the texts. These lists served as a key resource for the construction of lesson plans and offered participants a framework by which to consider what literacy looks like in their disciplines. In compiling their lists, groups collapsed similar practices. Table 1 contains a complete list of literacy practices compiled by the content area groups.

**Lesson plans.** After they had discussed their essays considering the contributions to their field made by the seminal texts and their featured literacy practices, participants then individually designed literacy instruction as a series of three content area lesson plans. These plans emphasized one or more

**Table 1*****Compiled Literacy Practices by Content Area***

Content Area	Literacy Practices
Agriculture N=5	learn and explore the world around, know sources and production of food and goods, know physical principles behind machinery, make connections between life and agriculture (AG), know the variety of career options, prepare students for the real world, write reviews of AG articles, locate quality AG podcasts, understand vital information like vaccine labels, know environmental impacts of fertilization.
Art N=1	knowing artistic eras and movements, recognizing work of particular artists, discussing purposes of art, draw, throw a clay pot, identifying shapes and figures, utilize disciplinary vocabulary, read visual art, discussing benefits of art, paint.
Business N=2	economic literacy, apply economic concepts in real situations, make effective decisions, set measurable goals, identify possible resolutions to problems, conduct rational decisions with minimal resources, understand inequality between wants and resources, know what productions and production factors are, economic terms, allocate resources, know relationship between financial rewards and human behavior.
English Language Arts N=4	Identifying elements of literature such as theme, characterization, plot, symbols, etc., literary analysis, recognizing reliability of narrators in written works, composing essays in multiple genres, editing compositions for conventions, composing written works with correct spelling and grammar, read critically, think with inquiry, formulate opinions based on evidence, know sentence structure, describe experiences in writing.
History N=4	read primary sources, knowing kinds of documents, analyze different points of view for single events, constructing physical and metaphysical timelines, recognizing bias in historical perspectives, connecting patterns in history to modern life, know history encompasses everything else, know the impact technology has had on our understanding of history, develop critical media literacy, recognizing repetitive trends throughout history.
Math N=5	read math text features, understand word problems, locating key words, break down what the problem is asking, finding the main idea, know how to apply equations, know to solve equations, apply math to solve every day real world problems, apply math to social justice issues, know how to use statistics.
Music N=3	combine practical and philosophical skills, self-discipline, communication, music appreciation, leadership, teamwork, expression, recognize particular sounds, play instruments, musical terms, parts of instruments, biographical knowledge of composers, know musical genres, enhancing life through music.
Physical Education N=3	know the steps and benefits to a healthy lifestyle, compete with honor, cooperate well in teams, problem solving in stressful situations, read and follow directions or steps to complete a task, understand structures of gameplay, fair play, teamwork, read health texts, follow health plans.
Science N=4	read and follow set of lab instructions, access scientific journals, know scientific vocabulary, DNA extraction, organism dissection, know what you are supposed to learn in a lab, identifying appropriate scientific articles, understanding scientific language, using textbooks as resources, read like a scientist.
Social Studies N=3	synthesizing events into coherent structures, engage in thoughtful debate, know how politics work, define purpose of government, know different types of governments, how to structure an effective argument, write and orate persuasively, know all sides of an issue, geographic knowledge, geologic knowledge, landscape knowledge.

of the literacy practices they had recognized as well as topics and subject matter emphasized in their seminal texts.

**Interviews.** The six preservice teachers who were invited to participate in semi-structured interviews did so following the submission of both surveys. The questions I asked participants were inspired by the challenges they identified in designing literacy instruction, along with their work with literacy practices, specifically, how emphasizing operations within their content areas impacted both their confidence and competence in designing literacy instruction. Participants were encouraged to speak freely while describing their experiences with literacy practices (Spradley, 1979).

### Data Analysis

Content Analysis (CA) was an ideal method to analyze the data because of its applicability to a broad collection of texts created with the central objective to convey meaning through messages (White & Marsh, 2006). CA is defined by Hoffman, Wilson, Martinez, and Sailors (2012) as “a flexible research method for analyzing texts and describing and interpreting the written artifacts of a society” (p. 29). Ahuvia (2001) makes a key methodological distinction between quantitative CA that is used to quantify instances and frequencies of content within texts and qualitative CA that is implemented for the purposes of “counting interpretations of text” (p. 139). I employed the latter as my research question focused on how literacy practices impacted how preservice teachers felt and operated as designers of content area literacy instruction.

I needed to interpret how participants described their development as literacy teachers both in their survey responses as well as in how they contextualized literacy practices in their essays, lesson plans, and interviews. This rigorous analysis

involved reading the collected texts as a cohesive set of materials multiple times while keeping in mind my research question and considering how participants may have been demonstrating growth as instructional designers (de Beaugrande & Dressler, 1981; Neuendorf, 2002). I wanted to understand their inclusion of literacy practices in learning activities by investigating how such operations were positioned in their lesson plans and how they were contextualized within the larger objectives of teaching literacy within a particular discipline.

Schreier (2012) offers a step-by-step procedure for conducting qualitative CA. The first stages involve articulation of research questions and selection of textual materials to be analyzed. My data collection was driven by my research questions, so the texts I selected were participants’ surveys, essays, lists of literacy practices, lesson plans, and interviews. The next step suggests the researcher construct a coding frame while reading the texts with the research question in mind. This frame is fluid and can be refined as the researcher codes content in the text (Schreier, 2012). Reading through the texts chronologically, I compiled a list of codes that reflected the ways in which participants’ literacy instruction developed throughout the study. I also tallied the number of times each code was present in the materials (Table 2), a deductive process that allowed me to create codes that were responsive to the range of content produced in the texts (White & Marsh, 2006).

Schreier’s (2012) final steps feature analysis of the coded data involving multiple reviews of the texts. Using my list of codes as a reference, I reread the collected texts twice, ensuring that my list of codes accurately represented the textual content (Curry, Webb, & Latham, 2016). Following multiple reviews of the coded data, I collapsed the codes into theme groups and triangulated these groups with my codes



**Table 2*****Final Codes and Frequencies Across Texts***

Code	Number of Times Code is Present
Access to materials	9
Available time	8
Background in literacy	5
Confidence in literacy	10
Demands for testing	11
Keeping instruction fresh	7
Knowing the discipline	4
Literacy's place within content area	11
Making content engaging	6
Making literacy student-centered	8
Perception of literacy	12
Support of colleagues	8

and the original texts (Yanoff, LaDuke, & Lindner, 2014). This latter stage resulted in establishing of the following three themes from the collected data: 1) understanding one's discipline through a literacy lens, 2) the process of literacy instruction, 3) literacy infrastructure (see Table 3).

### **Findings**

Emphasizing literacy practices within content areas proved to be an effective intervention for

participants to develop both confidence and competence in designing literacy instruction. In this section, I share findings from the study by describing each of the three themes along with their corresponding codes, while discussing key excerpts and samples from collected data.

### **Understanding One's Discipline**

The first theme in which participants demonstrated growth as designers of literacy instruction was

**Table 3****Themes**

Theme	Codes Within Themes	Total Codes Within Theme
Understanding One's Discipline Through a Literacy Lens	Background in literacy, perception of literacy, literacy's place within content area, knowing the discipline	32
The Process of Literacy Instruction	Making literacy student-centered, making content engaging, keeping instruction fresh, confidence in literacy	31
Literacy Infrastructure	Access to materials, available time, demands for testing, support of colleagues	36

understanding one's discipline and contained the following four codes: a) background in literacy, b) perception of literacy, c) literacy's place within content area, d) knowing the discipline.

During the first interviews, participants' descriptions of their literacy backgrounds consistently referred to their experiences with reading books as students in K-12 settings. Preservice teachers who enjoyed a love for reading in younger years mostly expressed positive experiences in literacy, as well as positive outlooks on designing literacy instruction, while the opposite was true for those who did not enjoy reading in school. Ivan, interested in poetry since elementary school, developed a fondness for reading early on that he is eager to share with students. Discussing how he would like to connect young readers with his favorite authors, Ivan said, "I don't care if they're into Langston Hughes, Shakespeare, whatever. As long as they're reading, I'm happy. And if they're not, that's where I come in." Sophia, on the other hand, had struggled to connect with many of

the genres offered to her in school. By junior high, she had hardened to reading, saying, "I guess it's no surprise I wanted to become a math teacher. Literacy isn't really me." Though they described very different experiences, both Ivan and Sophia believed their backgrounds largely determined how effective they could be at designing content literacy instruction.

Prior coursework and preservice training in literacy also contributed to how participants initially described their backgrounds. Max discussed a complete absence of literacy in his previous agriculture courses, which caused him to doubt his ability to incorporate literacy in his instructional design. Discussing a typical lesson plan he had written in the past, Max said, "Basically they taught us to say here's what we're doing today. Today we're planting these seeds. Watch me do it. Now you do it. We didn't have literacy." Katerina described science courses that emphasized following instructions in lab manuals, and she was similarly apprehensive

about making literacy part of her instruction. Referring to a Bunsen burner lab in a chemistry lesson, Katerina stated, “Literacy for us was all about making sure you did exactly what the directions said. When to heat the chemicals, when to unscrew the valve, things like that.”

For different reasons, all participants initially cited obstacles with translating their backgrounds into literacy futures as content instructors. Although Ivan was excited about designing literacy instruction, he felt his training had burdened him with an abundance of instructional strategies that needed to be culled into actionable lesson plans. Sophia and Max both struggled to recognize a link between their content areas and literacy instruction.

Katerina’s conception of literacy was locked into reading and following directions, which limited how she thought she could incorporate literacy strategies in science. Building instruction from a foundation of disciplinary practices helped preservice teachers reframe their backgrounds in a

**“Building instruction from a foundation of disciplinary practices helped preservice teachers reframe their backgrounds in a constructive manner.”**

constructive manner. In his first survey, Max pointed out that he felt as though he was an expert in agriculture. Having grown up working on his family’s farm 100 miles from campus, Max always knew he wanted to teach others about agricultural careers. Yet, he was equally adamant that literacy had little to do with the daily operations he engaged in. His analysis of literacy practices exhibits a shift in this thinking.

In the following essay excerpt, Max sets the foundation for his content literacy lesson plans by discussing the multiple disciplinary practices he located in seminal texts:

I found a text on soil management which is my world. Lots of what we do in AG is dig in the dirt. The content of the book was very useful and contained content that cannot be learned from going out and digging in dirt. It contains details of the contents of the soil, the different types of soils, the necessities of different plants. I found the inclusion of different fertilizers interesting. I plan to use these texts to support the work. This will help my students become knowledgeable about AG and better readers too.

Max’s first lesson was inspired by the soil management information and involved setting up a tarp on the classroom floor with small boxes

containing different types of soil for students to investigate. He called for students to create flip charts to document their experiments and generate conclusions about their research. Max was able to translate the literacy practices described in the text into teaching activities because he

saw them as supportive, through a literacy lens, of what it takes to perform successfully in the field.

Literacy practices helped preservice teachers to alter their perceptions of literacy. Ally struggled at first to think about how to design literacy instruction because she felt the “unique language” of music covered so many modalities. Ally said, “Music is physical, auditory, emotional, and it’s also a written language. Lesson plans are a challenge for me—putting the music language into words.” In her essay, Ally generated an extensive set of practices that represented the variety in processes and styles of her field. What had initially made her doubt her instructional design, the sheer breadth of music literacy, actually helped her develop textual

activities. Describing her lessons, Ally said, “I have everything from reading Plato’s *Aesthetics* to persuasive writing arguing for jazz’s complexity over rock. I feel like the different practices are strengths for music.”

Ally’s perception of literacy instruction advanced from struggling to put the language of music into words for lesson plans to focusing on the performance areas that music students must achieve. Her thinking evolved from perceiving a disconnect between the hands-on activity of her field and literacy learning to recognize both concepts as part of the same process. She moved from a position of powerlessness in which she believed literacy resources were scarce and even detrimental to her content area to a position of empowerment in which she viewed literacy practices as a collection of deep resources for designing music instruction. Like Max, Ally came to appreciate literacy’s place within her content area by interacting with and expanding on the very practices that make her an expert in the field.

Through their analytical work and instructional design, preservice teachers established that knowing the literacy practices of the discipline contributes to knowing the discipline itself. In her second interview, Katerina explained that she often went through high school labs following each direction copiously. From start to finish, she replicated the experiment exactly as instructed. Yet, she said, “Half the time, when I was finished, I had no idea what I did or what I was supposed to learn and see.” Katerina explained that just because a student can reproduce lab results correctly does not necessarily indicate science proficiency. She went on to describe the value she learned in using literacy practices to create learning activities, saying, “What I had was the hands-on, but it didn’t mean anything. What was missing was the actual knowledge of what each of those steps meant. That’s the literacy component.

Literacy and action go together.” Katerina saw being literate in science as being able to not only perform scientific steps, but also to explain them, to carry both the knowledge and skills necessary to engage in the field.

Lisa also demonstrated growth as a designer of content instruction. After admitting in her first survey that her PE classes made, “Very few mentions of literacy,” she stated in her second interview that she had come to view literacy as a significant component of physical, health, and wellness education. A segment of her third lesson for middle school students on types of physical flow, captured in Figure 1, demonstrates her comprehensive objective of understanding the discipline through an informed application of disciplinary practices.

### **The Process of Literacy Instruction**

The second theme was the process of literacy instruction that participants came to recognize through the following four codes: a) making content engaging, b) making literacy student-centered, c) keeping instruction fresh, d) confidence in literacy.

Designing content literacy instruction with sufficient engagement was a significant concern for participants. Ally expressed early on a fear that incorporating literacy in her music lessons would “drop a boredom bomb on students.” By her second interview, Ally’s fear of boring her students had been replaced by a feeling of excitement in the variety of literacy instruction she could provide. Discussing her content area’s list of literacy practices, Ally said, “The good thing is we’ll never run out of things to do in music, and the list just keeps getting bigger.” For her second and third lessons, Ally designed activities with Beethoven’s Fifth Symphony including sound imitation and vocabulary exercises within each movement and alternating stations of oral storytelling, political debate, and expository writing using the Mozart Requiem. Ally honed her ability to

illustrate disciplinary practices such as instrument positioning and utilizing symbol systems within academic tasks indicative of cultural integration.

Lisa also transferred disciplinary practices into engaging content literacy instruction. Using a square dance lesson to teach the social values of dance literacy, she modified an earlier practicum lesson she had used with sixth grade students. Lisa felt her previous lesson had come up short because it only engaged students who were familiar with and interested in dance. Other students failed to see the value in subject matter, which Lisa felt included relationship building, empathy, and more.

Describing her motivation for improving the lesson, Lisa said, “Obviously the skills are important, so I’m doing a disservice to students by not engaging all of them.” In her new design, Lisa used the same square dance article her cooperating teacher had suggested. However, instead of instructing students to begin class by reading the article, she began with the practices involved in dance. Her first several sequences involved whole-class enactments of key dance operations, many of which were performed by peers in her interdisciplinary group. She went on to describe her lesson: “I started with demonstrations of allemande, angel, and hot hash. I want the kids doing the moves so the terminology means something. Not the other way around.” Lisa had decided that the overall objective of dance literacy was attainable through a focus on the interactive techniques themselves, supplemented by text materials.

Work with literacy practices led preservice teachers to commit to student-centered content literacy. Sophia explained that at this point in their programs, she and her peers were aware of the key components of a quality lesson plan. What she felt she struggled with at times was defining the lesson’s central learning target. She said that despite her love of math, she thought the content was all too often

delivered through formulas over substance. The impact of literacy practices on Sophia’s pedagogy is evident in the following excerpt from her second interview:

I remember back in high school the main objective was a one word topic like parabolas or slope. And still today math teachers I observe, sometimes it’s like, today we are doing section 4.3. If you’re like me and you know the problems and memorize how to do them you’re fine. This class has helped me see that for lots of kids this isn’t good enough. That’s not teaching math literacy. The disciplinary practices within that section, in the real world, that’s teaching. The how and the why. Then it’s about the student.

In designing content area instruction, Sophia was committed to making literacy student-centered by considering questions students may have during her lesson. She used disciplinary practices to maneuver her way through her lesson design, not only as primary objectives, but also as references to think about potential student concerns. Sophia’s first lesson dealt with fractions and involved a trip to the athletic director’s office to learn about the school’s budget for activities. An excerpt from her lesson plan in Figure 2 features the questions she considered to keep the activity focused on students’ needs and interests. Sophia discussed math literacy as not merely memorizing how to work with fractions. Rather, she described the need for students to experience how fractions actually operate in the world. By incorporating connections and explanations in response to likely questions, Sophia focused on the processes of student learning and aimed to facilitate that process by organizing sequential instruction based on math operations.



**Game Description:**

1. Flowing Flow Sentences:

- Setting: Children scattered throughout general space.

- Task/Challenges:

**T: (free flow)** On the board are a number of sentences. The first one says, “walk, run, jump.” On the signal (start), begin to travel, using the sentence as your guide. The words are clear; the commas mean to pause and the periods mean to stop. Make it very clear where your commas are and when you stop. Repeat the action of the sentence three times.

\*other possible sentences: “Walk, sneak, pounce.” “leap, stamp, twist.” “Creep, hop, flop.”

**T:** What you just did was an example of bound flow. Now you are going to turn the same thing into free flow. This time, on the signal (start), you are going to follow the same sentences but without the punctuation marks- in other words, no commas and no periods and no pauses or no stops. So, you’ll start at the beginning of the sentence and then you’ll go all the way through; no one should know when you are going to change to the next action. Your action should just flow smoothly, one action leading to the next. When you get to the end of a sentence, just start over again. On the signal (start), let’s start with the first sentence. *(Children enjoy using different interpretations of different punctuation marks, such as the exclamation point and question marks, as different ending shapes.)*

**C:** Now that you are so good at the sentences, you are going to make up one of your own. On the board is a list of words. (Such as walk, shrink, gallop, skip, explode, jump, roll, and hop are good to use.) Choose three of the words, and make up your sentence. Put punctuation in because punctuation is the key to when you stop or pause. Practice your sentence five (3 if you’re short on time) times with punctuation in it; then practice it five (3) times without punctuation. Practice it very carefully because we’ll show some of the sentences to the class. It should be obvious when the punctuation is and isn’t in the sentence.

**T:** Now that we have got the basics of our locomotor movements down I want you to pretend that you are an airplane and I want you to fly around room when I say go. When I say comma I want you to slow down, and lastly, when I say period I want you stop. So now let’s pretend we are in the navy and we are in the fighter jets, we are going to start flying.

So, ready? Go!... Comma!... Period!...

**Closure:**

1. What was the focus of today’s lesson?
2. Can you tell me what a comma means?
3. What about a period?

**Figure 1. Lisa’s Flow Lesson.**

Participants indicated that emphasizing disciplinary practices would allow them to keep their instruction fresh. Ally expressed that literacy practices had opened up new and innovative pathways for her to combine themes and topics across content areas. Though Sophia’s plans included the textbook as a component, its exercises were complimented with field-based exploration. Preservice teachers cited literacy resources beyond textbooks in their lesson plans including professional organizations, faculty-sponsored clubs, and internship programs. The Modern Language Association (MLA) handbook Ivan used in his third lesson detailed numerous composition and source documentation skills such as formatting research papers and composing in-text citations. Similarly, the Future Farmers of America (FFA) promotes numerous skills related to AG education and awareness including environmental resources management and citizenship building. Literacy practices sparked fresh ideas and gave preservice teachers options on how to design opportunities for students to demonstrate domain mastery.

As participants’ learning designs flourished, so did their confidence in content literacy. Once Max began incorporating the many hands-on, field-based activities, he was able to structure learning sequences and entire lessons around central operations, often using texts as supplemental devices to enhance the lesson. While discussing his growth as an instructional designer throughout the unit, Max stated, “It’s hard to believe but the others in English and history were asking what I would do [to] change their bell ringer or help them with a wrap-up activity. For the first time I feel like I’m the expert.” Sophia also expressed an increase in confidence regarding her ability to design effective literacy instruction based on her interaction with literacy practices. “Without looking at real life, lots of these skills are learned in isolation. Most students aren’t learning the value of these practices in their own life. I’m getting better at writing these opportunities for change.”

Literacy practices offered a fertile system of content instruction for preservice teachers who grew in design proficiency and improved their perceptions

<b>Measurable Objective</b>		
The student will be able to demonstrate application of a fraction in relationship to a school’s budget for athletics and activities through analysis of budget items followed by an activity of solving equations with fractions.		
<b>Description of the Lesson</b>	<b>Anticipated Time</b>	<b>Questions for Consideration (Self &amp; Student)</b>
<p><u>Statement</u>: A fraction is a compositional ratio of a single item. In a budget, each piece of the overall budget represents a fraction of the total.</p> <p><u>Bell Ringer</u>: In groups we will use fractions to find out how much time you spend on your smartphone.</p>	<p>5 minutes</p> <p>10 minutes</p>	<ul style="list-style-type: none"> <li>- we often use fractions without realizing it: cooking, laundry, gassing car, measuring, etc. Any time numbers are involved they represent a part of a larger whole.</li> <li>- total sums of time is like total sums of money: whatever you use represents a change in the sum that is left to use.</li> </ul>

Figure 2. Sophia’s Fractions Lesson.

of what they could do as educators. While discussing her instructional development, Lisa said, “I wish we had this class earlier because I’m so ready to teach now, but maybe it’s good to have it before we student teach because we had the content. Now we have the tools for content literacy.” What Lisa learned is that by being an expert in the field, she had the tools all along. Participants came to see literacy instruction not as a benchmark or finish line they would reach in their preservice education, but rather as an ongoing process of fusing literacy practices with quality instruction. Their confidence exemplified a process of creating engaging opportunities in content literacy while drawing instructional design from deep reservoirs of literacy practices.

### Literacy Infrastructure

The third theme was an infrastructure of literacy which included the following four codes: a) access to materials, b) available time, c) support of colleagues, d) demands for testing.

Access to materials was initially a concern for elective teachers like Ally, Lisa, and Max, yet they eventually cited numerous materials they had developed or considered possible to use in the future. One key reason for this change in their perspective was the number and range of literacy practices they compiled and incorporated into their lesson plans. Ally described early on a nonexistence of literacy instruction in her previous coursework and was at first critical of her access to music literacy materials. She felt that literacy resources in her content area were scarce and considered herself to be at a disadvantage compared to core teachers, who, “just have more available to them.” Ally discussed the positive results of her research with

literacy practices which included the discovery of a music literacy book she could use in her future teaching: “This isn’t a book you will find in any high school syllabus, but it contains everything we do in music. It’s something I can turn the kids onto music with.”

Exploration of literacy practices also played an important role for core content area participants who described an inverse perspective at the outset of the study regarding their access to materials. Ivan felt he had inherited an overabundance of materials in the form of textbooks, literacy theories, and teaching strategies. His concern was more related to selecting the right materials in the right contexts for his students. Targeting specific literacy practices in his learning objectives allowed for clarity in

**“For sure you can read it, but there’s cadence in the streets, in the car, on the phone. I used hip-hop videos, recordings, you name it.”**

choosing particular methods to teach language arts literacy. Discussing his focus on the practice of cadence in the design of his poetry lesson, Ivan stated, “For sure you can read it, but there’s cadence in the streets, in the car, on the phone. I used hip-hop videos,

recordings, you name it. They hear it, they do it, they learn in.”

Participants also demonstrated growth in their approach to the time they had available to devote to literacy. After expressing frustration at the lack of time he had to incorporate literacy, Max said in his second interview, “I never thought vaccination had anything to do with literacy. But when we break down the processes there’s lots of terms you need that go along with it. With the reenactments and visual chart, it’s a good lesson now.” As a core teacher, Sara feared she didn’t have enough time to teach literacy and her math content equally well. Her focus on literacy practices allowed her to view learning of content and literacy learning as

interdependent elements in her lesson plans and see that constructing her teaching directly from disciplinary operations is an efficient use of time. Discussing her geometry lesson involving students' movements on a football field, Sara said, "We were talking in our group, and it hit me that this activity isn't just students learning math, it's students doing math."

Lisa expressed a feeling of isolation when discussing her ability to design literacy instruction when the study began but praised the opportunity to collaborate with peers on how to produce high energy activities based on literacy practices both within and outside her own content area. Offering and accepting feedback on her lesson plans helped her develop a sense of shared responsibility for supporting her colleagues in the constant struggle for more time and better teaching. Lisa stated, "I have to admit when we started this I was wondering what does this have to do with me. And now I see that it has everything to do with me. All of us."

Meeting initially in content area groups gave Lisa and her PE peers the chance to define together what constitutes mastery within the domain they teach. This approach was a break from PE instruction Lisa had experienced in the past, which she describes in the following excerpt:

We've been taught for years that in PE it's like OK, today we're going to play basketball. Here are the rules. Here's the ball. Go. But that's forgetting all the things you have to do to be successful. Following directions, playing as a team, helping the other player up. Being good at basketball isn't what PE is about. What it's about is understanding the game and its value.

In compiling literacy practices, the PE group was able to get to the heart of what it means to be

literate, a process that spawned new and collaborative ways of thinking about instruction. Lisa saw herself and her peers as a team of instructional designers, a stark contrast in identity from how she described the perception held by other secondary majors, who she said, thought PE was nothing more than "Babysitting with dodgeball."

Presenting and discussing lesson plans among teachers from other content areas gave Lisa a comprehensive feeling of support from a wider population of colleagues. Learning about common literacy practices within disciplines and discussing intersections of subject matter spawned numerous conversations about team teaching, interdisciplinary lessons, and themed units. She reestablished herself as an expert in her discipline and developed a framework to seek out experts in other fields for the benefit of designing quality literacy instruction. Lisa further shared that she and a peer from social studies combined literacy practices to workshop a themed unit on obesity levels and poverty rates in which they would design a series of health and wellness activities.

Throughout the study, participants were also cognizant of the reality that teachers are often at the mercy of what resources the administration makes available or what mandates are handed down to faculty and staff. Katerina pointed out that administrative policies and procedures can impact classroom curriculum and instruction including the facilitation of content literacy. Sharing disciplinary literacy practices with different combinations of colleagues helped Katrina practice advocating for literacy in her classroom. As a result, she expressed a desire to not only justify her approach to content area literacy instruction for administrators, but to invite administration to be an active partner in centering school-wide learning around literacy practices. Discussing her unit plan that contained a week long "My Life in Science" forum, Katerina

stated, “At the end of the day, principals decide what goes on for the most part. Why not get them on board? They can help us make literacy a priority.”

Almost unanimously, perspectives on testing were detrimental to participants’ confidence at the outset of the study. Ivan felt that meeting demands for preparing students to be proficient on standardized tests fundamentally shifted the purpose from learning the content to passing the tests. Discussing his passion for poetry, Ivan said, “How can I teach poetry when the tests only want to know if kids know the difference between similes and metaphors? Sure, that’s knowing the terms, but poetry literacy is about connecting with the emotion. That takes time to practice.” Ivan’s justifiable concern was that skills measured on assessments ran contrary to demonstrating literacy in his field, or at least only partially fulfilled the requirements. His focus on the practice of connecting with the emotion is visible in an excerpt of his second lesson plan, captured in Figure 3. Ivan’s emphasis on teaching poetry through the practice of connecting with emotion enabled him to think about new ways to simultaneously design

content literacy instruction while aligning his learning objectives with CCSS that would inevitably prepare his students to succeed on assessments. Ivan’s plan even contains a number of brief transitional “Timed Tasks,” similar to test preparation activities he initially criticized. Foregrounding hands-on practices over memorization of terminology shifted how Ivan thought about the demands of testing. Max pointed out that testing affects his content area as well, stating that while the knowledge and skills students are tested on connect directly to core content, elective teachers also lose instructional time and modify their own teaching to accommodate needs for testing. “We’re all in it together,” Max said.

Designing and collaborating around literacy practices helped preservice teachers see the establishing and maintaining of an infrastructure of literacy as the shared responsibility of entire institutions. From the degree to which schools prioritize literacy instruction in the form of materials, resources, and scheduling to the interaction facilitated among colleagues and the activities assumed by administrators, participants


<b>Grade:</b> 10 <sup>th</sup> -11 <sup>th</sup> Grade	<b>Subject:</b> Language Arts	<b>Date:</b> 10/2/17	<b>Prepared By:</b> 
<b>Overview:</b> Connect writing strategies from Kelly Gallagher’s Write Like This to thinking about emotions in song lyrics through different points of view to help us understand poetry.			
<b>Standards &amp; Benchmarks: (CCSS, and/or other state content standards listed in their entirety)</b> CCSS.ELA-LITERACY.SL.7.2-Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study. CCSS.ELA-LITERACY.RI.7.2-Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.			
<b>Measurable Objectives:</b> The students will be able to talk about feelings and emotions by writing their reactions to different song lyrics like Logic, 1-800-273-8255, George Straight, You Look So Good in Love, Bruno Mars, Natalie because they are another form of poetry and using the same writing strategies students will apply this knowledge to selected poems in our text.			

Figure 3. Ivan’s Poetry Lesson



saw literacy as a school-wide initiative. While acknowledging the many moving parts involved with cultivating a literacy infrastructure, preservice teachers also demonstrated an increase in the number of ways they can contribute to collective efforts in teaching and learning. Literacy practices offered innovative ideas for lesson plans and inspired interactive ways for participants to see colleagues as resources for collaborative curriculum implementation.

### Discussion

This study was guided by the question: How does an emphasis on discipline-specific literacy practices impact preservice teachers' confidence and competence in designing content area literacy instruction? Findings based on participants' interview and survey responses, as well as samples of their instructional design and analytical writing, indicate a significant increase in both confidence and competence as literacy instructors. Focusing their instruction on the specific operations that demonstrate literacy within their fields allowed participants to connect their own knowledge and abilities to the contexts of literacy pedagogy. Across several disciplines, participants not only came to see themselves as capable facilitators of literacy learning, but they also produced quality lesson plans that showcased the intersectionality of literacy and content knowledge.

By honing instructional design alongside an emphasis on content area literacy practices preservice teachers demonstrated growth in both pedagogy and practice. Their analytical work with literacy practices impacted the ways in which they perceived themselves as literacy teachers, while applying disciplinary operations as a foundation for learning activities enhanced their lesson plans and helped participants articulate possibilities of what students could accomplish. Having explored

through collaborative writings and discussions what literate individuals do within their disciplines and subsequently blending those processes with previously learned principles of instructional design, preservice teachers made a triangular connection between what literacy looks like within a content area, how students might learn that content area by enacting literacy practices, and how those operations can become central to curriculum (Mitton Kukner & Murraray Orr, 2015).

Another important point of discussion is that preservice teachers from all concentrations had the opportunity to recognize the foundation for literacy instruction already embedded within the subject matter and operations of their content areas. This natural extension of content deepened their understanding of disciplinary expertise and inspired the development of skills to facilitate contexts for others to learn the discipline. Using disciplinary practices to teach literacy proved more effective than perhaps approaching literacy as a separate, external set of strategies or instruments that must be made to fit into content instruction (Johnson et al., 2011). Positioning secondary instructional design as the collectivization and activation of literacy practices is a significant approach, especially for disciplines such as science, AG, or math where the link between subject matter and literacy is sometimes perceived as nebulous. An emphasis on literacy practices helped participants solidify the connection between learning the discipline and performing the discipline (Friedland et al., 2017). Teaching content well involves teaching literacy within the content well. Effectiveness in this venture can be impacted by how accurately curriculum and instruction align with what disciplinary literacy entails.

The findings in this study also speak to the importance of communities of practice, which can benefit teacher education by allowing for collective

learning in pursuit of common goals and social interaction (Lave & Wenger, 2003; Wenger, 1998). The understanding, process, and infrastructure of literacy instruction are impacted largely by the colleagues, peers, administrators, and students who interact through literacy practices to communicate and engage in disciplinary operations. Within content area groups, preservice teachers examined the literacy practices underpinning mastery within their specific disciplines, a process that allowed for participants to share and expand their insights as fellow experts in the field (Feiman-Nemser, 2001). Literacy practices offered a framework for disciplinary communities to cohere around and expand. Then in interdisciplinary groups, preservice teachers shared summaries of their learning designs and described ways in which their unique literacy practices contributed to their lesson plans. Groups comprised of multiple content areas exchanging ideas on how best to facilitate multiple literacy practices were instructional communities pursuing a shared objective of quality literacy instruction.

### **Limitations and Future Research**

A clear limitation in this study is its absence of direct classroom implementation. While preservice teachers take courses with practicum placements in middle and high schools, this course, and its present study, has no teaching component. To supplement this lack of hands-on teaching experiences, participants collaborated in creation of and reflection on their lesson plans. However, simulated teaching demonstrations among colleagues is no substitute for classroom interaction, and further classroom-based research that tracks the design and delivery of literacy instruction is needed to gauge the impact of literacy practices on formal teaching. Another limitation of this study is its lack of insight on the literacy instruction of preservice teachers who will be working with English language learners. The present findings do not consider language

acquisition, which is a vital component in learning how to become literate within a content area. Numerous scholars continue to conduct research on content area literacy practices within the context of bilingual classrooms, which is needed to investigate how teacher education coursework can best position disciplinary operations in literacy learning beyond first language settings.

### **Conclusion**

The collaborative space negotiated by meaning makers who exchanged content area expertise and instructional methods reinforced Gee's (2012) explanation of the social contexts in which literacy is practiced and offered to future teachers a model for how to engage their own students in the future. As literacy is not an isolated endeavor, the process of designing literacy instruction for secondary learners is equally communal. The diversity of individuals across content areas coupled with the multiple ways in which they approached literacy instruction speaks to the universality and interdisciplinary possibilities of literacy practices.

Disciplinary practices enhanced for preservice teachers both their notion of academic learning of subject matter along with their considerations for experiential, field-based processes. This approach has implications for teacher education classrooms and beyond because it reflects a democratization of literacy learning made possible through the recognition of social and cultural contexts in which learning occurs. Emphasizing literacy practices can help educators offer equitable access to content literacy through the integration of diverse backgrounds and interests of individual learners, treating abilities not as impediments but as strengths in defining unique pathways to domain mastery.

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