

After the Content Course: An Expert-Novice Study of Disciplinary Literacy Practices

Michael A. Kopish¹ & Sarah Lane²

Abstract

This manuscript presents findings and implications from a multiple case study of how teacher candidates in secondary and middle childhood programs learn specialized knowledge, skills, and expertise from disciplinary experts in content courses and enact practices of disciplinary literacy in field placements. An expert-novice framework was employed to explore the pedagogical content knowledge of experts (professors of economics and history) and novices (middle childhood and secondary social studies teacher candidates) who taught history and economics during their clinical internships. Data were analyzed from participants' think-aloud and card sort activities, semi-structured interviews, classroom artifacts, and classroom observations. The findings provide key insights in the preparation of teacher candidates in social studies.

Key words: *Teacher preparation, pedagogical content knowledge, social studies instruction, disciplinary literacy*

Introduction

At many universities, social studies teacher candidates take the majority of their content courses outside Colleges of Education. To illustrate, at one medium sized public university of the 121 total credit hours social studies teacher candidates must successfully complete to graduate, 54 of those credit hours are taken in content-specific courses in other colleges. The breakdown of the 54 credit hours for candidates are as follows: 27 credit hours in history, 9 in geography, 6 in economics, and 12 in political science. The range and number of content-specific credit hours prepare social studies teacher candidates to have depth and breadth of content knowledge in four core disciplines of social studies (i.e. history, geography, economics, civics/government). Moreover, the courses should equip candidates with the requisite content knowledge needed to enact curriculum and instruction aligned with the state standards in social studies and pass any content examinations required for certification or licensure (i.e., Praxis II, Ohio Assessment of Educators).

¹ Associate Professor, Ohio University, kopish@ohio.edu

² Undergraduate Student, Ohio University, sn640612@ohio.edu

As it stands, a significant proportion of teacher candidates' learning occurs in content classes from disciplinary experts who not only provide foundational content knowledge, but model practices of curriculum design, teaching, disciplinary thinking, and disciplinary literacy practices. There is growing recognition that disciplinary literacy involves understanding discourses, social and cognitive practices, ways of thinking and reasoning, and habits of mind undertaken by disciplinary experts (Fang, 2014; Moje, 2008; Shanahan & Shanahan, 2008). Thus, while content knowledge differs from discipline to discipline, so does the discourse and rhetorical knowledge of each discipline. To be sure, the role disciplinary experts play in the development of future teachers is profound.

As teacher educators, we must prepare our candidates to address questions that guide social studies today: What does thinking in the different disciplines look like? What do the experts do and how do school-aged students learn to accomplish it by comparison? What sorts of changes in thinking practices do learners need to undertake in order to become more knowledgeable about and proficient at understanding the world? The answers to these questions involve disciplinary thinking and cognitive and literacy practices compatible with those undertaken by disciplinary experts in history, geography, economics, and civics (Lee & Swan, 2013).

Social studies educators are currently experiencing a paradigm shift from incorporating generic literacy instruction to teaching discipline-specific language and literacy practices (NCSS, 2013). The enactment of this new paradigm can be particularly difficult for current and future social studies educators who teach multiple disciplines (e.g. history, civics, economics, geography). During practicum experiences and internships, social studies teacher candidates are implored to enact literacy practices across multiple disciplines and provide students with opportunities engage in cognitive practices compatible with those undertaken by disciplinary experts (Cuenca, Castro, Benton, Hostetler, Heafner, & Thacker, 2018). But, how are teacher candidates learning the literacy and cognitive practices from disciplinary experts? How are social studies teacher candidates developing deep understanding of disciplinary content, habits of mind, and research-based practices from their content courses? To better prepare social studies teachers to meet the advanced literacy demands in the field, some guidance is needed. Therefore, the aim of this study is to better understand how social studies teacher candidates in secondary education and middle childhood programs learn specialized knowledge, skills, and expertise from

disciplinary experts in U.S. history and economics courses and enact practices of disciplinary literacy in field placements.

Literature Review

Many researchers agree that teacher candidate learning is highly influenced by the communities of practices within which learning takes place (Barton & Levstik, 2004; van Hover & Yeager, 2007; Ball & Cohen 1999; Darling-Hammond & Bransford, 2005; Wilson & Wineburg, 1988; Zeichner & Conklin, 2005). As a whole, this line of research emphasizes the role of mentor teachers in the novice teacher preparation. However, it is important to acknowledge that teacher candidates are often members of several communities of practice: 1) at placement sites with mentor teachers; 2) in content specific courses with disciplinary experts; and 3) in pedagogy courses with education experts. For this study, content courses are of particular interest given the reliance on College of Arts and Sciences for the content-specific training of teacher candidates.

The collaborative training of candidates between colleges of education and the colleges of content courses is not without challenges (e.g., Cochran-Smith, 2005; King, 1987; Zeichner, 1993). Social studies educators have expressed concern that when teacher preparation in content and pedagogy occurs separately, candidates often struggle to apply content knowledge in classroom settings (Segall, 2004). At a minimum, teacher educators expect candidates to acquire *common content knowledge* and have a strong desire for candidates to develop *specialized content knowledge* (Ball et al, 2008). In history, for example, teacher educators want candidates to have specialized historical content knowledge that involves deep understanding of the processes of historical thinking (e.g., Wineburg, 2001). Likewise, in economics, teacher educators have similar desires for teacher candidates to develop discipline-specific economic reasoning and thinking skills consistent with research (CEE, 2000; Davies, 2006; Wentworth, 1987; Wentworth & Schug, 1993). For today's social studies teachers, however, content knowledge alone is insufficient and must be complimented with knowledge of pedagogy and disciplinary literacy.

Disciplinary experts not only provide foundational content knowledge for teacher candidates, they also demonstrate expert knowledge of literacy practices commensurate with their respective fields of study. This study is informed by previous research that helps explain how literacy is conceptualized in two disciplines of social studies: history (Bain, 2012; Reisman,

2012; Vansledright, 2012; Wineburg, 2001) and economics (Schug & Walstad, 1991; Miller & VanFossen, 1994; Walstad, 1992; Morton, 2005). While these studies provide much needed direction for social studies educators, they are limited by their emphasis on cognitive and skill demands of career-level experts. With the exception of history, these studies offer little to the field with respect to pedagogy. Put differently, while these studies moved social studies education toward disciplinary practices, they do not address the transformation of the disciplinary content and practices learned from experts and how teacher candidates in field placements enact it in practice. Compounding the problem, other studies reveal students and teacher candidates are rarely taught to read, write, think, and reason in discipline-specific ways (Fang, 2014; Moje, 2008; Shanahan & Shanahan, 2008). These gaps in the literature warrant an investigation of teacher candidate preparation by content experts outside of teacher education on their journey to become social studies teachers. Specifically, this study addresses three key questions:

1. How do teacher candidates from middle childhood and secondary programs organize curriculum in US history and a self-identified weak social studies content area?
2. How does candidates' organizational schemes for curriculum compare with experts?
3. How do novices and experts teach disciplinary knowledge and literacy practices?

Perspective

In order to capture the alchemy of teaching content and skills through appropriate pedagogical practices, this study acknowledges there is wide acceptance among teacher educators that “content knowledge unique to teaching – a kind of subject-matter-specific professional knowledge” exists (Ball, et al 2008, p. 389). First conceptualized by Lee Shulman (1987), pedagogical content knowledge (PCK) is the “blending of content and pedagogy into an understanding of how particular topics, problems or issues are organized, represented, and adapted to the diverse interests and abilities of learners and presented for instruction” (p. 8). PCK is based on an understanding of what it is about the content that the teacher knows (and has come to understand) to purposefully shape the pedagogy and the associated approach to student learning (Loughran et. al., 2004). PCK develops over time as a repertoire of teacher pedagogical constructions “that the experienced teacher has developed as a result of repeated planning and teaching of, and reflection on the teaching of, the most regularly taught topics” (Hashweh, 2006,

p. 277). PCK provides a sound framework to examine how curriculum is conceptualized and enacted to address content and disciplinary literacy requirements.

Methods

Research Design

For this research, a multiple-case design (Yin, 2003) using an expert-novice framework was employed. Expert-novice studies have a long history in teacher education and have contributed greatly to our understanding of history education (Wineburg, 1991; 1992; 1994; Leinhardt & Young, 1996), and economics education (Miller & VanFossen, 1994).

Participants

Participants for this expert novice study were derived from three distinct groups: a) four (4) undergraduate SE teacher candidates enrolled in a social studies methods course, b) four (4) undergraduate MCE teacher candidates enrolled in a social studies methods course, and c) two (2) disciplinary experts – a tenured history professor and a tenured economics professor. All of the teacher candidates who participated were enrolled in social studies methods courses (one for SE candidates and one for MCE candidates). Running concurrent to the methods course, all teacher candidates completed a 150-hour clinical experience during the 2015 fall semester followed by a full-time professional internship (student teaching) during the spring 2016 semester. The lead author taught both methods courses, but did not supervise teacher candidates during their clinical experience or professional internship. The disciplinary experts had experience teaching both survey and upper division courses in their respective fields. Due to variation in individual teacher candidates' programs of study and course selections, not all candidates enrolled in the expert's courses.

Presented in the findings are data from two students, Ben (an SE candidate) and Jennifer (an MCE candidate) are representative of the two groups and their experiences are included in this manuscript. Ben completed his professional internship teaching 9th grade history and 11th grade economics at a small rural high school and Jennifer completed her professional internship teaching an 7th grade class at a rural middle school. To be licensed in Ohio, teacher candidates must pass an Ohio Assessment of Educators (OAE) content test in social studies – one test is aligned with high school social studies content and one test is aligned with middle school social studies content. On the OAE, both passed the full examination; Ben earned passing scores of 3 out of 4 on the U.S. History and Economic sections and Jennifer earned passing scores of 3 out

of 4 for U.S. History and 2 out of 4 for Economics. Both students were highly accomplished in their studies and exemplar teacher candidates.

Study Methodology

Expert novice studies initially emerged to better understand expert thinking in physics (Larkin, McDermott, Simon & Simon, 1980; Chi, Feltovich, & Glaser, 1981) and chess (Chase & Simon, 1973). In education research, card sort methodology is employed to examine expert thinking (Barton & Levstik, 1998; Harris, 2008). The card sort methodology involves participants sorting through a stack of cards and constructing some sort of concept map by arranging the cards in a pattern that reflects their understandings, labeling groupings of cards, and indicating connections between cards. Such studies allow researchers to examine thinking of disciplinary experts (and novices) with content experience and pedagogy as they organize content for instructional purposes.

Data Collection and Tools

For this study, all participants first completed a think-aloud and card sort activity adapted from a protocol used with world history experts and novice (Harris, 2008; Harris & Bain, 2011). The think-aloud and card sort activity reflected state standards for U.S. History and Economics in Ohio (see Appendix A). All SE and MCE teacher candidates who participated completed two card sort activities: one for U.S. History, a self-identified area of strong content understanding and one in Economics, a self-identified weak content area. The rationale for having candidates identify strong and weak content areas is informed by research that demonstrates educators who teach outside of disciplinary expertise often struggle (Gudmundsdottir & Shulman, 1987; Wilson & Wineburg, 1988), which offered the researchers a unique opportunity to analyze disciplinary knowledge and practices of teacher candidates in two content areas. Presented in this manuscript are findings from candidates who taught both U.S. history AND economics during their fall clinical and spring professional internships. Disciplinary experts, on the other hand, only completed one card sort activity for their respective discipline. Second, all participants completed semi-structured interviews to explore how they employ and enact disciplinary practices (Fang & Coatoam, 2013) with students in their respective classrooms (see Appendix B). Third, the researchers collected and analyzed examples of classroom artifacts and other teaching materials from all participants; the researcher also collected teacher candidates' reflective journals from their internships. Finally, the lead researcher observed classroom

instruction by all participants. Each teacher candidate was observed two times teaching a U.S. History course and two times teaching Economics while the experts were observed one time each.

Table 1

Alignment of research questions with procedures and products

Research Question	Procedure	Product
1. How do teacher candidates from middle childhood and secondary programs organize curriculum in US history and a self-selected weak social studies content area?	Card Sort Semi-structured interview	Concept map Interview transcripts
2. How does candidates' organizational schemes for curriculum compare with experts?		
3. How do novices and experts teach disciplinary knowledge and literacy practices?	Artifact review (syllabi, relevant course materials) Classroom observation	Text data – artifact descriptions Field notes

Data Analysis

The two authors worked to transcribe all interviews and think-aloud, organize all field notes from classroom observations and artifacts from classroom instruction. We enacted processes of triangulation (Patton, 2001), which involved corroboration of findings across data sources (i.e., interviews, think-aloud, field notes, and classroom artifacts) and member checks with participants to ensure validity of our findings. Together, the authors began with an inductive open coding process to identify themes followed by an axial coding process to note relationships (Miles & Huberman, 1994) followed by a deductive process to assign categories. The authors began coding a subset of the transcripts and coding schemes were compared, discussed, and amended. Consensus was reached on the main themes related to the primary research questions. Data from the subset were re-coded using the new coding scheme, which was then applied to all transcripts and other data sources (see Appendix C). To ensure reliability, any coding discrepancies were addressed until final consensus was reached.

Findings

Novice Organization of US History

Similar to previous research that employed a card sort methodology with social studies content (Harris 2008; Harris & Bain, 2011), both SE and MCE candidates in this study made few attempts to connect events, offered little detail to explain connections, and appeared unsure how to represent particular content between historical events. The absence of making connections resulted in both SE and MCE candidates relying on chronology as the main organizational scheme for units of instruction (see figures 1 and 2) and explained connections through cause and effect. For example, Ben stated, “I’d start with Imperialism, and within that I would usher in World War I because Imperialism was a cause to World War I, international agreements would not go next because World War I led to international agreements.”

Candidates also drew few lines to demonstrate connections between themes and events and often appeared unsure how to represent connections for their students. Cards were placed in order based on candidates’ belief that events and themes should be imparted on students based on magnitude of impact. Using the World War I as a reference, Jennifer placed the theme “international agreements” in this unit of instruction because “there’s always something going on that ties the world together, I think World War I is in my opinion the one place in time where international agreements were most important.” Candidates found ways to sort and group cards to construct historical meaning of U.S. history through a chronological exploration of tension and conflict. They constructed pedagogical meaning for themselves by demonstrating moderate factual knowledge and basic understanding of when events occurred. Taken together, the historical and pedagogical meaning framed how they sought to impart U.S. history on their students during classroom instruction as well.

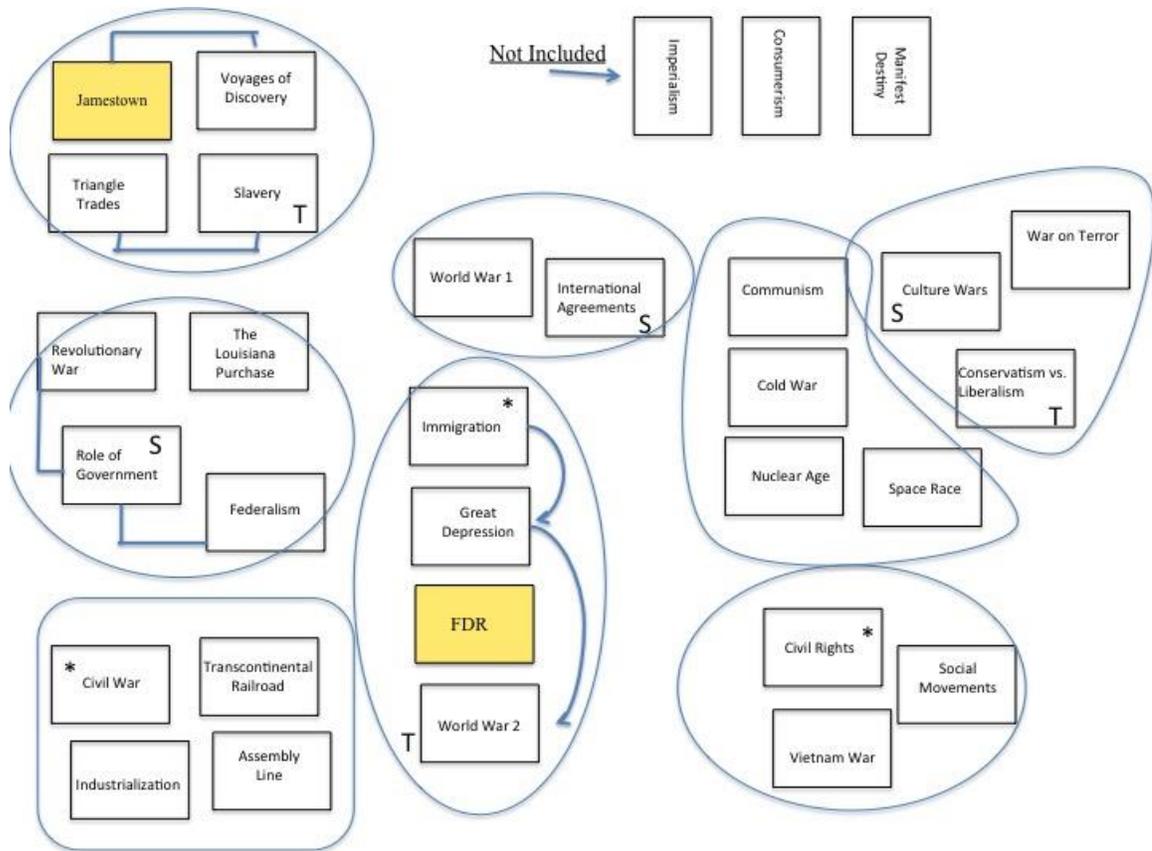


Figure 1. U.S. history MCE candidate card sort

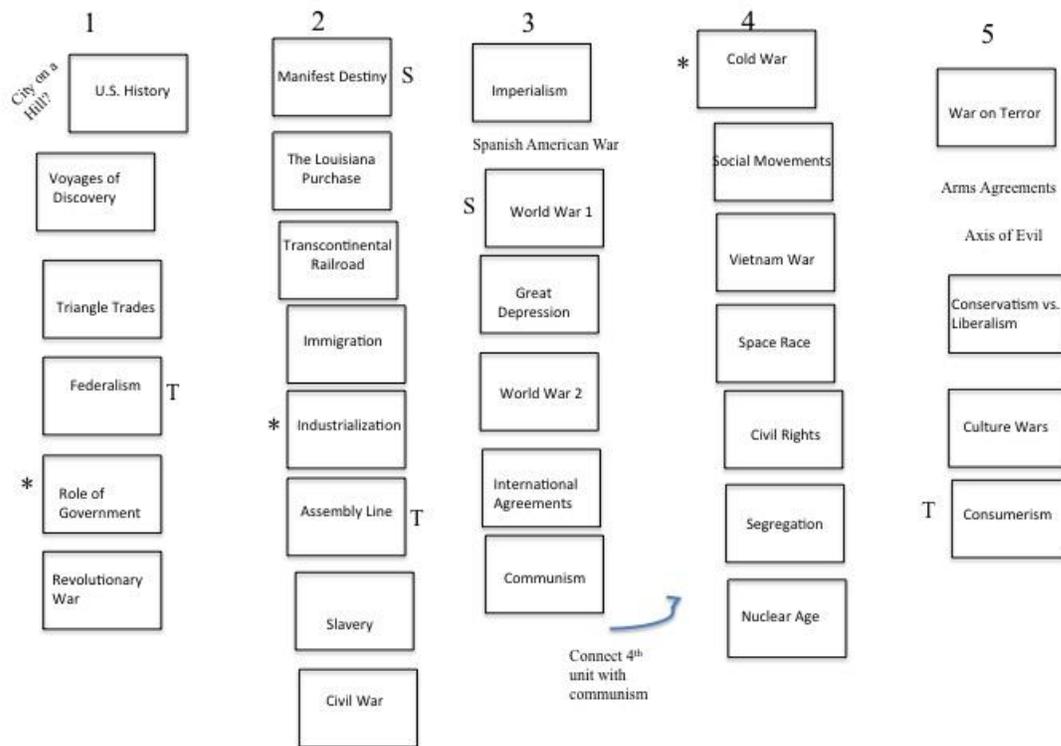


Figure 2. U.S. history SE candidate card sort

Disciplinary Practices of Candidates

When candidates were observed in their classrooms they constructed historical meaning by ordering historical events and themes chronologically and explained connections between events and themes by cause and effect. This general structure, however, did not include persistent themes in U.S. history, essential questions, or deep exploration into the complex connections among historical themes and events. In short, there was no larger historical narrative through which the course focused. Units were taught as separate time periods that influenced subsequent periods (i.e. “Imperialism was a cause to World War I, international agreements would not go next because World War I led to more cooperation.”). However, across units of instruction in U.S. history, candidates wanted to establish a skills-based framework to teach disciplinary practices and promote historical thinking.

Opportunities and barriers of disciplinary literacy. Candidates sought to engage students’ curiosity and to “not just accept history as some that just happened.” They expressed a

strong desire to employ a range of disciplinary practices by: incorporating multiple sources beyond the textbook, promoting inquiry with overarching historical questions for each unit that are open ended and debatable (i.e. During times of war, should there be checks on the Commander in Chief?), and teaching students historical argumentation using evidence. There was a distinct difference between SE and MCE candidate's opportunities to enact their desired practices; it was contingent on the candidates' placement and the pedagogical perspectives and practices of their mentor teacher. Ben, for example, was able to enact his vision of teaching history. He promoted inquiry through "critical analysis of readings, of pictures, of video clips, of maps, primary sources, secondary sources, and novels" and taught his students "different perspectives from people who have different positions so they can see that history is not one single story." In the classroom, Ben designed several opportunities for his students to practice perspective taking by analyzing multiple primary sources of content familiar to students. One lesson engaged students in a critical analysis of Columbus with perspectives of the Tainos, Bartolome de las Casas, King Ferdinand and Queen Isabella, Columbus's crew, and Columbus's journals. A second lesson involved comparing personal accounts of the slave trade from Olaudah Equiano, Ottobah Cugano and several slave-ship captains.

Jennifer, on the other hand, was placed in a classroom where,

Students didn't analyze documents, they didn't question sources and certainly weren't given a chance to question claims and evidence. They were given tasks to complete that guided them to correct answers. It was challenging to change the type of learning I want to promote in the classroom from names, dates, people, places to teaching historical controversies, bringing in multiple perspectives and teaching historical argumentation.

In Jennifer's middle school classroom there was a reliance worksheets and general skills and strategies by reading the textbook using strategies such as, "stop and jot, text mark, and sketch your way through the text, semantic maps, KWL, and anticipation guides." Even when she was afforded greater autonomy, she struggled to enact disciplinary practices to promote historical thinking during her internship.

Expert Organization of US History

During the card sort activity, the expert was considerably more deliberate and purposeful than novices in his approach to review all cards before constructing an organizational scheme than the novices. For example, the history expert initially moved cards in a "loose chronological

order” and re-sorted by foreign and domestic connections followed by social and cultural ideas. The professor quipped, he could “reorient this thing about five different times depending on the way I would approach a course” before arriving at a “course architecture,” an organizational scheme that focused the study of history through relationships and themes. He stated,

When I teach US history there are broad themes and subjects, almost methodologies of history that I will embed within the overall architecture of the course. So, something like immigration, slavery, or racism I mean if they are connected in the period I am looking at in important ways and they are things that will be covered at multiple times. I don’t quarantine them into one unit. The course proceeds in a more event or biographically driven way that is more chronological in focus with a thematic understructure.

For example, in figure 3, one can see two-way arrows between the transcontinental railroad and industrialization and immigration. To him, the transcontinental railroad has a moment in time when it is significant, and can be viewed through several themes or lenses (i.e. industrialization and immigration). He mentioned the transcontinental railroad is something that would be discussed “in the context of how people were talking about the role of government and how they were debating imperialism, industrialization, and federalism.” In other words, he draws on multiple themes to analyze an episode of history in order for students to see history as having layers of complexity.

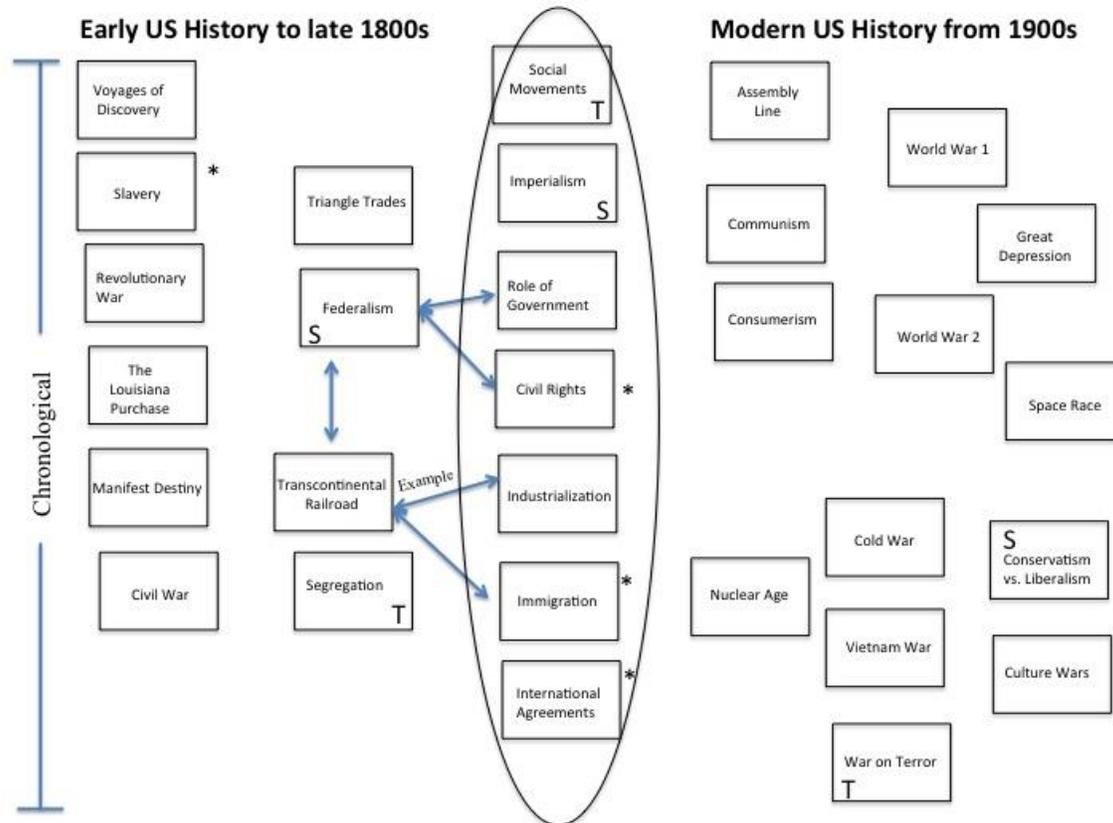


Figure 3. U.S. history expert card sort

Disciplinary Practices of the U.S. History Expert

Intellectual architecture of U.S. History. For the history professor, there is an overarching “intellectual architecture” that is explicit and guides students. First, his classes are constructed on the concept of liberty and freedom; two democratic values that are not static terms but have different meanings at different times and in different contexts. Liberty, for example, “changes meaning from when the Puritans use it in the 17th century to Thomas Jefferson’s natural liberty in the 18th century to abolitionists like Harriet Jacobs use it in the 1840s and 50s.” As a recurring theme, liberty becomes a “signpost” for students to reexamine the concept to determine different meanings depending on the context. A second theme in his “intellectual architecture” is not viewing US history in isolation but through a sense of place globally in order for students to “think about their own world in a broader global context.” He incorporates two troupes to encourage historical thinking: one is context – “to situate the people we are looking at within the world in which they lived” and a second, agency – “whether history is determined by overarching structures that sweep aside individuals or if history is made by

decisions of individuals and groups.” In his view, history is the story of tension between context and agency and one cannot rely solely on one or the other to analyze history.

Making the tacit explicit. In the history expert’s course, students are provided a framework with three focus questions or three themes that are explicitly stated in a weekly handout and highlight how the readings integrate into the questions or themes. This pedagogical tool helped the history professor enact his “intellectual architecture.” For example, he assigns readings from Eric Foner’s *Give Me Liberty* to provide students with an overarching narrative and then incorporates primary sources from classic political texts (i.e. Thomas Payne’s *Common Sense*, the Declaration of Independence, Andrew Jackson’s Bank Veto, Federalist Papers). He then moves to biographical accounts from “voices that are not as easily conveyed in the dominant stories of history” (i.e. slave narratives from Equiano, Harriet Jacobs’ *Incidents in the Life of a Slave Girl*) to account for the lived experience of people during particular time periods. Taken together, the intellectual framework situates the events, people, and multiple readings encourage students to relate to an individual or focus on a controversy. Put succinctly, the professor believes “studying history allows you to understand the complicated mechanisms around which you can apply the richer understanding of historical processes and individual agency to different circumstances.”

Candidates’ Organization of Economics

Each study participant was also asked to identify their weakest content area among geography, civics/government, economics, and world history. The majority of SE and MCE candidates selected economics as their weakest content area and completed card sort activities based on state standards for economics. When the candidates completed the card sort for U.S. History, they were able to use chronology as a basic organizational scheme. Without chronology, candidates elected to group familiar economics concepts into self-created categories (i.e. basic terms, the impact of systems, economics and the individual, and economic decisions) or used one of the cards as the title for grouping (i.e. economic systems, economic decisions, financial responsibility: planning and money management, and economic indicators). There was considerable variation across the candidates’ iterations of an economics curriculum through the card sort activity (see figure 4 and 5) as candidates loosely grouped cards “with no particular order.” However, there was similarity in that candidates made no connection between groupings or offered an overarching question or approach as a guide to economics.

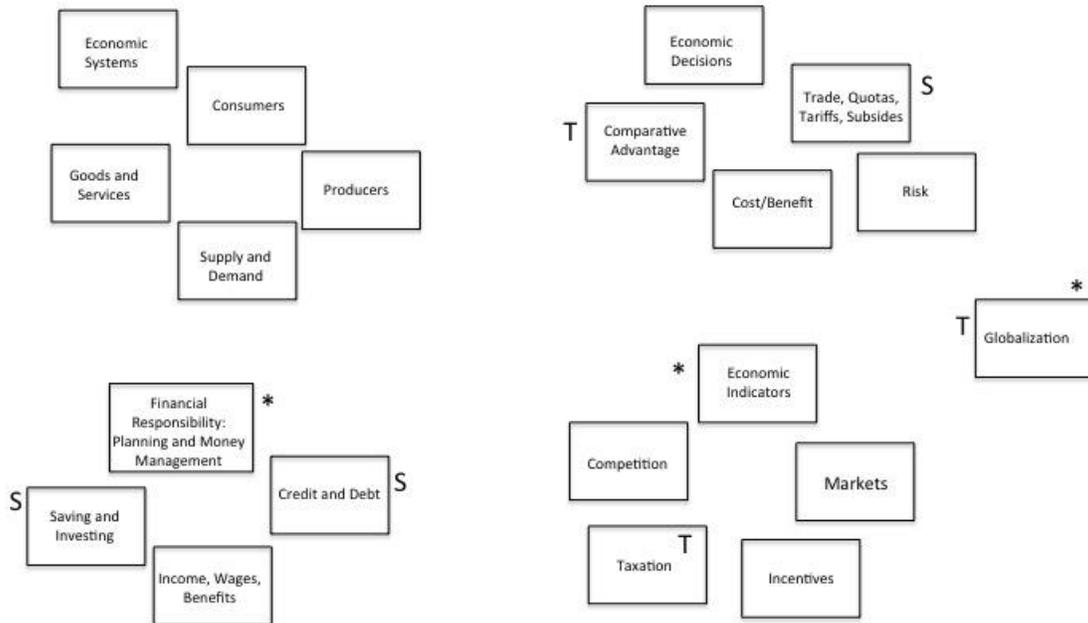


Figure 4. Economics MCE candidate card sort

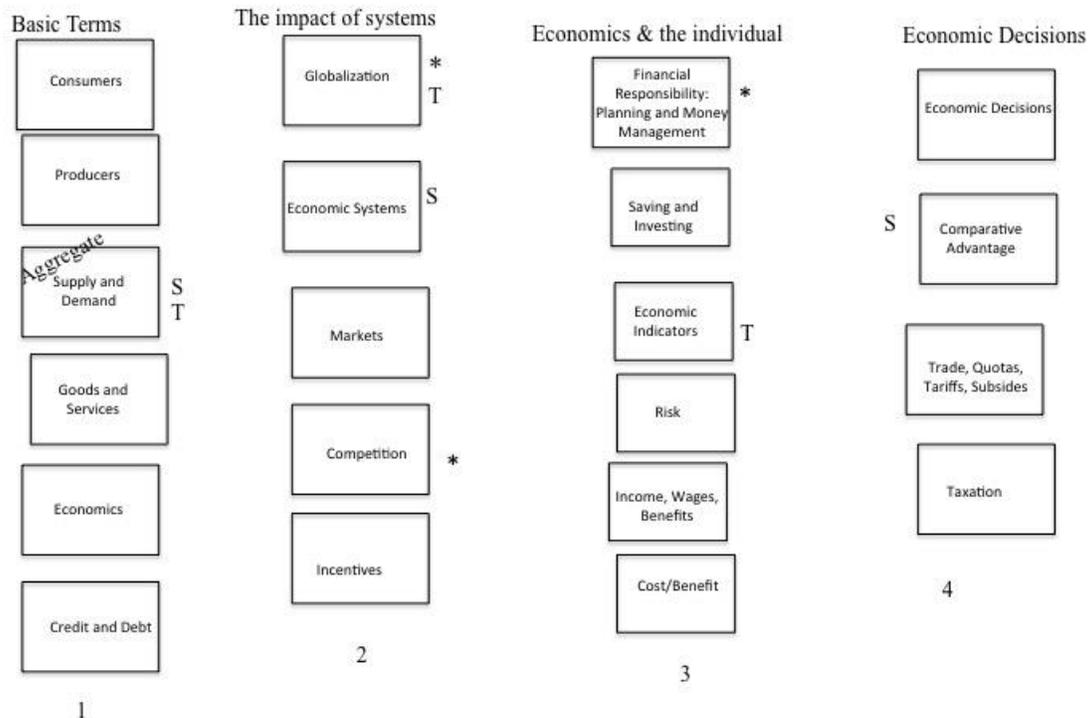


Figure 5. Economics SE candidate card sort

Challenges from lack of economic content knowledge. During the card sort activity, the candidates struggled mightily to get the economics cards sorted into some kind of order that offered conceptual coherency for themselves or for learners. As candidates articulated how they arrived at their decisions for card placement, it was clear that background knowledge and a depth of understanding of concepts and ideas that are important in the study of economics was absent. For example, Jennifer explains her thinking behind the creation of the economic systems category:

For economic systems, I think we can also kind of move into you know, kind of what makes, you know, what makes it up. So, we've got the consumers, producers, goods and services, and supply and demand. I think those tie in very well with each other.

In Jennifer's previous card sort for U.S. History she was able to organize the cards chronologically and at a minimum explain the connection between events and themes using cause and effect. As she worked through her explanation of economics systems, she did not offer

additional information; her rationale for including concepts in the category was simply, “I think those tie in very well with each other.” This pattern followed for each of the categories she developed. Ben also offered few insights behind his selection of concepts for categories. For example, Ben stated,

I would put markets in economic systems. What is the role that markets play? I would put credit and debit in basic terms. What’s going through my mind right now in economic systems is capitalism and communism. And I would put incentives in there because I know in capitalism we’re all about risk and going and taking a risk and making some money for it.

Similar to Jennifer, Ben provided this level of detail as a rationale for all the categories he developed. Overall, candidates were not able to offer conceptual coherency for their card sort activity nor were they able to articulate a reasoned rationale for inclusion of concepts in the categories. For the overarching structure, candidates created discrete categories and did not make any connections between categories.

Disciplinary Practices of Candidates

As one might imagine, for SE and MCE candidates in the field, economics was taught differently at the two levels. For Ben, at the high school level, four broad units were established for his course (i.e. background, microeconomics, macroeconomics, and comparative economics) while at the middle school level economics was infused throughout the social studies curriculum by topic (i.e. economic decision-making and skills, production and consumption, markets, financial literacy). At Jennifer’s eighth grade placement, economics was taught as a stand-alone unit. For both candidates, the lack of conceptual coherency and absence of overarching structure or connections between categories that was demonstrated in card sort activity also plagued candidates teaching of economics in the field.

Traditional instruction. Without strong economic content knowledge, candidates’ instructional practices in economics were limited to traditional forms of instruction (i.e. direct instruction through power point, textbook reading and worksheets). These practices were modeled by their mentor teachers and shared with the candidates for enactment. In U.S. History, candidates at least expressed a desire to enact disciplinary literacy practices to promote historical thinking; this was not the case in economics – there was no acknowledgement of a desire to teach economic thinking. Perhaps one of the greatest inhibitors for the SE and MCE candidates

in economics is that they learned content ahead of the students and relied heavily on the textbook and prepared curriculum from mentor teachers.

Evading economic thinking. For the most part, the candidates offered few authentic opportunities to explore economics through classroom activities to promote economic thinking. When they did offer an opportunity to explore economics beyond the textbook and lecture, they led students through simulations: middle school students participated in a personal budget simulation and high school students participated in a stock market simulation. In both simulations, however, the candidates de-emphasized economic thinking, the analysis and application of economic concepts and principles. Instead, the activities were structured to promote competition between student groups. For example, in the personal budget simulation, students were “awarded bonus points for keeping their household budget in the black.” The stock market simulation had a similar de-emphasis on economic thinking promoted student learning through an award structure that offered “extra credit points for those students who earned the most money from their stock selection.” Throughout the economics course and unit, there were limited opportunities for students to apply economic concepts and principles to the real world.

Expert Organization of Economics

Prior to engaging in the card sort activity, the economics expert discussed how part of her job as a professor is to clear up a misperception her students have that economics is about money. She offered the following statement as an example of what economics is to her: “Economics is a behavioral science about decision-making and it’s really decisions about scarcity and what are the influences and factors that go into making decisions.” With a focus on decisions, the economics expert was as deliberate and purposeful as the U.S. History expert during the card sort activity. She sorted the cards multiple times throughout the activity and eventually settled on a diagram that explained economics as a process of decision-making and the factors that contribute to economic decisions (see figure 6).

To explain the logic and flow of the diagram, the economics expert started with the center of the diagram; incentives and cost/benefit analysis influence all economic decisions, which are made by consumers and producers. These considerations result in types of economic decisions (i.e. credit and debt, savings and investing) for both consumers and producer and result in the aggregate supply and demand, which is “ultimately what a society produces at the end is the result of decisions.” She also pointed out that economic decisions are “not made in a vacuum;

they are made within an economic context that includes government policies, a macroeconomic context, and other inputs to consider.” When she teaches, she tries to convey to her students that rather than expecting an economist to say something is right or wrong, “the real way economists think is in terms of tradeoffs.”

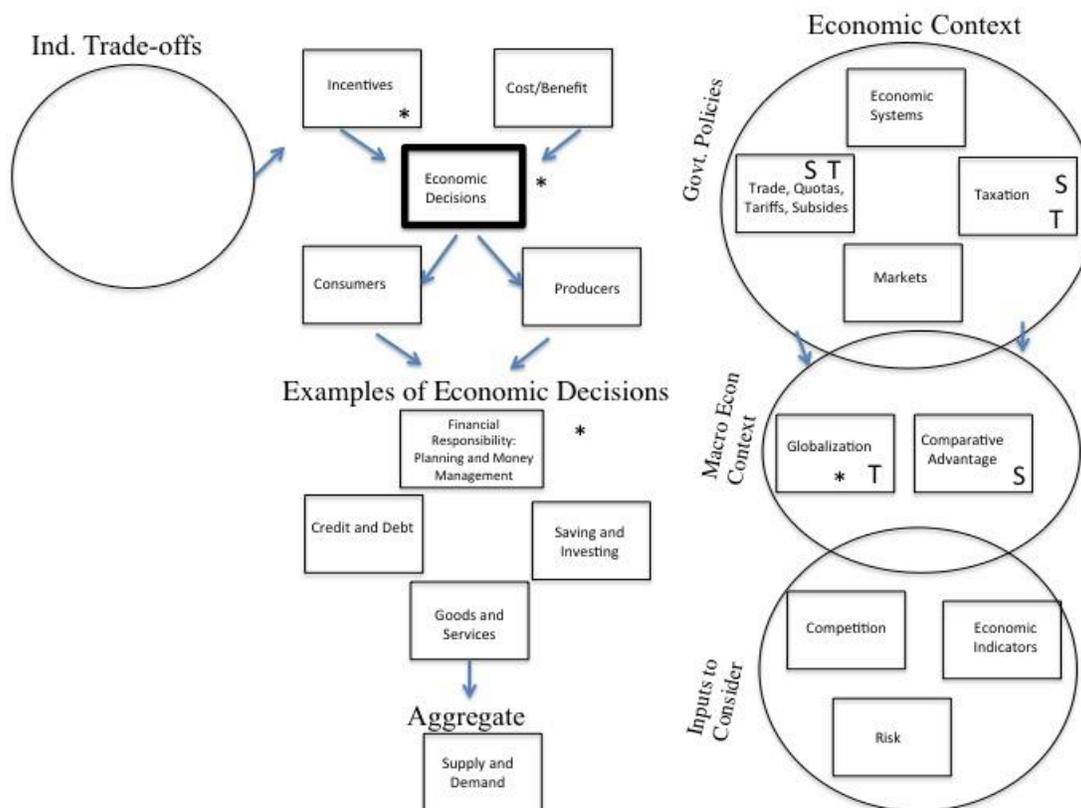


Figure 6. Economics expert card sort

Disciplinary Practices of the Economics Expert

Authentic experience for learning. To the economics professor, “economics is a process” and “the core of economics is decision-making.” This simple but profound message is what she tries to convey to all of her students and accomplishes this by engaging students in authentic situations to learn economic thinking. Pedagogically, she incorporates economic simulations, inquiry projects, and teaches controversial issues to her students. For example, one simulation she teaches is a computer simulation where students are buyers or sellers of textbooks. The purpose of the textbook simulation is to place students in a position to experience making economic decisions and to directly apply economic concepts represented in the

simulation (i.e. supply and demand curve, market-clearing price, and the law of one price). To promote critical thinking and economic analysis, the professor assigns an inquiry project that requires students' research an anti-trust lawsuit to explore monopolies. For an iteration of the project, she collaborated with a college coach and asked the students: Should we pay college athletes? This controversy was germane and of interest to the students; it required students to conduct research, applies economic concepts from class, and prepare questions to ask the college coach during an open discussion. Through these activities, students were again able to engage in economic thinking in an authentic learning experience.

Modeling to develop economic skills for the real world. Economics can be abstract to learners and the professor wants all students to walk away from her classes with the ability to make informed economic decisions. She acknowledged this is no easy task and teaches economic thinking and reasoning by modeling. For example, different case studies in economics were analyzed in class to “flush out every cost and benefit, even opportunity costs.” Her pedagogical approach demonstrates critical thinking and economic reasoning like she explained in her card sort (see figure 7). In addition, she required her students to apply economic thinking skills through authentic writing assignments. The writing assignment required students to take on the role and perspectives of a consultant with real-world data sets. Students learned how to calculate data, analyze components or drivers of poverty in developing countries, write to tell a story using data, and prepare a written product for various non-governmental organizations. In another authentic writing example, students performed a rise analysis using data available from non-profits and wrote reports for the non-profit. From a pedagogical perspective, this professor taught students the disciplinary practices of economists through authentic experiences and modeling.

Discussion, Conclusion and Implications

Teacher preparation is an irreducibly complex process that involves candidate mentorship in multiple communities of practice (Barton & Levstik, 2004; van Hover & Yeager, 2007; Ball & Cohen 1999; Darling-Hammond & Bransford, 2005; Wilson & Wineburg, 1988; Zeichner & Conklin, 2005). A challenge for social studies teacher educators is to try and capture the unique and often disparate contributions to teacher candidates from various stakeholders. This study focused on how social studies teacher candidates in secondary and middle childhood programs learn specialized knowledge, skills and expertise from disciplinary experts in U.S. history and economics and how candidates enact disciplinary literacy practices during student internships.

The findings yielded several important contributions to the literature on teacher candidate preparation in social studies.

First, there is a stark contrast between novice teacher candidates and content experts in how they conceptualize and organize curriculum in the disciplines and enact disciplinary practices. This comes as no surprise given the difference in experience between the two groups. Novices made fewer attempts to connect or link concepts, offered little detail to explain connections, and appeared unsure how to represent particular content during the card sort. Experts were able to coherently construct frameworks or approaches during the card sort that demonstrated flexibility in disciplinary thinking and facilitated student learning around core disciplinary concepts thinking and big ideas. Novices explained their process of organization as discrete and factual while experts were able to focus learning through disciplinary thinking and perspectives to connect students to a human element that is critical for learning.

Second, while novices' content knowledge should be considered emerging, experts demonstrated specialized historical content knowledge in history (Wineburg, 2001) and economics (CEE, 2000; Davies, 2006; Wentworth, 1987; Wentworth & Schug, 1993). This level of content knowledge enabled experts to purposefully shape the pedagogy and the associated approaches to student learning (Hashweh, 2006; Loughran et. al., 2004; Shulman, 1987) is consistent with extant research of disciplinary practices in history (Bain, 2012; Reisman, 2012; Vansledright, 2012; Wineburg, 2001), and economics (Miller & VanFossen, 1994; Morton, 2005; Schug & Walstad, 1991; Walstad, 1992).

Third, researchers have highlighted the perennial problem of disconnect between teacher education coursework and field experience (Pryor, 2006; Misco & Hamot, 2012; Zeichner, 2010) For teacher candidates in this study an additional gap emerged among what candidates learn in content courses, teacher education courses, and their field experiences. Put simply, candidates' professional readiness and pedagogical content knowledge is a work in progress and requires teacher educators to experiment and collaborate more purposefully to bolster the quality of candidates' experiences in different communities of practice (e.g., Bain, 2012; Journell & Tolbert, 2016, Marri, et. al, 2011).

Fourth, candidates' experiences in content courses are often from the perspective of a student, not of an educator. Students look for the right answer without understanding the complexity of disciplinary knowledge or how values, beliefs, and practices that shape evidence

in different time periods and locales. To be fair, professors assume their craft is explicitly taught; but this research shows social studies teacher candidates often miss the nuance. We need to find ways to make tacit and elusive practices and pedagogy more explicit to teacher candidates. More importantly, when critical components of disciplinary knowledge and literacy are missed in content course, they are not learned in field placements or in teacher education courses. This problem can be exacerbated when content courses are taken online. Teacher educators need to consider different interventions with teacher candidates when they take content courses. It could be pairing teacher education courses with content courses or greater outreach and collaboration on the part of social studies educators to work with content experts to help make their pedagogy more explicit (Harris & Bain, 2011).

Lastly, research of PCK in non-history disciplines is sparse (Joshi & Marri, 2006; Journell, 2013) and although the number of participants in small, it is a necessary step to begin investigating PCK of teacher candidates in multiple disciplines. Research shows teaching outside of ones' disciplinary expertise is struggle for teachers (Gudmundsdottir & Shulman, 1987; Wilson & Wineburg, 1988); the same is true for candidates in this study. Most teacher candidates are placed in schools based on availability rather than matched by content area expertise or disciplinary interest. The likelihood a candidate will teach a course outside of their content area is high. This research sheds light on areas candidates' development of PCK in a commonly taught content area (e.g. U.S. history) and in areas of struggle where candidates are assigned (e.g. economics). Further, this research helps practitioners to see how candidates conceptualize curriculum and disciplinary literacy, how literacy tools are used (or not used) in classes and placements, and how candidates blend PCK and disciplinary literacy practices to enact in classrooms.

References

- Bain, R. B. (2012). Using disciplinary literacy to develop coherence in history teacher education: The clinical rounds project. *The History Teacher*, 513-532.
- Ball, D., & Cohen, D. (1999). Developing practitioners: Toward a practice-based theory of professional development. In G. Sykes & L. Darling-Hammond (Eds.), *Teaching as the learning profession: Handbook of policy and practice* (pp. 3–32). San Francisco, CA: Jossey-Bass.
- Ball, D. L., Thames, M. H., & Phelps, G. (2008). Content knowledge for teaching: What makes

- it special? *Journal of Teacher Education*, 59, 389–407.
- Barton, K., & Levstik, L. (2004). *Teaching history for the common good*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Chase, W. G., & Simon, H. A. (1973). Perception in chess. *Cognitive Psychology*, 4, 55-81.
- 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.
- Cochran-Smith, M. (2005). The new teacher education: For better or for worse? *Educational Researcher*, 34 (7), 3–17.
- Council for the Accreditation Educator Preparation (CAEP). (2013). *Standards*. Retrieved from <http://caepnet.org/standards/introduction>.
- Council on Economic Education (CEE). (2000). *The great economic mystery book: A guide to teaching economic reasoning in grades 9-12*. New York, NY: The Economics America and Economics International Programs.
- Cuenca, A., Castro, A., Benton, B., Hostetler, A., Heafner, T., & Thacker, E. (2018). *National Council for the Social Studies: National Standards for the Preparation of Social Studies Teachers*. Retrieved from https://www.socialstudies.org/sites/default/files/media/2017/Nov/ncss_teacher_standards_2017-rev9-6-17.pdf
- Darling-Hammond, L., & Bransford, J. (Eds.). (2005). *Preparing teachers for a changing world: What teachers should learn and be able to do*. San Francisco: Jossey-Bass.
- Davies, P. (2006). Educating citizens for changing economies. *Journal of Curriculum Studies*, 38(1), 15-30.
- Fang, Z. (2014). Preparing Content Area Teachers for Disciplinary Literacy Instruction. *Journal of Adolescent & Adult Literacy*, 57(6), 444-448.
- Fang, Z., & Coatoam, S. (2013). Disciplinary literacy: What you want to know about it. *Journal of Adolescent & Adult Literacy*, 56(8), 627-632.
- Gudmundsdottir, S., & Shulman, L. S. (1987). Pedagogical content knowledge in social studies. *Scandinavian Journal of Educational Research*, 31, 59–70.
- Harris, L. M. (2008). *Building coherence in world history: A study of instructional tools and teachers' pedagogical content knowledge*. PhD diss., University of Michigan.
- Harris, L. M. & Bain, R. B. (2011) *Pedagogical content knowledge for world history*

- teachers: What is it? How might prospective teachers develop it? *The Social Studies*. 102(1), 9-17.
- Hashweh, M. Z. (2005). Teacher pedagogical constructions: a reconfiguration of pedagogical content knowledge. *Teachers and Teaching: Theory and Practice*. 11(3), 273-292.
- Joshi, P., & Marri, A. R. (2006). An economics methods course? Challenges of teaching an economics education methods course for secondary social studies pre-service teachers. *The Social Studies*, 97, 197–202.
- Journell, W. (2013). What pre-service social studies teachers (don't) know about politics and current events—and why it matters. *Theory & Research in Social Education*, 41, 316–351.
- Journell, W., & Tolbert, L. C. (2016). Working Together, Not Sharing the Burden: A Collaborative Approach to Developing Pedagogical Content Knowledge with Secondary Social Studies Pre-service Teachers. In *Rethinking Social Studies Teacher Education in the Twenty-First Century* (pp. 123-142). Springer International Publishing.
- King, J. A. (1987). The uneasy relationship between teacher education and the liberal arts and sciences. *Journal of Teacher Education*, 38, 6–10.
- Larkin, J., McDermott, J., Simon, D., & Simon, H. (1980). Expert and novice performance in solving physics problems. *Science*, 208, 1335-1342.
- Lee, J. & Swan, K. (2013). Is the Common Core good for social studies? Yes, but... *Social Education*, 77(6), 327- 330.
- Leinhardt, G., & Young, K. M. (1996). Two texts, three readers: Distance and expertise in reading history. *Cognition and Instruction*, 14,441-486.
- Loughran, J., Mulhall, P., & Berry, A. (2004). In Search of Pedagogical Content Knowledge in Science: Developing Ways of Articulating and Documenting Professional Practice. *Journal of Research in Science Teaching*, 41(4), pp. 370-391.
- Marri, A. R., Perin, D., Crocco, M. S., Riccio, J. F., Rivet, A., & Chase, B. J. (2011). Content-driven literacy: One approach to urban secondary teacher education. *The New Educator*, 7(4), 325-351.

- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook of new methods*. Thousand Oaks, CA: Sage.
- Milner, H. (2002). *Civic literacy: How informed citizens make democracy work*. London: University Press New England.
- Miller, S. L., & VanFossen, P. J. (1994). Assessing expertise in economic problem solving: A model. *Theory & Research in Social Education*, 22(3), 380-412.
- Misco, T. & Hamot, G. E. (2012). "He was the opposite of what we learned a teacher should be": A study of preservice social studies students' cooperating teachers. *The Journal of Social Studies Research*, 36 (4), 305–328.
- 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.
- Morton, J. S. (2005). The interdependence of economic and personal finance education. *Social Education*, 69(2), 66-69.
- NCSS. (2013). *National Council for the Social Studies (NCSS) Social Studies for the Next Generation: Purposes, Practices, and Implications of the College, Career, and Civic Life (C3) Framework for Social Studies State Standards*. Silver Springs, MD. Bulletin 113.
- Pryor, C. R. (2006). Pre-Service to in-service changes in beliefs: A study of intention to become a democratic practitioner. *Theory and Research in Social Education*, 34(1), 98-123.
- Reisman, A. (2012). Reading like a historian: A document-based history curriculum intervention in urban high schools. *Cognition and Instruction*, 30(1), 86-112.
- Schug, M., & Walstad, W. (1991). Teaching and learning economics. In J. Shaver (Ed.), *Handbook of research on social studies teaching and learning*, (pp. 411-419). New York: MacMillan Reference Books.
- Segall, A. (2004). Revisiting pedagogical content knowledge: The pedagogy of content/the content of pedagogy. *Teaching and Teacher Education*, 20, 489–504.
- Shanahan, T., & Shanahan, C. (2008). Teaching disciplinary literacy to adolescents: Rethinking content-area literacy. *Harvard Educational Review*, 78(1), 40-59.
- Shulman, L. S. (1987). Knowledge and teaching: Foundations of a new reform. *Harvard Educational Review*, 57, 1–21.
- Vansledright, B. (2012). Learning with texts in history: Protocols for reading and

- practical strategies. In T. Jetton & C. Shanahan (Eds.), *Adolescent literacy in the academic disciplines: General principles and practical strategies* (pp.199-226). New York, NY: Guilford.
- van Hover, S. & Yeager, E. (2007). "I want to use my subject matter to...": The role of purpose in one U.S. secondary history teacher's instructional decision making. *Canadian Journal of Education*, 30(3), 670-690.
- Walstad, W. B. (1992). Economics instruction in high schools. *Journal of Economic Literature*, 2019-2051.
- Wentworth, D. R. (1987). Economic reasoning: Turning myth into reality. *Theory into Practice*, 26(3), 170-175.
- Wentworth, D. R., & Schug, M. C. (1993). Fate vs. choices: What economic reasoning can contribute to social studies. *Social Studies*, 84(1), 27-31.
- Wilson, S. M., & Wineburg, S. (1988). Peering at history through different lenses: The role of disciplinary perspectives in teaching history. *Teachers College Record*, 89(4), 525-539.
- 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, 73-87.
- Wineburg, S. S. (1992). Robing the depths of students' historical knowledge. *Perspectives of the American Historical Association*, 30, 20-24.
- Wineburg, S. S. (1994). The cognitive representation of historical texts. In G. Leinhardt, I. L. Beck, & C. Stainton (Eds.), *Teaching and learning in history* (pp. 85-135). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Wineburg, S. (2001). *Historical thinking and other unnatural acts: Charting the future of teaching the past*. Temple University Press.
- Yin, R. K. (2003). *Case Study research: Design and methods*. Thousand Oaks, CA: SAGE Publications.
- Zeichner, K. M. (1993). Traditions of practice in U.S. pre-service teacher education programs. *Teaching and Teacher Education*, 9, 1-13.
- Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college- and university-based teacher education. *Journal of Teacher Education*, 61(1/2), 89-99.

Zeichner, K. M., & Conklin, H. (2005). Teacher education programs. In M. Cochran-Smith & K. M. Zeichner (Eds.), *Studying teacher education: The report of the AERA panel on research and teacher education* (pp. 645-735). Mahwah, NJ: Lawrence Erlbaum Associates.

Appendices

Appendix A – Examples of Concepts from State Standards in Card Sort Activity

US History

Revolutionary War	Civil War	World War I	World War II	Manifest Destiny
The Louisiana Purchase	Slavery	Federalism	Triangle Trades	Voyages of Discovery
Industrialization	Transcontinental Railroad	Assembly Line	Segregation	Consumerism
Great Depression	Immigration	Social Movements	Cold War	Vietnam War
Space Race	Culture Wars	Conservatism vs. Liberalism	War on Terror	Imperialism
Nuclear Age	Communism	International Agreements	Civil Rights	Role of Government

Economics

Economic Systems	Markets	Consumers	Producers	Supply and Demand
Competition	Incentives	Economic Decisions	Goods and Services	Economic Indicators
Globalization	Trade, Quotas, Tariffs, Subsidies	Comparative Advantage	Income, Wages, Benefits	Taxation
Cost/Benefit	Financial Responsibility: Planning and Money Management	Saving and Investing	Credit and Debt	Risk

Appendix B – Semi-Structured Interview Protocol

General Literacy

1. What are the most common reading and writing strategies that you use in your classroom? Why do you use them? What are their objectives?
2. What literacy skills do students need in your class?

Disciplinary Literacy

1. What are the texts of your discipline? How do you select texts for your classes?
2. What are the major understandings of the discipline (e.g., patterns/themes, types of questions asked, burning questions/controversies)?
3. What is the critical language and discourse of the discipline?
4. How do you teach students to read and write like members of your discipline?

Practices

1. Describe your pedagogical style.
2. What are the essential characteristics of an ideal curriculum in your discipline?
3. How do you assess students in your classes?
4. Describe ways of thinking in your discipline. (History example: chronological thinking, comprehension, analysis and interpretation, historical research, issues-analysis and decision-making)
5. Describe how experts reason in your discipline. (History example: asking historical questions, using sources, contextualization, argumentation, using substantive concepts, using meta-concepts)
6. Describe habits of mind that are necessary for success in your discipline and in your class.
7. What literacy tools do you teach for your students?
8. What technologies are used in practice in your discipline?

Appendix C – Selected Coding Examples

Codes	Theme	Definition	Quote
<ul style="list-style-type: none"> • Establish order • Sequence of events • Temporally bound 	Chronology	Teacher candidates opted to organize the card sort chronologically and described an order of events for the rationale.	“I’d start with Imperialism, and within that I would usher in World War I because Imperialism was a cause to World War I, international agreements would not go next because

			World War I led to international agreements.”
<ul style="list-style-type: none">• Persistent themes• Guiding questions• Framing of units	Intellectual architecture	The expert provides specific examples of themes, questions, and frames that are explicitly shared with students to guide learning.	“I think about the actual intellectual framework in which I am trying to situate this event, this person, this reading. Then, students will be able to know where I’m going with the lecture and not just sitting there grasping at straws. I guess the short answer is they get to a place early in the course where they’ve understood here’s the intellectual architecture for this class.