

Preparing the Expert Novice: Preservice Teacher Thinking and Efficacy in Inquiry Design

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Abstract

In this study, we share the understandings and the reflections of preservice teachers as they engage in focus group interviews about inquiry in social studies, generally, and their reactions to publicly available Inquiry Design Model blueprints. These preservice teachers first discussed their understanding of inquiry, which was rooted in their university coursework. They then described their self-efficacy for implementing inquiry, generally, and the IDM blueprint, specifically, in their current field placements and future classrooms. This envisioned implementation often involved adaptations of the blueprints. Our goal in this research was to reconsider how preservice teachers experience and learn about social studies inquiry and, as a result of these experiences, whether and how they see themselves implementing social studies inquiry with students. This study can inform teacher educators to proactively address common barriers and better support preservice teachers.

Keywords

elementary teacher education, preservice teacher education, social studies teacher education, teacher beliefs, teacher learning

Introduction

For almost a decade, the *College, Career, and Civic Life (C3) Framework for Social Studies State Standards* (National Council for the Social Studies [NCSS], 2013) has served as a guide for state social studies standards. The *C3 Framework* explicitly calls for an inquiry approach to teaching and learning,

The C3 Framework is centered on an Inquiry Arc—a set of interlocking and mutually supportive ideas that frame the ways students learn social studies content. By focusing on inquiry, the framework emphasizes the disciplinary concepts and practices that support students as they develop the capacity to know, analyze, explain, and argue about interdisciplinary challenges in our social world. It includes descriptions of the structure and tools of the disciplines, as well as the habits of mind common in those disciplines. Taken together, the C3 Framework provides guidance to states on upgrading state social studies standards to include the application of knowledge within the disciplines of civics, economics, geography, and history as students develop questions and plan inquiries; apply disciplinary concepts and tools; evaluate and use evidence; and communicate conclusions and take informed action. (p. 6)

The authors of the *C3 Framework* argue that teaching students to inquire is necessary to support the future of our democracy through the creation of active and responsible

citizens who are able to “identify and analyze public problems, deliberate with other people about how to define and address issues, take constructive action together, reflect on their actions, create and sustain groups, and influence institutions both large and small” (p. 19).

While the goal for inquiry in social studies is clear, the “when” and “how” for using inquiry, particularly in elementary social studies contexts, is less so. Inquiry demands that teachers understand the inquiry process and have self-efficacy to enact it with students. Thus, the purpose of this research is to explore preservice teachers’ (PST) thinking about inquiry-based instruction, using examples of publicly available inquiry design models (IDMs), and the possibilities of inquiry in their current placements and future classrooms. Our research questions are: How do PST understand social studies inquiry, in general, and the IDM, specifically? And, how do PST envision enacting a publicly

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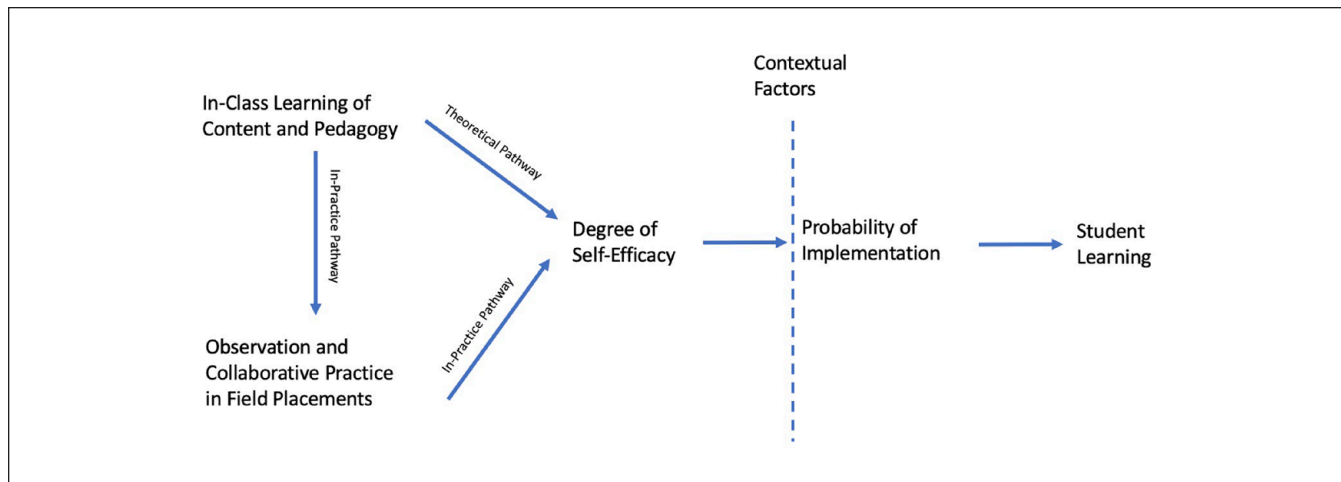


Figure 1. Proposed Framework for Studying the Effects of Teacher Preparation and Contextual Factors on Implementation of Practices and Student Learning.

Source. Modified from Desimone (2009); Roberts and Arya (in press).

available IDM with the students in their current field placements and in their future classrooms?

Conceptual Framework

PSTs are standing at the intersection of shifting from their own classroom learning to enactment in P-12 settings. However, in practice, novice teachers often find it difficult to move some practices into their own teaching, particularly when their contexts are not organized to best support learning (Liston et al., 2006). This disrupts the theoretical pathway to P-12 student learning and indicates contextual factors have a strong influence on candidates' self-efficacy for and inclinations to enact particular practices (Figure 1).

Inclusion of inquiry practices in teacher preparation classes is essential but not enough to support novice teachers to implement inquiry-based practices in elementary classrooms. At a minimum, implementation also requires opportunities for observation and collaborative practice in file. Becoming a teacher takes consistent support with attention to the distinct needs of the individual. Skills and knowledge for teaching can be taught and learned and doing so builds the self-efficacy required to attempt specific pedagogies. On a basic human level, educators are unlikely to attempt practices if they do not believe they are prepared enough to be successful.

Generally, effective teacher education programs make conscious efforts to ensure preservice and novice teachers' self-efficacy by providing appropriate content knowledge and a core set of teaching practices (e.g., Feiman-Nemser, 2001). Blending theory, knowledge, and pedagogy builds self-efficacy in ways that helps students envision and enact course learning in classroom contexts, use active pedagogy, and scaffold learning, analyze beliefs, and develop an

understanding of learners and learning (e.g., Darling-Hammond, 2000; Feiman-Nemser, 2001).

What happens next is less clear. Theoretically, skills, knowledge, attitudes, and beliefs are the building blocks for instructional enactment and, in turn, student learning (e.g., Desimone, 2011).

Literature Review

Inquiry in P-12 Education

The research and literature on inquiry-based learning in early childhood and elementary education spans over 100 years and has long been a focus of the education field. Inquiry involves questions, investigations, and sharing of new knowledge. At the beginning of the 20th century, Dewey (1902) advocated for inquiry-based instruction which involves application of knowledge and skills to real-world contexts. In the 1960s, the New Social Studies movement focused firmly on disciplinary inquiry and spurred numerous related research projects (Evans, 2011). This work continues today, championed by a number of scholars across disciplinary fields (Brugar et al., under review; Dorier & Maass, 2020; Haug, 2014; Swan et al., 2015; Taylor & Bilbrey, 2012).

Currently, inquiry and inquiry-based practices appear in several disciplinary standards documents. The Common Core State Standards (National Governors Association Center for Best Practices, Council of Chief State School Officers [NGACBP & CCSSO], 2010) have been widely adopted and adapted. For example, as early as kindergarten, these standards call for children to "participate in shared research and writing projects" (W.K.7). By the fifth grade, they are asked to "analyze multiple accounts of the same

event or topic, noting important similarities and differences in the point of view they represent.”

The Next Generation Science Standards (NGSS Lead States, 2013) have also been widely adopted or adapted. Among the stated elementary is that “students begin by recognizing patterns and formulating answers to questions about the world around them” (p. 3), both key inquiry practices. Throughout elementary school, students are asked to “demonstrate grade-appropriate proficiency in asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information” (p. 27).

Many states have developed their social studies standards with direction from the *College, Career, and Civic Life (C3) Framework for Social Studies State Standards* (NCSS, 2013). This document explicitly calls for students to learn inquiry skills and is structured around four dimensions of inquiry: developing questions and planning inquiries, applying disciplinary tools and concepts, evaluating sources and using evidence, and communicating conclusions and taking informed action.

While inquiry is present across the curriculum and often cross-curricular, inquiry has subtle differences in school subject areas. Building from understandings of their students and content, teachers navigate the day-to-day implementation of inquiry practices with their students. For example, science inquiry might call for facilitation of discussions that help students build on evidence they have collected through investigation (Haug, 2014); while a math inquiry is more likely to call for scaffolding of inquiry-based thinking through the use of probing questions (Dorier & Maass, 2020).

Inquiry in Teacher Preparation

In addition to P-12 learning expectations, inquiry and its underlying components are present in many elementary teacher preparation standards documents. For example, the Michigan Standards for the Preparation of Teachers of Upper Elementary (3–6) Education explicitly state, “Well-prepared beginning teachers of literacy will be able to . . . use materials and space to foster literacy and disciplinary inquiry”; but also refer to inquiry less directly in several places, for example,

well-prepared beginning teachers of science . . . [give] priority at this grade band to the practices of asking questions and defining problem . . . planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, and engaging in argument from evidence. (Michigan Department of Education, 2018, pp. 5 and 23)

Similarly, in California, upon entry into the field, teachers are expected to “promote students’ engagement in research, inquiry, and project-based learning and help students

develop research questions, locate information from multiple sources, and evaluate its credibility” (California Commission on Teacher Credentialing, 2016, p. 27). Despite wide-spread requirements mandating teachers be prepared to teach through inquiry, there is little description of the underlying skills and knowledge teachers need to implement inquiry, which would be informative to PST preparation curricula.

Several studies explore the purposeful use and modeling of inquiry as part of social studies methods courses. Cuenca (2014) found PST who completed inquiry-based social studies experiences as part of their teacher preparation reported a greater sense of empowerment and autonomy to enact student-centered instruction. Crocco and Marino (2017) investigated PST’s understanding of inquiry as they explored local history. Their PST expressed strong interest in local history and reported they were able to understand inquiry-based instruction teaching as a result of their experiences. Crocco and Marino (2017) concluded that “a social studies methods class should be a place where inquiry-oriented learning approaches receive frequent, concerted, and tailored attention to the demands of teaching social studies subject matter” (p. 7).

Teaching through and about inquiry has also been demonstrated to both build future teachers’ content and pedagogical knowledge. Roberts and Brugar (2017) explored multi-genre historical inquiry experience, integrating instruction on and engagement with the inquiry arc and writing process, during a co-taught literacy and social studies methods course. All students demonstrated gains in content knowledge evidenced by conferences with instructors, final products submitted, observations of group discussions, and oral presentations. Beyond the content knowledge gained, all students gained pedagogical experiences with process writing, inquiry, and more specifically, the four dimensions of the C3 Inquiry Arc. Bauml (2019) utilized a published inquiry curriculum developed for the New York Social Studies Toolkit (NYSST) Project as a tool to explore PST thinking about teaching first-grade economics, finding PSTs were able to develop skills in interpreting and adapting these curriculum materials.

Despite PST’s self-reports of learning and empowerment when engaging in inquiry in higher education coursework, enactment in K-12 classrooms when they enter the field as teachers of record remains challenging. For example, Thacker and Friedman (2017) explored K-12 inservice teachers’ design and implementation of IDMs. Although the teachers found the work to be worthwhile, they noted additional supports (i.e., training, time) were necessary for successful use of inquiry in their classrooms. What remains unclear is what training should consist of. When teachers “do” inquiry, what exactly should they be doing?

PST Learning

Recently, a qualitative content analysis of 48 syllabi shared by elementary social studies PST educators from across the United States found 11 syllabi explicitly noted centering

inquiry-based instruction aligned with the *C3 Framework* (Schroeder et al., 2021). This is important to note because PSTs are influenced by the beliefs and practices as demonstrated by teacher educators (Jay, 2023). Transformative learning is most likely when teacher educators share beliefs and practices associated with inquiry that are deeply rooted in the pedagogical needs of PST to support their future students in elementary classrooms. Inclusion of inquiry in methods coursework is essential as it provides models for teachers to use in their future classrooms (Parker, 2006). However, overwhelmingly, research also supports the idea that the instructional strategies introduced in elementary methods courses must be supported by observations of those practices in field experiences in order for learning to be most impactful on future instruction (Demoigny, 2020; Hawkman et al., 2015).

Teachers often credit their field experiences for much of their learning during teacher preparation, but these experiences can lead to skewed perceptions of teaching and learning that do not include more recent research-based pedagogy. The “apprenticeship of observation” (Lortie, 1975) has a strong impact on how teachers teach and can perpetuate the *status quo*. Slekar (1998) reminds us that the “apprenticeship of observation” is likely why social studies teachers repeat the instructional practices associated with their own social studies learning experiences and those they observe and participate in as part of university field-based experiences, to the exclusion of pedagogy learned in coursework.

A limited amount of research on social studies teacher education and professional development exists (Crocco & Livingstone, 2017; van Hover, 2008). However, within this work, there is a stronger focus on middle and secondary grades (Cuenca, 2014, 2021; Jay, 2023; Reisman et al., 2018). Extant research is more limited as it pertains to elementary grades (Halvorsen & Kesler-Lund, 2013; Kesler-Lund, 2012; Roberts et al., in press), a gap this study aims to address.

Method

This qualitative study examines, through PST’s own descriptions during focus group interviews, what happens in the spaces after learning and before enactment—between methods classroom learning and field experiences as well as teacher preparation programs and entering the field as novice teachers.

Context

Focus group interviews took place during the final semester prior to student teaching; students had been introduced to inquiry-based instructional practices across multiple disciplines in previous coursework. Students’ introduction to social studies-specific inquiry occurred in their foundational social studies course; instruction on inquiry pedagogy

occurred earlier in the semester in the course in which they were enrolled in when interviewed. At the point of the interviews, students had read and critiqued IDM and in subsequent weeks they would design their own. Concurrently, students were enrolled in their third field experience in the program, the first associated with a methods course and focused on pedagogy. The purposes of this experience were to (a) see instruction, particularly social studies, in action; (b) engage with students and teachers in authentic learning spaces; and, (c) reflect on university instruction in relation to classroom experiences. Students spend two full academic days in their field classrooms each week during this placement.

Participants

Thirty PSTs (two classes of 14 and 16), who were enrolled in a university-based teacher preparation program at a large research university in the Great Plains, participated in this study. All were seniors in the program and enrolled in a social studies methods course with an assigned field placement in the local school district where they observed and taught 2 days every week.

Materials

IDM blueprints were selected for in this study because they were created to further support the inquiry initiative of NCSS (2013). IDMs are activity sequences that take students through the Inquiry Arc of the *C3 Framework* (NCSS, 2013). Specifically, they are instructional frameworks that stage compelling questions (e.g., *Can We Afford the Super Rich?*). Student then explore relevant and timely topics designed to help them better understand the world and their connections and responsibilities to and with it. To answer the compelling question, students explore series of supporting questions, examining thoughtfully selected disciplinary sources as they engage in formative and summative tasks. More than the completion of tasks, this inquiry process builds content knowledge, interdisciplinary and disciplinary social studies skills (e.g., understanding a map’s key), and confidence to form and communicate evidence-based conclusions and take informed action. Simultaneously, IDMs provide a high level of support for teachers through structuring of the inquiry and providing resources while respecting teachers’ knowledge and expertise by avoiding overly prescriptive instructional practices.

We identified two IDMs (first grade, *Can my life fit on a map?*; fourth grade, *Did the American dream come true for all immigrants?*; C3 Teachers, 2021). These IDMs were selected so all students could view an IDM at or adjacent to the grade level of their current placement and more easily envision the experiences described. Both IDMs address specific content included in state standards, but they also expand more broadly into major concepts such as time, place, and immigration.

The selected first-grade IDM focuses on complicating understandings and uses of maps, culminating in a summative task that asks students to develop an argument answering the compelling question, *Can my life fit on a map?* Students are given freedom to present their argument in a variety of formats, including written composition, drawing, or discussion. There are also opportunities to extend the summative assessment, applying the skills learned throughout the inquiry to make a map of a place that is important to the student and take informed action by creating a map to support a proposal for redesigning a space.

The selected fourth-grade IDM challenges students to consider the relationship between the American Dream and immigration to New York during the mid-1800s early 1900s. Using evidence from sources included in this inquiry, students are tasked with developing an argument to answer the compelling question, *Did the American dream come true for all immigrants?* Again, the summative task included gives students the option to choose the presentation style of their argument. Students can take informed action by investigating the current experiences of various immigrant groups in their local community, researching their history and customs, and sharing these new understandings with community members.

Data Collection

Data collection for this study occurred during one regular class session through the use of focus groups. Krueger and Casey (2015) describe focus group interviews as carefully planned “discussions designed to obtain perceptions on a defined area of interest in a permissive, nonthreatening environment” (p. 2). They also suggest the use of focus groups allows researchers to collect a range of opinions, perspectives, and understandings about a particular practice. Furthermore, and in this case, we elected to use focus groups to better prompt participants to share information based on information shared by other participants (Krueger & Casey, 2015).

When creating focus groups, typical practice is to select participants for each group based on differences likely to influence their responses (here, grade level and field placement location) with the goal of achieving data saturation (Krueger & Casey, 2015). For this study, we created eight total groups, five lower elementary groups across two schools and three upper elementary groups across the same two schools. Each focus group ranged from three to five students. One or two researchers facilitated each focus group interview using questions meant to evoke conversation. Participants were encouraged to respond to every question, either building on other responses or offering another perspective (Krueger & Casey, 2015).

The interviews began with asking PST to share their understandings and experiences with inquiry-based instruction. This prompt was designed to elicit PST’s understandings of inquiry as well as what is required and expected of

teachers and students when enacting inquiry (content knowledge, skills, dispositions, etc.). Following the discussion of the initial prompt, PSTs were given one of the IDM to read and annotate. After approximately 10 min, PSTs were asked to share their first impressions of the IDM followed by a conversation exploring key prompts:

- When you look at this IDM, what do you notice about what a teacher would need to know or be able to do to guide students through this inquiry?
- When you look at this IDM, what do you notice about what the students are expected to know or be able to do?
- After thoroughly reviewing this IDM, would you use this IDM or possibly explore others for use in your classroom? Why?
- Are there modifications you would need to make to use this IDM in the classroom?

Each interviewer probed to get responses for these core questions from each participant. The full interviews were approximately an hour long. In addition to recording the sessions, the research team member facilitating each group discussion took field notes.

Data Analysis

Each interview was transcribed by a researcher who did not participate in that interview. Transcripts were then read and annotated by the same researcher who added descriptive codes and general commentary noting connections to research, theory, and the research questions. Subsequently, the same researcher wrote a memo summarizing key ideas in the interview related to the research questions. The research team then met to discuss initial observations and structural conventions and level of detail in the memos. In the second round of review, each researcher read the transcripts and memos created by the other researchers, adding to the commentary. When all transcripts had been annotated, reviewed, and revised by all researchers, the team met to discuss and identify recurrent themes in the context of relevant research and theory and the research questions.

Limitations

The primary limitation in this study was that the interviews were a snapshot of a moment in time, which did not allow us to see how their thinking and self-efficacy might change as they move through the rest of their program and transition to being classroom teachers. In addition, based on our experiences with these PSTs in the field, they had few, if any, opportunities to teach social studies, which is not uncommon (Hawkman et al., 2015). In one sense, this limited their ability to respond to some of our questions and prompts. However, this is also reflective of the reality in classroom

and thus makes this data representative of common circumstances. While observations of implementation of social studies instruction is an important next step in this line of research, to move in this direction, we must first successfully advocate for more social studies instructional time to provide such opportunities.

Results

We share the results of this study in two parts: (a) PST's understanding of inquiry and (b) they envision inquiry in their current placements and future classrooms. Without exception, students indicated they had learned about inquiry in their coursework, but not seen it in action in their field placements, which made it difficult to envision.

PSTs' Understandings of Inquiry

Our first research question is designed to help us better understand what students have learned about inquiry, to this point, from their university coursework and field experiences. In the theoretical model we propose, these two pathways (field and coursework) figure heavily into students' efficacy for implementation. Understanding of inquiry is not the same as PST's efficacy to enact IDM in their current or future classrooms, though it does contribute, because self-efficacy is also heavily influenced by contextual factors.

PST initially demonstrated emergent understandings of the inquiry process, and, after reviewing a sample IDM, this particular tool. All participants clearly understood there was a difference between inquiry and a traditional "sit and get" approach to social studies most were observing and experiencing in their field placements. At the beginning of the emergent continuum, PST defined inquiry through one or two key features, such as the PST who said, "I think it's just about questions and that's it." This understanding is not incorrect but is incomplete. Another explained, "I think that it's a lot of students interacting with things and developing questions on their own, which leads to discovery learning, um, trying to figure things out based on what they see, what interests them." This PST understands inquiry as student-centered, which is accurate, though not evidence of complete and nuanced understanding.

There were a few PSTs who were further along the continuum of understanding. For example, Lincoln explained,

My understanding, through my courses, is that inquiry-based learning is learning through exploration rather than being lectured to. So, the students kind of take charge of their own learning. They're given guidance and direction by the teacher and we kind of create, like, a culture of learning as learners together, rather than a teacher giving them knowledge.

This explanation combines the ideas of exploration, student-led learning, and the role of the teacher as a guide rather than

a giver of knowledge; and demonstrates a more detailed understanding. While no students provided a full explanation, they all seemed to understand some aspects.

Of note, there were very few descriptions of inquiry focused on the role of the teacher, and in some cases, direct or indirect comments indicated the teacher has less of a role in inquiry than other forms of teaching and learning. For example, Sally put the onus of facilitating critical thinking and the composition of arguments entirely on the IDM, itself, stating, "Instead of [the teacher] simply handing off information, this lesson has students using critical thinking skills and really coming up with their own arguments." Sally saw roles for the students and the IDM itself, which she viewed as a lesson plan, but it is unclear what the teacher's role would be in connecting the two. Another PST described a fairly hands-off role for a teacher that would not require preparation, specific expertise or knowledge, or tailoring to the inquiry at hand:

I also think inquiry-based learning is having the students ask the questions and then search [for] the answer themselves. So rather than the teacher posing the question, I think we should introduce the topic. What questions do you have like, what can we brainstorm on this? So, I really think it's the students, you know, using questions, making their own answers, and being creative as well, having fun in the classroom.

Many PSTs indicated an understanding that inquiry is a process in which students build and use skills to access, understand, and reshape content, rather than a mechanism for delivery of explicit content. They viewed skills as essential to inquiry enactment for students but said little about teachers' skills for instruction and scaffolding. This may have been, in part, because they also seemed to view the IDM as lesson plans to follow rather than sequenced activities that require support, not realizing the IDMs were created with the specific intent that they would not be prescriptive lesson plans (Grant et al., 2014; Swan et al., 2015). However, the assumption of the IDM is that teachers will weave in teaching and scaffolding of skills and strategies as needed, but the instruction, itself, is not detailed. For example, the IDMs assume that if kids are asked to write a paragraph and teachers know that some of their students are not yet able to do so independently, that should be a point of instruction and scaffolding within the inquiry and other parts of the day (e.g., during writing instruction) as inquiry draws on skills and content across disciplinary lines.

PSTs' Efficacy for Inquiry Instruction

Our second question relates to PST's self-efficacy for teaching through inquiry, both in their current placements and in the future. As participants spoke about their experiences and understandings, the possibilities for inquiry instruction, as well as other forms of classroom autonomy, became evident.

PST's rationales for the degree to which or the conditions under which they felt they could implement inquiry generally fit into four themes: the teacher's role in inquiry, student readiness, adaptations of the IDM, and support and structures for implementation.

Teacher's Role in Inquiry. During each interview, there was discussion of the teacher's role in the inquiry process, prompted by the question: "When you look at this IDM, what do you notice about what a teacher would need to know or be able to do to guide students through this inquiry?," but it also came up organically. This question was designed to illuminate how PST read the actions and expectations for teachers described explicitly and implicitly in each IDM. (For a review of teacher actions referenced in the IDM; see Roberts et al., in press.) PST's role expectations are critical to their self-efficacy; whether they can take on the role as a teacher of inquiry depends heavily on what they think that role entails.

As noted above, in their initial descriptions of inquiry, PST did not put a strong emphasis on the role of the teacher. Across the focus groups, when asked directly, PST described the role of the teacher as a guide or facilitator and often pointed out the task of guiding or facilitating student learning through inquiry is not easy. Reagan noted, after reading the fourth-grade IDM,

We need to be able to step back and let our kids do their own research and come up with their own conclusions and struggle a little bit. While they do that, it's so hard not to be a participant [as the teacher].

Participants also discussed how difficult it would be to decide when and whether to intervene during inquiry as students work their way from incomplete or inaccurate understandings to more conventional understandings. For example, toward the end of one of the K-2 focus group discussions about the inquiry focused on maps, the discussion turned to how teachers would have to conceive of and maintain their own roles for inquiry to be successful. Sage raised,

I'm going to have to kind of let go of the idea of them understanding complete spatial awareness, and complete like . . . when they're drawing, they may make a slide the size of the page. And like, you can't have a slide the entire size of the lot, you know, but I might just kind of let those ideas though because those may be concepts that come later. But for now understanding, did they get a title? Did they put symbols, did they draw, and just making sure that they got the concepts overall.

This quote stands out because the student is recognizing that sometimes understandings are emergent, and these incomplete understandings are a necessary step on the way to not only learning particular content but being a learner. Furthermore, she recognizes that the feeling of obligation to immediately correct students is perhaps more about their

discomfort or role expectations than it is about student learning.

Student Readiness. Related to the teacher's role in inquiry, we noted the ways in which the PST described their students' probable readiness for the content, tasks, and skills expectations while enacting the IDM. Many PSTs defaulted to expressing concern for what they believed their students would be unable to do. In evaluation of the K-2 IDM, Sage assessed the tasks as "obviously not something that my students could do right now." Another PST, Victoria, shared, "I think [the IDM] had some good ideas, but a lot of it was like I'd have to kind of lower my expectations if I were to implement something like this in my classroom." As many of our participants expressed concern about students' readiness, they identified specific skills they believed their students were lacking. In the following exchange, two participants describe literacy skill deficits that might prevent their students from participating in the inquiry:

Margo: I think it really depends on the reading level your kids are at, because like they said . . . I do feel like they would be ready, but I do feel like they would need a lot of support. Vice versa, like if I was doing this to a fourth grader or a fifth grader, excellent. They will be able to do it independently. I really do not think this is something they should do in the early grades. I feel like they would need a lot of support . . .

Allie: I mean, I agree with that. And the fact that this is for first grade and right now being in the first-grade classroom and just kind of seeing where they're at. . . . Like I'm looking at some of the supporting questions and trying to get an idea of like students' background knowledge of directional vocabulary. Like my kids would know absolutely nothing. So that there would have to be, you know, something that would be . . . that would need a lot of support in that, alone. So, a lot more would be needed if this was being put in my first-grade classroom. For sure.

In this exchange, Margo believes inquiry is generally not appropriate until upper elementary because students should not be engaging in inquiry until they can do so independently. Allie expressed her students would "know absolutely nothing" and "need a lot of support," but in contrast to Margo, positioned this as the students needing more support to engage in inquiry, not that they would be unable to do it or it would be inappropriate. Sally, a third-grade PST, similarly expressed that while her students were not currently ready to engage in inquiry because they "struggle with . . . coming up with an argument, because there's not necessarily a right or wrong answer," they could be able to do it with "proper scaffolding." While Sally was somewhat pessimistic about her students' capabilities, she did express a knowledge of her students and acknowledged the need to intervene and scaffold students' activities. Overall, many of PST's comments demonstrated lack of confidence in their students to engage

in the skills necessary to learn through inquiry. While they felt they were capable of teaching through inquiry, they were less convinced their students were capable of learning through inquiry.

Adaptations of the IDM. PSTs in all focus groups were able to share adaptations for implementing this IDM in their future classrooms, though sometimes only did so later in the interview, when asked directly. When asked whether the IDM document itself invites users to make modifications, Allie said “I think I just kind of assumed [you would],” even though “there’s not anything in here that talks about like modifications.” Later, she continued,

I mean, I think that’s something that, you know, in all of our classes and stuff we’ve been really taught, like how can you modify this for your students? I mean, if you’re in the classroom and you have students who can’t do what you’re asking to do, how can you model, you know? So I think, you know, being in that mindset of how can I make this work for all my students so that everybody can be successful. I think that’s just the mindset I went, I went into this with.

At times, PST suggested modifications that preserved the tenets of inquiry and would support scaffold students (Bauml, 2019). However, they also made suggestions for modifications that prioritized content and task completion but essentially modified the experience to not be inquiry.

Preserving Inquiry. Often, the modifications PST suggested seemed like they would maintain the integrity of the inquiry process. Some common suggestions for adapting or modifying the IDM included changing the structure to make the instructional experiences more manageable or relatable for students. For example, Margo suggested, “Maybe if it was like broken up into like different activities?” while Juno said, “I would relate it to their video games, card games that they play . . . like Roblox and stuff like that. Those games. I feel like they could use a lot of these features that are in the map.” She later added, “I think something that could apply to my classroom right now is using a space that they can go to and compare their maps after they’ve drawn them and be able to like take them to those places.”

Many PSTs suggested changing individual student activities into group activities to make them more supportive or manageable. For example, one PST suggested making a T-chart as a group on the board instead of individually. Other PSTs latched on to this idea, suggesting answering questions as a class, working with a partner, or teacher modeling. Both upper and lower elementary grade PSTs made these types of suggestions. Kate, considering working with her second-grade students to create and analyze maps, said,

My students tend to feed off of each other. So when one answers, another one really wants to answer, too. And so, I think that

[working as a whole group to complete some of the tasks verbally instead of completing them individually in writing] would encourage and motivate them a little more. And also, they wouldn’t be, how do you spell, how do you write things, I don’t know how to solve this. I can’t see that. Just, I think it would be more efficient and productive to do as a whole class.

Similarly, Kara, thinking about working with fourth-grade students to read a difficult poem, suggested group work:

If we’re just talking about using a poem in general, I think it would be cool to start in groups, like small groups and then have them make observations and things together and bounce ideas off each other and then bring it back to a whole group discussion [rather than starting with a class read-aloud/whole group discussion]. That’s how I would probably do it.

Other generic modifications PST suggested included sitting on carpet with clipboards (though they did not say why or what they might do with them), showing examples (which are included in the IDM, already), and talking about content in different ways (e.g., about how maps can be different).

All participants talked broadly about using picture books, an approach introduced in the social studies foundations class all PST took and reinforced in their social studies methods course. One PST suggested using hands-on activities, like making the map with blocks instead of drawing them, which seemed to be a very specific suggestion based on her perception of student ability in her placement.

Multiple PST also indicated, broadly, they would make changes to scaffold or differentiate the IDM saying things like, “There would have to be a lot more scaffolding,” and, “I would need a lot of differentiation for different kids.” Some PST had more specific suggestions. For example, Brandy suggested using different texts or voice recording of answers:

. . . It’s a little bit hard to know where students are, and IEPs, and what specific plans they have. But I think having a solid understanding of that . . . so maybe it’s differentiated texts . . . Maybe this student can’t write, or they can record voice record or something like that.

Bill, who was reviewing the upper grade IDMs, suggested modifications would be necessary before implementing parts of the inquiry because students were unlikely to have the necessary vocabulary knowledge, though without specific reference as to how he would do so:

So, when reading a poem. There are at least seven words that I can see right off the bat that I know my students do not know. For poems, is very important to know all the vocabulary. So, I would have to spend a lesson, going over purely vocabulary for the students . . . Before I could continue to try to analyze and go forward with that question.

Emily took a similar approach, but detailed how she might teach the vocabulary in advance:

Yeah, I could even see it being like, like a poetry lesson like the day before where like, you go over the poem and like, okay, what is this word? Like talking about figurative language and how, like, different words are like, or like analogies, like how poets, you know, like breaking it down like in that way. And then like the next day you could be like, 'Oh yeah, remember what we talked about yesterday and how we figured out what all this kind of means. Now let's talk about this. Let's reread it, refresh it, and then talk about this big question' kind of thing.

In each of these cases, to varying degrees, the PST considered modifications or additions to the IDM that would preserve the dimensions of inquiry while modifying the structure or infusing additional instruction to support students to move through them.

Moving Away From Inquiry. Not all modifications PST suggested were aligned with inquiry practices. Some suggestions to modify instruction would allow students to move through the IDM, but did so by altering the instruction to be less inquiry-based.

In focus groups centered on early elementary, PST described ways they could teach about maps and maybe even use some of these maps provided. However, in their efforts to modify the IDM to work for their children's perceived capabilities and within classroom constraints, the modifications suggested were most often focused on direct teaching instead of inquiry practices, despite expressing the value of the inquiry experience as more valuable than "finding a right answer" earlier in the interviews. These suggestions typically included adopting existing classroom practices to include content learning related to the inquiry topic; however, there was little emphasis on the inquiry portion of the lesson. Melody, placed in a second-grade classroom, shared the ways in which she imagined adapting this IDM for her students, as follows:

You can always do the little catchphrase, the "never eat soggy waffles." My students, I know they would think that was hilarious, so they would never forget it, but I think something like [this IDM] I think would be a little overwhelming.

While this would likely help students remember the four cardinal directions, there was no inquiry involved and it would not address the central question from the inquiry, which was "Can My Life Fit on a Map?" In another example, Lotti talked about how mapping a desk would be better and easier than mapping a classroom or outdoor space. While that may be true, it would not meet the criteria for inquiry because there is no clear purpose to the task and the map of the desk would not help the students answer the compelling or supporting questions. In the examples above, Melody and Lotti seemed to have simply lost track of the purpose of the IDM (teaching

through inquiry). However, other students suggested modifications that they were clearly aware would move away from inquiry. For example, Emily suggested, "I think that I might take away some of the like inquiry part of it for the students to like be able to experience it on their own because of how much guidance they might need." In other words, she felt being able to complete something independently was more important than engaging in inquiry and should be prioritized. Later, she gave more detail about what that might look like:

Yeah, maybe if, like watching the video [about immigration] and like the virtual field trip was something at the beginning and then you could talk about it. They were like more frontloaded with like what actually happened and like who came over here and what they were doing and why they came here. Maybe that, yeah, I can see that making it a lot more, making it a lot better.

Here, Emily focuses on telling students, "what actually happened," as opposed to letting students critically consider multiple, and sometimes disparate, truths. Here, delivery of information is clearly positioned as "better" than students arriving at their own conclusions.

Support and Structures for Implementation. Most PSTs initially commented positively on the structure of the IDM. One PST, Duke, specifically indicated the format would make it easy to implement, saying, "it's kind of easy to follow; and then also because there's a lot of like things you can do from a starting point to go off of it." Another PST commented the format could be used for any age level because each IDM starts with a big idea and breaks it down into smaller chunks. However, none of the participants seemed to feel it could be implemented in their current placements in just four-to-six, 30-min class periods (the time period suggested by the authors of the IDM), partially because of the skills they would need to first equip students with for them to be successful with the tasks required in the IDM. Despite feeling that the IDM would be easy to follow, Duke estimated,

I think that I would need to adapt . . . lessons take a little bit longer because rather than being able to give like a five-step instruction and then get that done in a few minutes, it's a one instruction thing and it's like reminding of that one instruction there for five minutes at a time before you move on to the next step . . . I think they're more than capable of learning all this, it's just, it's going to take a little bit more focus than I think they're used to.

As the discussion shifted from a focus on inquiry in the abstract or in future classrooms to what it would like in their current field placements, the enthusiasm and opinions on the possibility of implementation shifted dramatically. In one clear example, Dora demonstrates this shift:

Beginning of Interview: Seeing these activities like using, making maps about, um, like the actual park or any local place

really helped me kind of more understand that it is, like, different ways in which you can really teach this standard.

Mid-Interview: It [implementation] also depends on what my mentor teacher would be able to support because a lot of the things that are going to the park, or even if it's just a classroom thing, it can take a long time. And it really depends on if my mentor teacher is able to support me in that.

Similarly, when the conversation shifted to implementation in their current field placements, Caroline said, "I think that this model is very engaging and, maybe not with the teacher, maybe not the classroom that I'm in right now, but [it could be] be a great tool for encouraging students' engagement with material."

Many PSTs reported observing very little social studies instruction, inquiry-based or otherwise, in their field placements. Caroline described her observations of elementary social studies as "very limited in my field placement. Students get social studies every day for 30 minutes. Pretty much the whole time they're reading out of a magazine, and then copying answers" to which another group member, Bill, responded, "My experience with inquiry is the same, [it] has also been limited, it's still just reading from the textbook and copying down answers. Nothing extravagant." Another PST, Kate, agreed, "I was there during an observation time . . . but when I observe at my school, I don't really see any [inquiry]." This clearly made it difficult for PST to envision enacting inquiry-based instruction in their current placements, but also affected their efficacy for using it in the future.

The need for mentor teacher support now and peer support in the future was a strong thread in the interviews. Many PSTs noted they did not have the latitude to teach using inquiry because it was not standard practice in their classrooms. In response to whether she could envision using inquiry in her placement classroom, Allie replied:

The way this is written, I feel like the teacher is kind of just asking questions and prompting students and that this would not fly over well in my classroom. I mean, I think that the teacher would have to be way more involved in the process than this seems to . . . Just what I'm getting from this anyways.

This concern about support of more experienced teachers was not limited to their current field placements. Several PSTs discussed the role that more experienced teachers would play in their first years in the classroom and felt implementing inquiry in their own classrooms, if it was not the norm in other classrooms, would simply be too difficult. As Lotti explained,

I would definitely want to do something like this. But, like I said, resources and support from surrounding teachers would have a big factor, but I definitely would want to try . . . for my placement, there are three first-grade teachers and they all work very closely together because they believe it's important that

each classroom, although things might be a little different in them, that they all are getting the same experience. And so, they work very closely together and making sure, are you teaching this today? Did you already teach this? Okay, I'll catch up to you. So that students aren't in one class having a completely different experience than the one next door.

Lotti is describing the instructional alignment among the teaching team at her current field placement. With that in mind, she expresses concern about striking out on one's own to do inquiry and the potential lack of support she may receive and/or the implications to collaborative relationships and expectations. Gracey shared similar thoughts, noting her future implementation of inquiry would likely hinge on the team she was teaching with. As she explained,

So realistically, the more I thought about it, the team that I'm going to be with, like when I start as a teaching career is going to have a big impact on what I do because I'm going to be so overwhelmed having to plan out an entire day for students all by myself. So, I'm going to rely heavily on my mentor teachers and my team. So, if they don't see that geography is important, I might wait for a couple weeks before trying to branch off on my own. I would want to, long term, but my first year just sounds overwhelming already . . . So, those team teachers are going to be a heavy impact on what happens in my classroom that first year.

Similarly, Caroline explained inquiry would be great if it was the official social studies curriculum and it was given to her "all ready to go," but if it needed to be integrated or added into another curriculum, it would be much more difficult. As she explained, "if, if I was at a school or to be at a school in the future where I'm asked to stick to the curriculum, something like this doesn't really seem accessible without a lot of extra work." Clearly, these PSTs recognized not only the importance of a supportive community of practice but also the barriers to implementing inquiry-based instruction if it was not the practice of the community.

Discussion and Implications

Our findings reveal PST thinking about inquiry-based instruction in social studies, specifically the IDM, and their efficacy for engaging with the IDM in their current and future classrooms. We were struck by PST understandings of teaching and learning and their relationship to inquiry. Our participants had multiple experiences learning about inquiry across disciplines in their teacher preparation program. However, even with those multiple exposures, they often defaulted to talking about inquiry as an activity or lesson plan rather than a philosophical and pedagogical approach. The important difference is that for an activity, the goal is completion and perhaps a product. As a pedagogical approach, the goal is to teach and scaffold the skills and content that students need to engage in inquiries, *writ large*, and

become increasingly independent in doing so. Teaching and learning of skills and content occur before, during, and even outside of the inquiry in service of greater understanding. Students do not need to know how to do everything in an inquiry before beginning and lack of knowledge or skill should not be a barrier to participation.

Furthermore, these interviews made it evident that it is important to reiterate to PST that the IDMs are not lesson plans and intentionally do not prescribe the teaching that happens within them (Grant et al., 2014; Swan et al., 2015), but this does not mean that inquiry happens in the absence of instruction. Teacher educators need to help PST understand the difference between a blueprint for inquiry and a lesson plan, as well as encourage them to interpret and modify these instructional blueprints to include the instruction appropriate to their students. Once PSTs have the clear understanding that instructional design is the purview of the teacher, they need support to understand the academic standards at, above, and below their grade level to contextualize what students have likely been taught and what they will be expected to do in the future. For example, in this study, we had PST who were very concerned that the writing demands of the IDM (e.g., writing a paragraph in the fourth-grade inquiry) were inappropriate for fourth graders, not realizing that paragraph writing is aligned with third-grade standards.

PST coursework almost invariably includes instruction on teaching strategies of the sort that would support students in inquiry. The PST in this study had also experienced instruction on inquiry and been exposed to elementary-level state standards in all subject areas. What became quickly apparent in the interviews was the need to work with PST around conditional knowledge of how to implement standards-based inquiries. PSTs need instruction about integrating purposeful instruction to build students' skills based on the standards and purpose of the inquiry but also the unique strengths and needs of the students identified from classroom assessment across content areas. Integration of these three areas (standards, inquiry, instructional practices) provides the foundation for students to enact the IDM but is not sufficient on its own to support efficacy for enactment. For example, PST did feel empowered to make modifications in their instruction and described ways in which they envisioned enacting instruction with their students in mind.

Relatedly, at least for this group, it was very clear that university preparation in the absence of strong models of and support for inquiry in their field placements was simply not enough to build the confidence and efficacy required for PST to envision teaching through inquiry in their current field placements or future classrooms. As we have identified, there are areas for improvement in PST education that need to be put in place to "push" PST toward implementation of inquiry. However, enactment of inquiry in classrooms—at the preservice or inservice level—also requires "pull" from teacher and administrator colleagues in clinical and induction years experiences.

Students often perceive field experiences are where they learn to teach (Cuenca, 2020, para. 1). This is not surprising given the time spent in field placements, relationships with classroom teachers serving as mentors, and opportunities to enact instruction with students. This sentiment is persistent, and we do not pretend to be able to address it in the context of this study. However, knowing this perception exists highlights the importance of finding ways to support inservice teachers, working in partnership with schools to ensure inservice teachers also have access to research-based practices, including inquiry, as they emerge. The PSTs in this study talked at length about the influence of and importance of the support from mentor teachers and future teacher colleagues. These relationships are important and built intentionally to support novice teachers, but inservice teachers cannot support novice teachers in practices they have not experienced, observed, learned about, or been empowered to enact.

Conclusion

Teaching and learning are reciprocal processes and integral to understanding and implementing inquiry. While it is important to identify the skills and knowledge students need to have or be in the process of learning to fully engage in the inquiry process, the skills and knowledge exist and are developed within the context of instruction. It is necessary to identify these instructional needs as both unique and universal—noting students who are at grade level, struggling, excelling in ways that every classroom of children will in their future classroom. Fostering PST understanding of inquiry as both a teaching and learning experience is essential to their future use of inquiry with students and acknowledgment of teaching and learning as growth and development, not a definite end point.

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