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Putting Reflection into Action: Learning from Preservice Teachers' Reflective Practice during a Summer Literacy Tutoring Program

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Abstract

This study focuses on preservice teachers' reflective practices during a field-based tutoring experience in a summer literacy methods course. As part of the class, preservice teachers and their elementary-aged students served as "Summer Secret Agents," sleuthing nonfiction selections together to find fun in learning facts. Throughout the tutoring experience preservice teachers reflected on what they were learning in the course as well as how they implemented new, corresponding strategies while concurrently working in the field. Preservice teachers' reflections were analyzed qualitatively; results indicate that more explicit instruction on how to problematize in reflections is needed. For example, reflections containing discordant evidence over time were consistently evident, rendering this more of a compliance based exercise and less of a true exploration of evidence used to foster improvement in K-12 student learning gains. In addition, preservice teachers did not appear to integrate the strategies they learned into more complex, integrated knowledge schemes: reflections focused on the strategy covered most recently in class. Discussion, pertinent implications – including the consequences of "misdiagnosing" student difficulties and devising strategies accordingly, and suggested future research are provided so "Summer Secret Agents" can be replicated, and further refined, to foster positive outcomes for preservice teachers and the students they serve.

Keywords: *preservice teachers, literacy, reflection, nonfiction*

Introduction

The ability of a preservice teacher to engage in reflective practice is often cultivated prior to their entry into the field – i.e., during teacher training (Ross & Gibson, 2010). Reflecting on experiential learning offers preservice teachers the opportunity to consider how teachers execute the theories of "best practice," as well as how students respond to them in "real life." Learning through reflection can foster the cultivation of increasingly elaborate, qualitatively different knowledge schemes grounded in the intersection between K-12 students' interests, their academic competencies, and preservice teachers' use of specific pedagogical practices designed to foster their students' skills – such as reading comprehension (Gelter, 2003). Questions emergent from reflection can include, "Why did this student recall more of the text when sharing her synopsis of what she read today?" "Is she more confident?" "Did using games to foster recall, such as Jeopardy, lead to this positive result?" "Is her interest in the text associated with greater comprehension?" "What

about her knowledge of the topic?" "For example, did her limited knowledge of John F. Kennedy lead her to recall much less about the text?"

As preservice teachers reflect upon what they are learning and have learned in coursework, as well as their experiences in the field, they can re-examine which practices worked well, which were less effective, why this was the case and what they plan to do next. The salience of the last step, that is "what they plan to do next," cannot be understated, as misconceptions of the nature of K-12 learners' difficulties can cause pre- and in-service teachers to implement strategies of limited value to their students. In addition, this type of reflection renders theories of best practice, past experiences as a learner, and the complex realities of classrooms in the real world as a fruitful amalgam from which more elaborate, sophisticated notions of practice can develop. Within this article, there is a focus on reflective practice in the context of literacy instruction. Specifically, the authors highlight preservice teachers' -- taking a Literacy Methods course -- reflections throughout a tutoring experience where they applied their new course knowledge into practice.

For the purposes of this article, we use Rodgers (2002) definition of reflection, which is based on Dewey's model of reflective teaching (1933). As such, reflection includes the following: (1) the process of making meaning, and building continued, increasingly connected, deeper understandings through experience; (2) systematic, rigorous, and disciplined thinking, rooted in scientific inquiry; (3) embeddedness in the community and the people therein; and, (4) an emphasis on prioritizing personal growth as well as the development of others.

Literature Review

Notwithstanding, reflection in teacher education has been defined in very different ways, and correspondingly, has been conducted differently (Tannebaum, Hall, & Deaton, 2013). Consistent among many theorists, however, is that preservice teachers frame their epistemology of reflection according to their cultural, political, affective and contextual standpoints (Hatton & Smith, 1995; Schon, 1983).

Dewey's work on reflective thinking (1933) was from the perspective of teachers, whereby educators reflect in order to maximize their professional effectiveness. Inherent in this process, according to Dewey, is a willingness to seek multiple perspectives in relation to a problem or question, consider accepting new ways of acting or thinking, anticipate the consequences of taking next steps and use these judgments to make decisions. He noted within this process the thoughtful classification of ideas, linked together temporally as a means for understanding an issue according to one's cognitions and beliefs.

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This process—problematizing, and considering how to interpret corresponding interconnected experiences—frequently involves remaining suspended in periods of doubt (Dewey, 1933; van Manen, 1995). Given the agreement among theorists regarding the salience of problem identification as a prerequisite for teacher reflection, it is reasonable to assume that preservice teachers' dispositions – such as a willingness to continuously improve --, as well as attitudes – such as viewing problems as opportunities, not indicators of personal deficiencies – either advance or constrain whether reflection occurs (Corcoran & Leahy, 2003; Ross & Gibson, 2010).

Other studies examined preservice teachers' reflections both during and after their literacy field experiences. This included preservice teachers' perceived ability to support or instruct students during literacy instruction, their metacognitions—broadly speaking (Fang & Ashley, 2005; Griffith, 2017; Risko, Roskos, & Vukelich, 2002; Timmons & Morgan, 2008), and their beliefs regarding how to teach reading (Fang & Ashley, 2005; Mallette, Kile, Smith, McKinney, & Readence, 2000; Scharlach, 2008). These results indicate that reflective practice in literacy teacher training, and teacher training in general, has consistently proven to be important.

For example, Shulman and Shulman (2008) report that lessons learned from "evaluating, reviewing, and self-criticizing" for the benefit of "purposeful change" are key to teacher development (p. 4). Specifically, these theorists indicate how they cultivated these metacognitive skills in preservice teachers by meeting regularly to discuss their lessons, practices, and assessments (Shulman & Schulman, 2008). Content from these discussions was used to cultivate cases that were explored in detail. Other educators engaged in analogous forms of structured reflection then revisited the lessons learned from these critical analyses.

This was likely to have been successful, in part, because preservice teachers' choice of pedagogical techniques is informed by what they interpret their students' intentions and perceptions of learning to be, as well as which instructional activities are in their repertoire. This seems self-evident, but the consequences of making choices through this interpretive lens are less so. Specifically, if preservice teachers' interpretations of their students' knowledge, interests, and multifaceted challenges dictate their next instructional moves, and if their interpretations are inaccurate, then – as noted above -- the instructional choices they make are less likely to be effectual.

For example, a subset of research in preservice teachers' reflections revealed their tendency to commence literacy instruction with K-12 learners according to a deficit theory (Fang & Ashley, 2005; Leko & Mundy, 2011; Mallette et al., 2000; Scharlach, 2008); that is, students' reading struggles stemmed from either a biological disability or an inability to retain information. Compounding the potentially negative effects of this view was preservice teachers' limited confidence in and/or knowledge of how to assist students with reading difficulties (Fang & Ashley, 2005; Scharlach, 2008). The instructional practices they enacted, grounded in their reflections of their students' pervasive shortcomings and sense of limited pedagogical efficacy, are likely to have been suboptimal. This can lead to a self-perpetuating cycle: preservice teachers' reflections of student deficits and beliefs in their inability to "fix them" result in poor outcomes that further reinforce their initial beliefs.

Levels of Reflective Practice

Intersecting with preservice teachers' beliefs is the depth of their reflections. Specifically, preservice teacher's practices in the field, in the absence of substantive reflection, are often categorized as technical where preservice teachers think about the degree to which their teaching (i.e., "means") led to their desired student outcomes (i.e., "ends") soon after having taught and then change their behavior accordingly (Hatton & Smith, 1995, p. 35; Reynolds, 2011, Smith & Lovat, 1991). Technical or descriptive reflection – often based on intuition, however, can constrain the kinds and the number of questions posed. It can also result in teachers formulating a single explanation, in the absence of other possibilities, of student disengagement or limited recall of the text. Having said that, preservice teachers' engagement in technical reflection is a precursor to the cultivation of more sophisticated reflective practices, such as practical reflection.

Practical reflection is a broader analysis of whether means led to specific ends considering goals and the assumptions upon which conclusions are made (Hatton & Smith, 1989). For example, Danielson (1989) reports the conclusions derived by her preservice teachers' autobiographical reflections of their experiences as students learning to read. These reflections resulted in preservice teachers' markedly broadened ideas regarding the pedagogical practices they would integrate in their classrooms, such as fostering learning of literature through creative drama and reading to students aloud. Thus, engagement in practical reflection reminded preservice teachers of the enriching pedagogical methods they had not considered, given their goals as educators, the language they used as students, and the meanings they attributed to specific experiences (Danielson, 1989).

Critical reflection includes practical and technical elements, yet builds upon this with a consideration of moral and ethical requirements, such as equity, justice and respect for others. Although the relative sophistication of critical reflection, versus technical and practical reflection, has been noted, theorists reiterate the salience of always viewing dilemmas through both an educational and a moral lens (Holloway & Gouthro, 2011; Reynolds, 2011; Zeichner & Liston, 1987).

Schon (1987), whose work was influenced by Dewey (1933) and van Manen (1977), also operationalized a reflective stance, or more specifically "reflection-in-action," which involves thinking about the enactment of tasks in real time to inform the creation of thoughtful modifications (p. 27). He cited the salience of reflection-in-action for educators, particularly due to the uneven nature of what teachers-in-training learn theoretically and what they confront in practice.

Reflection-in-action, can be descriptive, technical, dialogic, or critical, yet occurs while a situation is occurring (Schon, 1983). Contemporaneous reflection is focused on neither the past nor what is to be expected in the future – it is a temporally immediate. The emphasis on altering practices extemporaneously -- according to information in real time

-- in lieu of retaining standardized technical procedures, irrespective of their utility, holds merit.

Central Research Question

Reflection is critical for preservice teachers to engage in as they examine what instructional practices worked and why and ponder what they plan to do in the future that could further benefit their students. Accordingly, the central research question for this study was, "What is the nature of a sample of preservice teachers' reflections when conducting nonfiction literacy lessons with a small group of students?"

Methods

Participants

Participants were preservice teachers enrolled in a six-credit hour, eleven-week summer section literacy methods course. They were all Elementary Education majors (n = 12) in their junior year of study, who attended a midsize university in an urban area within the southeastern United States. In addition, all had successfully completed a three-credit prerequisite course that focused on basic literacy concepts and children's literature. The proportion of males to females in this sample reflected the larger population of preservice teachers attending the university; participants included eleven Caucasian females and one Caucasian male.

A second set of participants were elementary students (n = 17) who recently completed second, third, or fourth grade at a Title I school near the university. All were attending an afterschool program that also offered a summer camp. Provided by participants was parental consent and their assent to participate in this study.

Context of Literacy Methods Course

The overarching goal of this methods course was to prepare preservice literacy instructors for their professional roles by engaging them in pertinent hands-on pedagogical practices. This was a hybrid online course, with preservice teachers completing work both online and face-to-face every week. During most face-to-face sessions, the class met at the elementary school where preservice teachers worked with a small group of elementary students in a supervised setting for one hour. Following this, preservice teachers met their professor and attended class for two hours on-site. The course focused on methods for teaching phonemic awareness, phonics, vocabulary, fluency, comprehension, writing, and methods that could foster students' interest in literacy. Some specific course activities included learning about nonfiction text features using a method -- that a co-author exhibited -- entitled, Nonfiction Text Feature Creatures (Turner, 2013); watching video clips of efficacious literacy instruction; and, discussing readings on how to engage elementary students during book discussions. Methods used to foster engagement included posing open-ended questions and engaging in hands-on literacy activities -- such as working with Elkonin Boxes and situating exploration of text as "Secret Agents" (Temple, Ogle, Crawford, & Freppon, 2014).

Summer Secret Agents. More specifically, research reveals that youth enjoy solving puzzles and reading mysteries (Benevides & Peterson, 2010; Zarnowski, 2013). To capitalize on this, small groups of elementary-aged learners were called "Summer Secret Agents." The Secret Agents read nonfiction texts focused on their interests, and in the context of doing so, noted the emergence of scientific mysteries to be solved. Then, partners worked together as sleuths or secret agents to uncover answers to questions that emerged from the books they read.

The structure of preservice teachers' weekly session with their elementary student participant(s) was:

a) Reviewing the guidelines and goals of the summer program entitled, "Summer Secret Agents" (modified from Heller, 2006; Zarnowski, 2013);

b) Discussing the purpose of the lesson/complete a pre-reading activity;

c) Reviewing salient vocabulary in the text;

d) Reading a nonfiction book;

e) Sleuthing for information (Heller, 2006; Rosenblatt,

Table 1 Research Participants

Number of Participants	Grade (Most Recently Completed)	Gender	Ethnicity
3	2nd Grade	Female	African American
2	2nd Grade	Female	Caucasian
2	2nd Grade	Male	African American
1	2nd Grade	Male	Caucasian
1	2nd Grade	Male	"Other"
1&1	3rd Grade	Male and Female	Caucasian
1	4th Grade	Female	African American
3	4th Grade	Female	Caucasian
1	4th Grade	Male	African American
1	4th Grade	Male	"Other"

1994); and,

f) Writing about the text in a journal.

Again, to foster engagement, all elementary students were encouraged to read books focused on their nonfiction interests and chose books autonomously from a wide array of options (within their Lexile Level). Also, strongly emphasized was facilitating student participants' sense of belonging as they worked with the same group of learners, -- pending student attendance --, and engaging in social interactions (Guthrie & Humenick, 2004).

During the first three weeks, the professor provided a lesson plan template to scaffold preservice teachers' literacy lessons with young students. In addition, the professor modeled pedagogical techniques in class such as the use of "think-alouds" and picture walks (Temple et al., 2014). After three tutoring sessions, the template contained fewer scaffolds, allowing preservice teachers to make decisions regarding which methods to employ given their expanding repertoire. For example, although some tutees benefitted from the use of "think-alouds," others did not, and preservice teachers' lesson plans differed accordingly.

Lesson plans were due 48 hours before the day of tutoring so the professor could review them beforehand. After each tutoring session, preservice teachers completed an assignment – i.e., a reflection – in response to two prompts: (1) describe your tutee's nonfiction reading comprehension; and (2) describe your tutee's nonfiction reading attitudes. The reflections were due two days after the tutoring session, and the professor deliberately provided preservice teachers with feedback that would not constrain the veracity of each reflection. Grades for this assignment were binary, based upon whether it was completed or not. Preservice teachers were reminded weekly that the purpose of their reflections was to capture growth, however discreet, and to record quotes (verbatim) and witnessed behaviors regarding their students' comprehension and reading attitudes. As alluded to above, these literacy teachers-in-training were unencumbered regarding how they responded to reflection prompts, however, it is reasonable to assume that many wished to present themselves favorably to the professor.

Data Analysis

For the analysis of the preservice teachers' reflections about their students' comprehension and reading attitudes, the authors applied rigorous qualitative data analytic practices, including the development of codes and identification of patterns using constant comparative analysis (Strauss & Corbin, 1998). During the first stage, the authors performed initial coding (Strauss & Corbin, 1998) on participants' reflections, read and re-read their entries, and then identified patterns that emerged as themes. The authors addressed reliability after coding 20 percent of the reflections through independent coding among all three researchers (i.e., authors). The authors met to discuss their codes and themes and engaged in a second stage -- pattern-coding -- (Miles & Huberman, 1994) to collapse initial codes into categories based on the similarities among them. After agreeing on the refined codes, the authors began their independent analyses. The authors met regularly as a team during this time and engaged in peer debriefing which helped them to stay reflexive in their data interpretations (Patton, 2002). The authors' analyses indicated over 90% agreement.

Results

Two overarching themes emerged from these data: preservice teachers demonstrated various challenges in problematizing the nature of their students' challenges and/ or disinterest in reading; and, their discussions for each week were focused on the pedagogical practices and course content covered during that time – with little to no integration or mention of techniques covered in the weeks prior. Both themes will be explicated in this section.

Challenges in Problematizing

Specifically, the first theme was evident in preservice teachers' consistent focus on identifying and attending to problems over multiple tutoring sessions according to incongruous threads of evidence and corresponding interpretations – rendering a problem about a singular topic divorced from its antecedent. One reflection, for example, was, "[the student] likes to learn about dinosaurs." Accordingly, this preservice teacher was responsive to her student's preference and brought in a book to read on dinosaurs the subsequent week. She then stated:

The topic of today's book, dinosaurs, did not turn him off but did not seem to captivate him. However, he had some prior knowledge on dinosaurs and he could make some connections between what we were reading and how it applied to his life; I felt that was a significant move forward. (personal communication, 2017).

The question of why a topic of interest would not captivate him was not explored, suggesting the importance of teaching preservice educators how to acknowledge that which is perplexing and seek multiple, possible explanations regarding aspects that affect students' growth and engagement. In addition to fostering these habits of mind, it is critical that preservice teachers find comfort in problematizing – i.e., wonder why their students understand concepts differentially well and seek more information.

Again, discontinuity among reflections was a theme evident in several other instances. For example, one preservice teacher noted that her student "loved learning about tigers, understood the bold words, understood pictures, and was somewhat confused regarding the difference between an index and the table of contents." In reference to her students' attitudes towards nonfiction – during the same tutoring session --, she noted the student "doesn't really focus, didn't really listen, and had fun drawing on her folder." Although the student loved learning about tigers and understood text features, perhaps she was unfocused and did not listen, however, a thoughtful reconciliation of these somewhat discordant descriptions was not provided by the preservice teacher. Another preservice teacher reflected that her student "had a lot of background knowledge about

outer space so she was very interested in the book" and that "the book seemed too easy for her." Regarding the student's attitudes, the preservice teacher noted that the student "is engaged when I asked her questions but she can also be easily distracted because she seems a little bored." While the reflection indicated that the student had much interest in the book, the student's tendency to be also be distracted and bored was not fleshed out by the preservice teacher. Seeking information is clearly an important skill in and of itself, and it requires gathering data, generating multiple reasons regarding possible causations and correlations, and then using data from subsequent interchanges to discern the most likely reasons for variance in students' growth.

For example, another preservice teacher wrote that her student "understood how to pull information from the text to have a discussion about the facts in the book, however, she wasn't confident in her ability to retain the information and wanted to look back in the text." The student may have been a confident reader, as she was able to successfully discuss the book's contents, and she may have been using a strategy that many skilled, confident readers use, looking back in the text, to assist with recalling basic information. In another example, one preservice teacher noted her student was "upset because her fellow schoolmate [was] absent...so perhaps she enjoys more social ideas." It is possible this student is socially-driven, but there are many other potential reasons why a student may or may not be engaged (Guthrie & Humenick, 2004) and exploring a variety of reasons is important if teachers are to be sound, reflective diagnosticians who can devise strategies that best meet the needs of their students.

In addition, many preservice teachers noted in their reflections that the "Secret Agents" connected the nonfiction texts to other books read or personal experiences, however, they did not expand on how these connections impacted comprehension or attitudes. For example, one preservice teacher wrote that her student "was able to draw parallels from the text and her life," and another preservice teacher noted that the Secret Agent "was able to add onto what we learned with her own experiences." The reflections briefly mentioned the use of connecting to the text, but they did not note whether the connections further aided in unpacking the text's contents or enjoying the information learned.

Focus on Recent Pedagogical Practices and Course Content

Preservice teachers often attributed positive outcomes to the pedagogical practices used during the same time frame. For example, a preservice teacher noted her student did not demonstrate high levels of comprehension after having read a text on John F. Kennedy. She attributed that to her students' lack of confidence. In a subsequent reading session, her student demonstrated stronger comprehension of a text about Pocahontas. During this session, the preservice teacher played Jeopardy with her student, and she attributed having played Jeopardy with an increase in her student's comprehension. The preservice teacher in explaining her student's gains in comprehension did not note other factors such as the student's strong interest in the topic (Pocahontas) and her familiarity with the story after having

watched the movie several times, as important. Having said that, it was clear that this preservice teacher, and others, were actively working towards finding the pedagogical practices that optimally facilitated their student's interest in reading nonfiction text and comprehension of what they had read.

Additionally, preservice teachers tended to reflect on the literacy methods course content covered most recently as opposed to carrying the same concepts in their reflections and revisiting them throughout the semester, a finding also cited by Leko and colleagues (2015). For example, after discussing text features in the literacy methods class, many preservice teachers reflected on their students' understanding of them. One preservice teacher in our study noted:

> He [The elementary student] showed rather adept skill at using nonfiction text features, such as captions and visuals, to answer some concerns that he had; for instance, using the visuals to understand that a snake's fangs are indicative of whether or not they are poisonous… (personal communication, 2017).

Another methods class session focused on engaging students in discussion, including the use of statement cards, prompts placed on index cards to assist students as they responded to the text (e.g. "This part of the text makes me wonder"). Immediately following this class session, engaging students in book discussions was often mentioned in preservice teachers' reflections. One preservice teacher noted, "During our activity, she did a fabulous job of using statement cards to base her thoughts about global warming and was able to verbally communicate what her thoughts were to the group." Purposefully engaging secret agents in discussion was not mentioned in reflections after the week when the strategy was introduced. This tendency suggests that the students need practice using each technique before it becomes part of their broader, everyday repertoire. It is also fair to assume from the findings that students proposed next pedagogical steps would likely be associated with what was learned that week and may not be reflective of what was learned all semester. This leads to further discussion and recommendations about how preservice teachers can be supported and challenged to reference and integrate skills and strategies learned earlier on in a semester or through former courses into their preservice teaching experiences.

Discussion and Recommendations

As per the results, it is clear there is a need for explicit instruction as to why reflection is important at the preservice level. Specifically, substantive reflection can equip teachers-in-training to make more sound instructional, student-based decisions in their first year of teaching and beyond (Corcoran & Leahy, 2003). This explicit instruction can take on the form of questioning to scaffold the preservice teacher's thinking such as, "You began the lesson with a detailed and thoughtful plan but teaching does not always go according to plan. What 'in-the-moment' teaching decisions did you make?" (Griffith, 2017, p. 4).

The instructor's lessons and strategies modeled played

a role in what the preservice teachers reflected upon after their sessions. Thus, there is a need for literacy educators to be intentional in how they model and discuss reflection and metacognitive thinking. Some recommendations for literacy educators are:

- Include reflective components in lesson plan templates and activity directions;
- Explicitly model reflection and explain how it impacts student learning;
- Focus on reflective practice from the beginning of the preservice teachers' training program to facilitate increasingly sophisticated understandings of these habits of mind (Griffith, 2017);
- Emphasize the importance of engaging in reflective practice throughout their teaching careers and with social support, such as focus groups or mentors (Corcoran & Leahy, 2003; Killeavy & Moloney, 2010; Nolan, 2008; Rieger, Radcliffe, & Doepker, 2013; Risko, Vukelich, & Roskos, 2002); and
- Consider the use of reflective interviews in which the literacy educator and preservice teacher meet regularly to discuss analysis questions, such as "Can you think of another way you might have taught this lesson?" (p. 290) which can lead to higher levels of reflective judgment (Pultorak, 1993).

There is also a need for preservice teachers to think about reflection differently than they had in the past. Some recommendations of ways to inspire reflective practice from preservice teachers are to encourage students to:

- Problematize (Dewey, 1933; van Manen, 1995) and consider several possible ways to try rather than assuming there is only one right approach;
- Expect to encounter complex situations;
- Be willing to take the time to focus on the student(s) and think beyond compliance on course tasks; and for professors to,
- Model the behaviors enumerated above.

Limitations of this study, due to the sample size as well as somewhat homogenous participant demographics are due to the enrollment in the course and as such beyond the researchers' control. Conducting future studies to examine preservice teachers' reflections with a larger and more diverse population, during a longer amount of time, would be of great value. Although conclusions drawn from self-reported data can be limited, they still offer important insights into preservice teachers' meaning making as learning takes place (Patton, 2002). Further, like Griffith (2017), the authors recognize the possible influence of the course professor's teaching, course readings and discussions. Future research could replicate this study over more than a one-course sequence to see the possible effects that continued instruction could have on preservice teachers' reflections (Mallette et al., 2000). Other studies could triangulate interview and other qualitative data to provide additional insights regarding preservice teachers' reflections and further understand what they are thinking before, during, and after the time of instruction.

Conclusion

It is not enough for preservice teachers to list their practices while reflecting on field experiences. Preservice teachers should develop the language to explain why they engaged in certain practices and how the results of having done so influenced their decision-making; this explication of practice can empower them to feel like a teacher and "assume the identity of teacher as professional" (Griffith, 2017, p. 9) as they engage in metacognitive and thoughtful thinking.

Just as teachers question their students to help them reach the next levels of understanding, reflection provides the same meaning-making experience for themselves as practitioners. Thinking about reflection as more than just for compliance for a course and recognizing the possibilities of reflection as a continuous improvement tool is a fundamental step preservice teachers need to take. With that said, teacher educators should recognize that reflection is a skill that needs to be taught explicitly in order for their teachers in training to utilize it meaningfully, intentionally, and throughout their careers. The additional time required to model reflective practice early in preservice teachers training has the potential to result in not only more reflective practitioners but also educators who diagnose their students' strengths and weaknesses more accurately. These diagnoses dictate the pedagogical moves educators will take, making this an aspect of teacher training that is essential if we are to equip preservice teachers to engage in student-centered instruction.

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