What Does Written Reflection Reveal About Novice Teachers' Knowledge, Beliefs, and Skills Related to Literacy Assessment?

Erin K. Washburn
UNC Charlotte, ewashbu1@uncc.edu

Abby Pierce
Binghamton University, apierce4@binghamton.edu

Chyllis E. Scott
University of Nevada, Las Vegas, chyllis.scott@unlv.edu

Carly Waters
carly219@gmail.com

WESTERN MICHIGAN UNIVERSITY
Dorothy J. McGinnis
Reading Center and Clinic

READING HORIZONS

What Does Written Reflection Reveal About Novice Teachers' Knowledge, Beliefs, and Skills Related to Literacy Assessment?

Erin K. Washburn, *University of North Carolina at Charlotte*

Abby Pierce, *Lexia Learning*

Chyllis E. Scott, *University of Nevada, Las Vegas*

Carly Waters, *Lexia Learning*

───────────── **Abstract** ─────────────

Assessment of literacy learning has been a long-standing focus for future teachers in elementary education. Teacher educators use ongoing written reflection to promote learning before, during, and after coursework and field experiences. In this study, the researchers examined the effects of ongoing written reflection on two groups of novice teachers' knowledge, beliefs, and skills about literacy assessment in a semester-long graduate-level literacy assessment course with embedded fieldwork. First, the researchers conducted qualitative and descriptive analyses to examine what novice teachers reflected about in their ongoing written reflections. Second, they conducted comparative analyses to examine the extent to which the two groups differed in what they reflected about. Qualitative and descriptive analysis of written reflections revealed four prominent categories in which novice teachers reflected: (a) content knowledge related to literacy assessment, (b) beliefs about literacy assessment, (c) empathy and perspective-taking in the literacy assessment and instruction process, and (d) instructional planning and decision making. Comparative analyses revealed significant differences between the two groups of novice teachers in all four categories.

Keywords: *literacy assessment; teacher preparation; written reflection*

Literacy learning is a sophisticated and dynamic process in which many cognitive, emotional, and sociocultural factors play a role (Snow, 2002). Assessment or evaluation of one's literacy learning also is a multifaceted process (Johnston & Costello, 2005; Teale, 2008). Researchers have found that effective literacy teachers are able to use multiple types of assessment to inform and adapt their instruction and to do so in flexible ways (Duke et al., 2018; Duke et al., 2016; Parsons et al., 2018). Thus, it is widely accepted that teachers need an in-depth understanding of different types of assessments as well as of why, when, and how to use the various assessments and corresponding data to directly inform their teaching (Afflerbach, 2016; Stahl et al., 2020).

Using assessment to inform literacy instruction has not always been easy for teachers, particularly without preparation, professional development, and/or ongoing support (Mandinach & Gummer, 2016; Mertler, 2014). Teacher preparation provides an opportunity to help build teacher knowledge, critical thinking, and self-efficacy related to using literacy assessment (International Literacy Association [ILA], 2018; Scammacca et al., 2016). Standards that guide teacher education in literacy, such as the *Standards for Preparation of Literacy Professionals* from ILA (2017), explicitly note what teachers need to know and be able to do regarding literacy assessment. The ILA standards highlight that future literacy teachers need to learn how to choose, administer, and interpret appropriate formal and informal assessments in all facets of literacy (e.g., phonological awareness, phonics, comprehension) as well as understand assessment purposes, strengths, limitations, and properties.

To develop teacher knowledge, beliefs, and skills related to literacy assessment, researchers have suggested that teacher educators design learning experiences that provide opportunities to learn, apply, and reflect on assessment use in authentic field experiences (Duffy & Atkinson, 2001; Hoffman et al., 2019). One practice is to combine coursework and fieldwork with opportunities for ongoing reflection (Gillett & Ellingson, 2017; Odo, 2016; Yost et al., 2000). Teacher educators have reported the use of a variety of reflective practices to support future teachers' learning including action research (e.g., Gore & Zeichner, 1991), case studies (e.g., Schön, 1991), videotaping (e.g., Calandra et al., 2006), and written reflection (e.g., Good & Whang, 2002). In this study, we focused our attention on the practice of written reflection.

Though written reflection is a valued practice in teacher education, few studies have investigated how the ongoing use of written reflection influences future teachers' learning of literacy assessment (Afflerbach et al., 2007). The purpose of this study was to examine what the use of ongoing written reflection revealed about knowledge, beliefs, and skills related to literacy assessment in the context of a semester-long course with a built-in tutoring component. We analyzed the written reflections from two groups of novice teachers (NTs; i.e., teachers with 1–3 years' teaching experience) enrolled in a graduate-level literacy assessment course in two teacher preparation programs. Teachers reflected weekly on administering literacy assessments and using data from assessments to make instructional recommendations and plan interventions. To guide this study, we posed the following two-part research question: What does analysis of ongoing written reflection reveal about novice teachers' knowledge, beliefs, and skills related to literacy assessment? And to what extent, if any, do groups of novice teachers differ in what they reflect on in relation to their knowledge, beliefs, and skills related to literacy assessment?

Reflection in Teacher Preparation

Reflection is the continuous reconstruction and description of experience (Dewey, 1910,1993). As teachers describe their classroom practice and critically examine different instructional approaches and methods used, these social and metacognitive acts have the potential to inform and improve practice (Glasswell & Ryan, 2017). Reflection has become an accepted and widely used practice in teacher education (Beauchamp, 2015) but one with a variety of definitions. In the context of the present study, we refer to reflection as

a meaning-making process that moves a learner from one experience into the next with a deeper understanding of its relationship with and connections to other experiences and ideas. It is the thread that makes continuity of learning possible, and ensures the progress of the individual, and ultimately, society. It is a means to essentially moral ends. (Rodgers, 2002, p. 845)

Therefore, as a meaning-making practice, reflection is more than an assignment or activity but rather an active, ongoing, careful, and thoughtful process that is central to learning (Dewey, 1910,1993).

Scholars have purported that reflection is a dynamic construct in which there are various types and levels (see Nagro & deBettencourt, 2019, for a comprehensive breakdown). For example, Schön (1983) referred to different types of reflection as reflection-in-action and reflection-on-action. Reflection-in-action refers to the decisions made in the moment, during teaching, in which adjustments are made with the goal of improving teaching and hence student learning. Thus, reflection-on-action is a retrospective reflective process after teaching in which teachers use their previous knowledge and experiences to consider, critique, and solve problems that occurred during teaching. Schon's dichotomy has helped to explain when and why reflection occurs and how the two time points of reflection support awareness of and change in teacher behavior (e.g., Harford & MacRuairc, 2008).

In their well-cited study of preservice teacher reflection in the contexts of course and fieldwork, Hatton and Smith (1995) noted four levels of reflection: (a) descriptive writing, (b) descriptive reflection, (c) dialogic reflection, and (d) critical reflection. Descriptive writing is simply reporting an event or concept (e.g., I used the Primary Spelling Inventory with my student today because my student reads below grade level). Descriptive writing refers to the description of an event or idea in which rationale is provided that is often based on personal judgment, beliefs, and/or external sources (e.g., textbook). Dialogic reflection is narrative in which there is discourse with oneself to discuss an issue or solve a problem (e.g., Although my student is in second grade, I administered the Primary Spelling Inventory because the authors of *Words Their Way* said that it can be given to older students, too). Last, critical reflection incorporates rationale or reasons for making a decision that considers historical, social, and/or political contexts (e.g., I knew that my student was reading below grade level and I sensed that her spelling was, too. When I noticed my student struggle with the first few words on the Elementary Spelling Inventory, I decided to switch to the Primary Spelling Inventory).

As such, reflective practices have been reported as one way to provide future teachers with an opportunity to bridge theory and practice (e.g., Oner & Adadan, 2011). In addition, the practice of ongoing written reflection can refine a teacher's practice beyond skills and strategies and create a habit for more analytical and evaluative reflection (Braun & Crumpler, 2004). To help build reflective literacy practitioners, teacher educators and researchers have used written reflection as a tool to reflect on field-related literacy teaching experiences (e.g., Roskos et al., 2001). Some researchers have reported the use of open-ended written reflection (e.g., Risko et al., 1999), whereas

others have noted the use of guided questioning and modeling (e.g., Bean & Stevens, 2002). Moreover, analysis of reflections has differed, with thematic qualitative analysis being the dominant use in literacy research (Roskos et al., 2001). In the next section, we provide an overview of the ways in which reflection has been studied in literacy teacher preparation over the past 30 years.

Reflective Practices Applied in Literacy Teacher Preparation

With the goal of providing teacher educators with insights into how to use reflection as a tool in literacy and general teacher education, Roskos and colleagues (2001) conducted a critical review of 54 studies from 1985–1999 on the use of reflection as a practice and process in the preparation of general and literacy education teachers. Fifty-four studies were identified, with 18 having a specific focus on literacy (see Roskos et al., 2001, for a complete list of studies reviewed). Of the 18 literacy studies, 60% incorporated the use of writing for reflection, with the majority happening in the form of written summaries and portfolios. Also, writing journals were used but to a lesser extent. Roskos et al. reported that some literacy researchers (e.g., Afflerbach et al., 1988; Bean & Zulich, 1990, 1991, 1993) noted the heavier use of writing as a reflective practice because the writing process itself "may be influential in the development of reflective thought" (p. 611).

Regarding the point in time in which reflection was examined, Roskos et al. (2001) found that the overwhelming majority of literacy studies were conducted in reading methods courses (i.e., general reading methods for K–5 or content area literacy for 6–12) that occurred prior to student teaching, and only two studies were conducted in the context of a reading clinic experience (Walker, 1991; Walker & Ramseth, 1993). Roskos et al. made the point that future studies need to incorporate preparation across developmental points in a teacher's preparation (beginning, middle, end) and in different contexts/courses. Through their analysis, Roskos et al. found that researchers were "thick on describing" reflection and "thin on implying" it (p. 613) and did not provide teacher educators with many clear or robust suggestions for how to foster teacher candidate reflection. Reflection is an interpersonal and metacognitive act that, like comprehension, is difficult to observe. However, Roskos et al. noted that the reflective process can be made more visible through intrapersonal experiences (i.e., whole-class debriefing/discussion) and/or guided written reflection (e.g., specific prompts used to scaffold the reflection process).

More recently, a body of literature in which researchers have used guided reflection techniques to help future teachers think about decisions made before and during literacy instruction has emerged (Davis et al., 2019; Griffith, 2017; Williams et al., 2018). For example, Davis and colleagues (2019) have examined the ways in which preservice teachers reflect on pedagogical decisions of small-group literacy instruction (i.e., guided reading) in fieldwork experiences through guided questions and written reflections. The researchers asked preservice teachers in a reading methods course to reflect on their instructional planning and in-the-moment decision making based on their students' strengths and needs (Davis et al., 2019). For example, when planning guided reading lessons, preservice teachers reflected on their students' reading levels

and decoding ability to select appropriate texts based on their students' interests (Davis et al., 2019). Additionally, for in-the-moment decisions, preservice teachers reflected frequently on "assessing and extending" students' comprehension strategies (Davis et al., 2019, p. 18), among other decisions. To make instructional decisions, preservice teachers used their pedagogical knowledge and pedagogical content knowledge along with an understanding of their students' literacy strengths and needs. Through written reflections, the researchers scaffolded the preservice teachers to write thorough reflections with precise academic language that revealed their ability to make decisions related to teaching reading while justifying such actions.

Reflective Practices Applied in Literacy Assessment Courses

Though reflective practices are used in literacy teacher preparation, fewer published studies have specifically focused on the use of written reflection in the context of learning literacy assessment (Allen & Swearingen, 2002; Lipsky et al., 2014; Walker, 1991; Walker & Ramseth, 1993). In a series of studies with preservice teachers in the context of a reading diagnosis and remediation course, Walker (1991) and Walker and Ramseth (1993) reported using weekly diagnostic narratives inclusive of written reflections during and after work with struggling readers to explore and examine reflectivity. Walker reported 10 reflective statements, with the majority of the reflections centered on the reader's performance and/or needs and the instruction.

Using a developmental lens, Allen and Swearingen (2002) examined the use of written reflection on undergraduate- and graduate-level teacher knowledge in the context of working with a striving reader in a university reading clinic setting. Teachers reflected after daily tutoring for 4 days a week in a 6-week reading academy, and Allen and Swearingen examined written reflections for depth of knowledge and instructional skills. They found that teachers' reflections fell within one of four developmental stages related to teaching: (a) novice (little risk-taking, self-doubt, little self-reflection), (b) advanced beginner (taking instructional risks with the support of course instructor, emerging self-reflection), (c) competent (taking instructional risks/independently planning lessons according to student's needs, frequent self-reflection), and (d) proficient (independently and insightfully planning with competence, engaging in more analytical self-reflection). Allen and Swearingen reported that teachers showed movement across the developmental levels from the first to final reflections, with the majority demonstrating a competent level of knowledge and reflection at the end of the reading academy. Moreover, they reported that the initial reflections of the graduate-level teachers (who were already certified in-service teachers) were primarily at the competent or proficient levels. Thus, Allen and Swearingen noted that experience was influential in depth of knowledge and reflection.

Our review of relevant literature revealed that written reflection is valued and has been used in literacy teacher preparation for decades as a way to help teachers process and strengthen their knowledge and skills. One key area of literacy teacher knowledge and skills is literacy assessment. Specifically, how to use assessment in flexible and dynamic ways to inform instruction for all students, including striving literacy learners. However, the use of written reflection in the context of learning literacy as-

sessment has not been widely researched. As such, the purpose of the present study was to better understand teacher knowledge, beliefs, and skills related to literacy assessment as revealed through ongoing written reflection in the context of a course and related fieldwork focused on literacy assessment in two university-based graduate-level teacher preparation programs, one traditional and one alternative route to licensure.

Present Study

The following two-part research question was posed to guide the study: What does analysis of ongoing written reflection reveal about novice teachers' knowledge, beliefs, and skills related to literacy assessment? And to what extent, if any, do groups of novice teachers differ in what they reflect on in relation to their knowledge, beliefs, and skills related to literacy assessment?

Data were collected in the context of a semester-long graduate course focused on elementary literacy assessment and instruction at two university-based teacher preparation programs in two different types of teacher preparation programs in separate regions of the United States (northeast, west). Participants at both institutions engaged in related fieldwork with K–6 students that required NTs to administer informal literacy assessments (e.g., interest inventory, phonics/spelling inventory, informal reading inventory, writing sample) and then use the data to create and teach tutoring plans over the span of a 15-week course. Specifics for each group of NTs' fieldwork is discussed in the following section.

Participants

The participants for this study were recruited using purposive sampling, which is nonprobability sampling that is used to target specific groups of participants with similar characteristics (Onwuegbuzie & Collins, 2007). Thus, sampling was purposive because of the need to examine teacher knowledge in the context of a literacy assessment course that also had connected fieldwork (i.e., tutoring). Permission for both participating teacher preparation programs was obtained, and data were analyzed after completion of the courses.

Twenty-seven NTs from two preparation programs participated in this study. Seventeen participants were enrolled in a face-to-face graduate-level literacy assessment and instruction course with a fieldwork component in a traditional preparation program in the northeastern United States (NPP). These NPP NTs were working toward an additional certification and master's degree in literacy education. All but three had an undergraduate background in elementary education inclusive of traditional student teaching and an initial licensure in K–5. At the time of the study, all NTs were of novice teaching status (1–3 years of experience). Seven NTs were full-time classroom teachers, and the other 10 NTs were substitute teaching at local schools.

NPP participants ranged in age from 23 to 35 years old; 15 identified as female, two identified as male, 16 identified as White, and one identified as Asian. On

average, NPP participants had taken at least three literacy courses prior to this literacy assessment course. The literacy assessment course at the NPP was focused on administering, analyzing, and critiquing both formal and informal literacy assessments and using this information to provide appropriate instruction to striving learners. NPP participants worked one on one with a striving reader in third through fifth grade after school. Immediately following the tutoring sessions, NTs attended the literacy assessment course. The major assignment for the course was a case study in which NTs compiled and synthesized assessment and intervention materials and information on a tutored student.

Ten participants were enrolled in a face-to-face graduate-level literacy assessment and instruction course with a fieldwork component in an alternative route to licensure (ARL) preparation program in the western United States (WPP). All were novice teachers working toward their master's in teacher education with a concentration in elementary education K–8 and teaching under provisional certifications. All but one WPP participant identified as female, eight identified as White, and two identified as non-White/Hispanic. The literacy assessment course was the last literacy course in the required three-course sequence and included a clinical experience. The literacy assessment course at the WPP was focused on administering informal literacy assessments in a natural environment. As such, WPP participants independently sought out a reader in kindergarten through fifth grade to tutor before, during, or after school. Like the NPP participants, WPP participants created a case study on a tutored student.

Data Collection

A total of 213 reflections from the 27 participants were collected and analyzed for this study. Over the course of the semester, each NPP participant wrote nine reflective essays throughout the semester ($n = 153$) and each WPP participant wrote six reflective essays ($n = 60$). Both groups of participants were asked to reflect on four key elements in each of their post assessment and tutoring reflections: (1) the intervention conducted, (2) the K–5 students' results and progress, (3) their self as an interventionist, and (4) other miscellaneous information pertaining to literacy assessments and interventions. The following informal open-ended guiding questions were used to support participant reflection on the four key elements: How did the session go? How did the student respond to the assessment and/or to your teaching? What did you learn about the student(s) during this session? What did you learn about yourself as a teacher and as a learner during this session?

Data Analysis

To answer the first part of the research question, we began by analyzing weekly written reflections using consensual qualitative analysis (Glaser & Strauss, 1967; Hill, 2012). Thus, coding was a multistep process. First, the first and third authors randomly selected two participants from each location and independently read through two of their reflections: first reflection and a midsemester reflection. Prior to reading, the first and third authors established that a unit of data was defined as one complete thought and varied in length. During the initial reading, the first and third authors independently open-coded each reflection. Next, they met to discuss initial codes that emerged from the open-coding process until they reached 100% agreement about code

names and definitions. Ten initial codes emerged from this process. Using axial coding, we nested initial codes under broader conceptual categories related to teacher (a) understanding, (b) beliefs, (c) social awareness, and (d) action. Table 1 outlines the four conceptual categories with nested initial codes, describes the defining characteristics, and shares sample reflection data.

After the coding structure was established, the second author, a graduate student, was trained in the coding structure. Finally, the first three authors continued to independently code the remaining reflections. Independent coding was then cross-checked and discussed during weekly research team meetings. To further examine the data for trends, codes and categories were descriptively analyzed for frequency (e.g., number, percentages).

To answer the second part of our research question, we conducted descriptive and inferential statistics. First, we added up the total number of reflections in each category for each of the two groups of NTs. Next, for each group and each category, we calculated the mean number of reflections by dividing the total number of reflections by the possible number of reflections (NPP = 153, WPP = 60). Lastly, using group mean scores and standard deviations, we conducted a series of independent sample t-tests followed by calculations of effect size (Cohen's d). We report the findings related to the first part of our research question followed by our findings related to the second part of the research question.

Findings

We first sought to explore what ongoing written reflection revealed about NTs' knowledge, beliefs, and skills related to literacy assessment. Qualitative and descriptive data analysis revealed that NTs, as a whole, reflected on the categorical and nested codes of teacher understanding, beliefs, social awareness, and action.

Through our qualitative analysis we found that NTs demonstrated building their knowledge, beliefs, and skills (i.e., describing new information and feelings about assessment and/or instruction) in each conceptual category and made attempts to bridge their knowledge, beliefs, and skills (i.e., examining teacher decisions, deeming success of the instruction based on student outcomes, planning next steps for instruction; Kalk et al., 2014; Nagro & deBettencourt, 2019). Thus, we describe our qualitative and descriptive findings in terms of NTs building and bridging their knowledge, beliefs, and skills. In addition to our qualitative and descriptive analyses, we calculated descriptive statistics and conducted a series of independent sample t-tests to examine differences between the number of reflections in each category between the two groups of NTs (NPP, WPP).

Table 1

Conceptual Categories With Nested Initial Codes

Conceptual category	Nested initial codes	Defining characteristics	Sample reflection data from NTs	Nested code n (%) within the category	
				NPP	**WPP**
Teacher understanding n = 579 (29%)	Content knowledge	Reflections that included knowledge of course content	"but he was not too far off base for his age level. Recognizing the hard 'G' sound, he was able to approximate a partially correct answer."	89 (23%)	41 (21%)
	Making connections	Reflections in which connections beyond course content were made (i.e., text-to-text, text-to-self, text-to-world)	"This entire experience with these assessments thus far has really encouraged me to think about all of the 'what ifs' concerning instruction and differentiating and it has pushed me to strategize how I would try to deal with the various types of learners I may encounter in my future classroom."	32 (8%)	66 (34%)
	Acknowledges student strengths and needs	Reflections that acknowledged student strengths in relation to NT understanding of course content	"Her writing shows creativity and some voice; however, she noticed that even she could not read her own writing. I had her attempt to read her piece about pets being able to talk and she had difficulty doing so."	261 (68%)	90 (46%)

Teacher beliefs n = 443 (22%)	Beliefs about the process of assessment and instruction	Reflections that included beliefs about the usefulness and logistics related to the assessment and instruction process	"These assessments are brilliant because they are targeting specific characteristics and components of the reading and writing process. I feel more confident in approaching administrators and teachers and talking about these specific students."	199 (74%)	104 (60%)
	NT beliefs about self	Reflections that revealed NTs' beliefs about their own teaching in relation to the assessment and instruction process	"As a teacher, the whole experience of [the tutoring program] has been great because I have learned how capable I am of creating lessons that will directly help these students with their specific needs." "I was extremely nervous about the process of assessment, tainting the results, saying the wrong thing."	70 (26%)	70 (40%)

Teacher social awareness n = 658 (33%)	Ability to empathize and/or take the perspective of the student	Reflections that showed empathy for the student	"I learned that writing can cause great anxiety for some students, and I need to be prepared for those situations."	299 (50%)	33 (17%)
	Awareness of social and contextual challenges in tutoring environment	Reflections that indicated an awareness of the social and contextual challenges of the tutoring environment	"I want to be able to make my students feel as comfortable as possible. If my students feel uncomfortable at any point I want to stress to them that it is okay to share with the group and assure them that it is a safe space to learn and express themselves."	163 (27%)	67 (34%)
	Awareness of the role of relationship building/ conscious effort to build a relationship with the student	Reflections that indicated a conscious effort to build a positive relationship with the student	"Not only am I assessing his literacy skills but I am forming a bond with him (which is invaluable to me)."	67 (11%)	29 (14%)

| Teacher action n = 336 (17%)	Ability to prepare and plan	Reflections that included next steps for assessment and/or instruction in the course or later teaching contexts	"This experience taught me that in future sessions I should be clearer with my directions and not assume students know the expectations."	178 (73%)	63 (68%)
			"In reflection, I've decided I need to better explain my role so students know that even though this is fun reading time, it is also time for learning."		
	Ability to alter/adapt instruction	Reflections that showed an ability to adapt instruction based on formative assessment	"The students enjoyed this word work [long e], and they are improving upon their long vowel knowledge at the same time. I will definitely include word work into the upcoming lessons. I will try introducing a new vowel to work with."	65 (27%)	30 (32%)

Note. NT = novice teacher; NPP = northeast preparation program (traditional); WPP = west preparation program (alternative).

Qualitative and Descriptive Analysis of Teacher Reflections

In total, 213 reflections were analyzed, yielding 2,016 individual coded units of data. Figure 1 shows the frequency counts and percentages for the NPP and WPP NTs across the categorical codes. We present our findings with an overview of the qualitative analysis including examples of NTs building and bridging their knowledge, beliefs, and skills in each of the four conceptual categories with frequency data embedded within.

Figure 1

Percentage of Categorical Codes as Reflected on by NTs From NPP and WPP
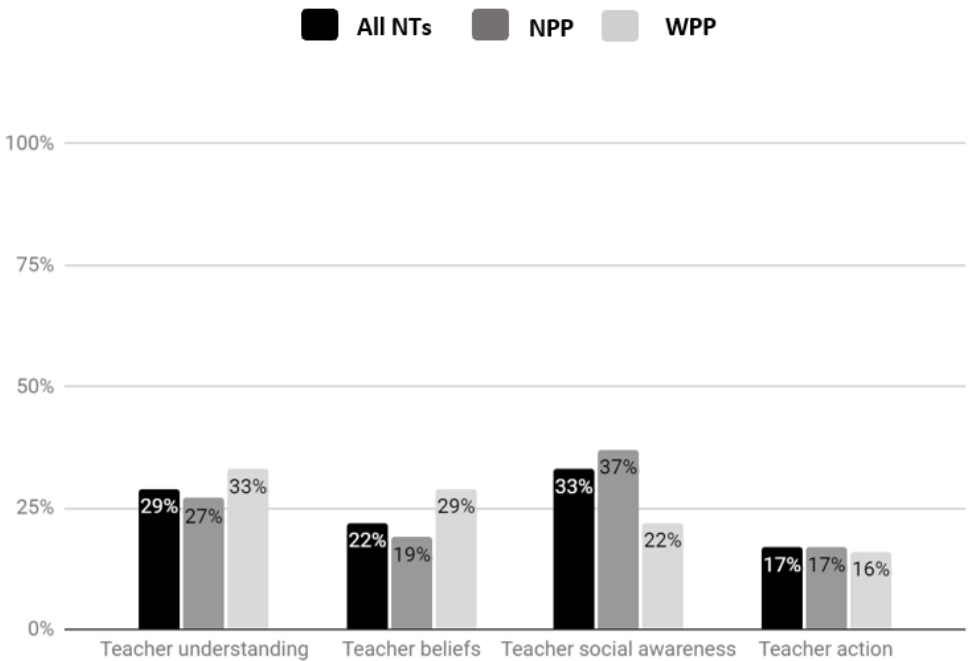
Note. NT = novice teacher; NPP = northeast preparation program (traditional); WPP = west preparation program (alternative).

Teacher Understanding

Frequency analysis revealed that close to a third of all NT reflections included a focus on content understanding, with WPP NTs (33%) having slightly more reflections in that category than NPP NTs (27%). As noted in Table 1, there were 579 units of data coded in this category, with the majority focused on acknowledging student strengths and needs in relation to their understanding of content. For example, one NPP NT noted:

> [The student] really liked being able to add her own inflected endings in the word work activity and showing what she knew. She also remembered the writing acronym from the previous lesson which will help her add detail to her writing.

Moreover, NTs demonstrated both building and bridging knowledge as they reflected on their content knowledge, made explicit connections to prior knowledge as well as other learning contexts, and were able to relate course content to what they were seeing and doing in their tutoring fieldwork. For instance, a WPP NT built knowledge about how to administer an assessment by stating, "From this particular assessment [Informal Reading Inventory], I learned that teachers need to be very clear with directions, and on many occasions, it is necessary to repeat or even check for understanding." In addition, an NPP NT voiced their understanding of content and instructional techniques that were learned as part of the course experience and bridged that knowledge to practice with their student: "[The graphic organizer] helped break down the writing process and make it seem more manageable. In addition, I wrote alongside [my student during assessment], which seemed to increase her motivation to write as well."

NTs also demonstrated their ability to build and bridge knowledge concurrently about course content and previous experiences with reading assessment. For example, one WPP NT noted a connection regarding ease of administration between the Informal Reading Inventory (IRI) and their previous use of Oral Reading Fluency (ORF) probes:

> Despite the fact that I recorded [my student], I still struggled with the scoring of the IRI. I did not struggle with scoring the reading oral fluency since I do that on a weekly basis with my students for progress monitoring. That was one of my strengths of the assessment. The hardest part was evaluation of the error types because that is something still very new to me.

Overall, NTs made clear connections between what they were learning in coursework and how it was manifested in the clinical experience, with the majority of reflections in this category reflecting acknowledgment of student strengths and needs.

Teacher Beliefs

Frequency analysis revealed that less than a quarter of all NT reflections included a focus on NT beliefs, with WPP NTs (29%) having more reflections in that category than NPP NTs (19%). As noted in Table 1, there were 443 units of data coded in this category, with the majority focused on beliefs about the process of assessment and instruction. Throughout the NTs' ongoing weekly reflections, they displayed evidence of building and bridging their beliefs about the assessment and instruction process. For instance, a WPP NT demonstrated building knowledge regarding their beliefs about the process of assessment and intervention:

> I was curious about my chosen assessment for [my student] because I had never heard of it before. It was a simple and straightforward assessment that did not intimidate me or my student. While administering it, I found it was very useful not only in determining my student's reading level but also in helping me see the different strategies she uses for reading.

In addition to affirming beliefs, NTs also experienced changing beliefs about the process of assessment. An NPP NT bridged their knowledge by gaining a deeper insight into the purpose of assessment: "I think we realized that the lessons are to continue supporting the students and their literacy development." This reflection revealed the NT's shifting beliefs around the goal of assessment from a requirement to an opportunity to improve student learning outcomes.

Further, the NTs' expressed beliefs about their own teaching in relation to the assessment and instruction process in their ongoing written reflections. For instance, an NPP NT demonstrated building awareness that learning about assessment is not a fixed process: "I was nervous about administering the [reading inventory]. I feel more confident about it now and have a better understanding of the assessment itself after administering it twice and practicing it [in class]." On the other hand, an NPP NT noted self-doubt in building their knowledge of the assessment process: "I have to review how to analyze these [miscues] several times before assessing, and then I usually have self-doubt about my analyzing results."

Throughout the NTs' weekly written reflections, they shared their beliefs about the assessment and instruction process, their affirming or changing beliefs about the purpose of assessments, and their beliefs about their own teaching.

Teacher Social Awareness

Frequency analysis revealed that about a third of all NT reflections included a focus on social awareness, with NPP NTs (37%) having slightly more reflections in that category than WPP NTs (22%). As noted in Table 1, there were 658 units of data coded in this category, with the majority of NPP NTs' reflections focused on the ability to empathize or take the perspective of the student and WPP NTs' reflections focused on an awareness of contextual challenges in the tutoring environment.

For example, NTs' expressed empathy when problem-solving ways to bridge the assessment and instruction process to meet students' individual needs. One NPP NT expressed being overwhelmed when trying to bridge assessment data with targeted instruction: "As [my professor] said, I can't expect to single-handedly get these students up to grade level. There is room and a chance for me to help them grow, but I should not see that task as too daunting." Similarly, another NPP NT stated:

> The lesson was telling in that I may have overwhelmed the student with too many tasks for the time we actually had together. I planned my lesson down to the minute, not leaving much leniency for meaningful discussion that arose. In future lessons, I think it'd be best if I planned more hands-on/discussion-based activities versus writing alone.

Additionally, NTs noted the awareness of social and contextual challenges in the tutoring environment by building knowledge. One WPP NT recalled:

> One way that this assessment could have been improved was if there were no interruptions. The three interruptions included two intercom announcements and

one student screaming in the hall. When these interruptions took place, it was very difficult to get [my student] on task and focused again. Unfortunately, this is something that was way out of my control. From this assessment, I learned that there are a number of environmental factors that can play a part in how a student performs while taking an assessment or even learning.

Further, a WPP NT demonstrated bridging knowledge between administering an assessment and a student's sociocultural context:

I had [my student] with me after school on February 10th which happened to be the day of the middle school Valentine's Day dance. [My student] was excited about her first school dance and she was fidgety and bouncy in her seat. She did focus on the assessment. But it occurs to me that the student would be more focused on a day when there isn't something really exciting happening.

Lastly, the NTs exhibited awareness of the role of relationship building and made a conscious effort to build a relationship with the student. For example, a WPP NT demonstrated building knowledge:

It was refreshing to sit and talk with [my student] about what he is interested in and what he likes to do when he is away from school. I also found that it created a better bond than if I had just started giving a phonemic awareness assessment.

As noted earlier, the most coded category was social awareness, with a little over one third of NTs sharing their awareness of the social context for learning. Notably, over 50% of NPP NTs' reflections that were coded social awareness included description of the ways in which NTs were able to empathize and/or take the perspective of the student.

Teacher Action

Frequency analysis revealed that less than 20% of all NT reflections included a focus on action or preparing, planning, and adapting instruction, with NPP NTs (17%) having slightly more reflections in that category than WPP NTs (16%). As noted in Table 1, there were 336 units of data coded in this category, with the majority of NTs' reflections focused on preparing and planning for next steps in assessment and/or instruction. For example, a WPP NT bridged their assessment experiences with preparation:

After completing a few assessments and realizing my strengths and weaknesses, I now realize that I should do a test run of the assessment by myself before using [my student] to collect the student data. I realized that some of my weaknesses can be avoided by preparing for it and making notes for the real-time assessment. Oftentimes, I overestimate my understanding of the activity and realize, after the conclusion of the activity, that I should have done certain things differently. I am beginning to understand that a little prep work goes a long way.

Through the NT's experience, they reflected on the tutoring session and planned for future instruction that addressed the concerns that arose.

Additionally, NTs shared how social and environmental challenges helped them rethink and adapt tutoring. Here is how one NPP NT bridged their knowledge:

> I anticipated I would read each question from the [assessment] aloud, and we would go through it together. However, [my student] went ahead and completed it at his own pace. After only one meeting, it's hard for me to tell the accuracy of some of his answers, as I'm unsure if he read the questions correctly. This experience taught me that in future sessions I should be clearer with my directions and not assume students know the expectations.

Also, the NTs bridged their knowledge and skills related to making instructional decisions in the assessment and instruction process. For example, one NPP NT used their knowledge and skills to adapt instruction for their student:

> I chose a book that I thought was within [my student's] instructional level, but she had trouble decoding many of the words. Instead of having her struggle through the book and affect her comprehension, I read some of the pages to [her]. This seemed to work for her because she was getting practice decoding, but she was still able to comprehend what was read because she was not using all of her energy on decoding the words.

Through this reflection, the NT revealed how they were able to adapt instruction in the moment to better support their student's reading.

Comparative Analysis on Teacher Reflections

The second part of our research question sought to examine the extent to which, if any, the two groups of NTs differed in the number of reflections in each of the four categories. Table 2 shares the results of quantitative and comparative analyses including means, standard deviations, independent samples *t*-test results, and effect size calculations.

Results of the independent samples *t*-tests were significant for each category, indicating differences between the two groups of NTs in the number of reflections in each of the four categories. Effect sizes ranged from small (teacher understanding, $d = 0.351$) to large (teacher action, $d = 0.837$).

WPP NTs, on average, had significantly more reflections in the categories of teacher understanding and teacher beliefs ($M = 3.28, SD = 2.12$) than the newly certified NPP teachers ($M = 2.51, SD = 2.26$). Moreover, WPP NTs, on average, had significantly more reflections in the teacher beliefs category ($M = 2.90, SD = 1.90$) than NPP NTs ($M = 1.75, SD = 1.81$).

However, the NPP teachers had significantly more reflections in the categories of teacher social awareness and teacher action. In the category of teacher social awareness, NPP NTs, on average, had significantly more reflections ($M = 3.48, SD = 2.92$) than WPP NTs ($M = 2.15, SD = 1.68$). Additionally, in the category of teacher action, NPP NTs had, on average, more reflections ($M = 3.18, SD = 2.42$) than WPP NTs ($M = 1.55, SD = 1.31$).

Table 2

Independent Samples t-Tests

	NPP NTs M (SD)	WPP NTs M (SD)	t(211)	SE	[95% Conf. Interval]		Cohen's d
Teacher understanding	2.51	3.28*	2.28*	0.34	−1.44	−0.10	0.351
	(2.26)	(2.12)					
Teacher beliefs	1.75	2.90**	4.11**	0.28	−1.70	−0.60	0.619
	(1.81)	(1.90)					
Teacher social awareness	3.48	2.15	3.32**	0.40	0.54	2.12	0.558
	(2.92)	(1.68)					
Teacher action	3.18	1.55	4.94**	0.33	0.98	2.28	0.837
	(2.42)	(1.31)					

Note. NT = novice teacher; NPP = northeast preparation program (traditional); WPP = west preparation program (alternative). Each t-test used the total number of reflections per group (i.e., NPP = 153; WPP = 60).

*p < .05, **p < .001.

Discussion

In the present study, NTs were asked to reflect on their coursework and related fieldwork in the context of a semester-long course focused on literacy assessment and instruction. The goal of this research study was to explore a two-part research question: What does analysis of ongoing written reflection reveal about novice teachers' knowledge, beliefs, and skills related to literacy assessment? And to what extent, if any, do groups of novice teachers differ in what they reflect on in relation to their knowledge, beliefs, and skills related to literacy assessment?

Ongoing written reflection can help teachers transform their practice (Glasswell & Ryan, 2017). Analysis of NTs' reflections noted that as NTs engaged in ongoing written reflection, they drew on multiple aspects of becoming and being a teacher, such as their own content knowledge and understandings, beliefs, social awareness, and skills about literacy assessment (see Table 1) to build and bridge their learning about literacy assessment (Kalk et al., 2014; Nagro & deBettencourt, 2019). Moreover, comparative analyses revealed that the two groups of NTs in this study differed in the number of written reflections in each category (see Figure 1 and Table 2). We first discuss our qualitative and descriptive findings followed by a discussion of the comparative findings.

Teacher Understanding

Strong content knowledge is a key factor in teachers providing effective literacy instruction (e.g., Griffith & Lacina, 2018; McCutchen et al., 2009; Piasta et al., 2009). Analysis of NT reflections revealed that NTs reflected most often about their understanding of content they were learning in the course and enacting in related fieldwork. Specifically, NTs displayed understanding of course content in relation to student assessment data (e.g., students' strengths and needs) and made connections within and beyond coursework (e.g., to other teaching experiences). These findings are echoed in other research of NTs' reflections in the context of literacy methods courses (e.g., Brodeur & Ortmann, 2018; Davis et al., 2019; Roskos et al., 2001). For example, Davis et al. (2019) found that NTs relied heavily on knowledge of their students' strengths and needs as readers when making decisions about which strategies and texts to use during guided reading. Further, Brodeur and Ortmann (2018) noted that the NTs in their study went "beyond simply classifying students as 'good' or 'struggling' readers" and "learned from assessing a variety of literacy skills that each student has strengths that can serve as the foundation for future instruction" (p. 13). Relatedly, NTs in our study reflected most often on student strengths in relation to their understanding of literacy development, assessment, and instruction.

Teacher Beliefs

Research has highlighted the role that beliefs play in teachers' ability to make decisions (Griffith et al., 2015) and adapt their teaching (Parsons et al., 2018). In the categorical code of teacher beliefs, both groups of NTs' shared their beliefs about the assessments they were learning, the instruction they were enacting, and perceptions about themselves as teachers. Many NTs' reflections revealed an initial positive belief about the utility of the assessments for future classroom practice. Some NTs indicated a change or reframing of their beliefs about the process of assessment and/or intervention. Though we did not classify these reflections in a specific hierarchy of teacher expertise like other studies (e.g., Allen & Swearingen, 2002), we did see a natural progression of growth. For example, some NTs indicated they felt the process of assessment was at first overwhelming and/or doubted the usefulness of assessments but later shared an appreciation for how assessment can inform instruction.

Teacher Social Awareness

Literacy instruction has been deemed an excellent context for building student social awareness, or "the knowledge children have that allows them to understand and relate successfully to other people, both people like themselves and those who are from different backgrounds" (Lobron & Selman, 2007, p. 528). A key first step in helping students become socially aware is for teachers to have strong awareness and knowledge of their students as learners (CASEL, 2020). In addition, strong awareness of student strengths and needs can help teachers build healthy relationships and create positive learning environments.

In the categorical code of teacher social awareness, NTs reflected on their awareness of their ability to empathize with their students, contextual challenges of the tutoring environment, and relationship building. Both groups of NTs actively worked to

create positive, literacy-rich learning environments for their students. NTs reflected on initial concerns about the assessment process and the challenges presented in the learning and social environment. Specifically, many NTs focused on classroom challenges in the learning environment, such as management, instructional delivery, and basic knowledge of curriculum, content, and standards. However, we noticed a shift in thinking from NPP NTs who had more experience. First, NPP NTs focused on assessment logistic challenges but then reflected more on students' needs, their role as the teacher, content knowledge, and the intersection of the three later in the semester (see Pierce & Washburn, 2020). Researchers have attributed such shifts in NT thinking to supportive coursework, the practice of ongoing written reflections, and field-based experiences (Rogers-Haverback & Mee, 2015). Again, similar to the findings from Allen and Swearingen (2002), the NPP NTs appeared to naturally progress to a deeper level of understanding and provide more in-depth reflections as the semester progressed by demonstrating their continued growth and pedagogical knowledge.

Teacher Action

Research also indicates that a core competency for literacy teachers is to have the knowledge and skills necessary to use data to inform instruction (ILA, 2018), which is particularly important when working with striving readers (Filderman et al., 2018). In this study, we found that NTs did reflect on their knowledge and use of data to inform their instruction. They shared how they used assessment findings to inform multiple aspects of instruction, such as how they would model a skill, what examples to include, and activities to use with students. Analysis of NTs' written reflections in other studies also revealed that NTs can and do reflect on ways they will use student data to directly inform their next steps for instruction (Davis et al., 2019; Walker, 1991). NTs reflected on the ways in which they adapted their instruction in the moment and/or planned to adapt their instruction to better meet the needs of their students. It ought to be noted that of the four categorical codes in this study, there were fewer reflections coded as teacher action, with NTs reflecting slightly more on planning and preparing for instruction than adapting instruction. Researchers have identified that adapting literacy instruction is often a skill that is influenced by experience and practice (e.g., Parsons et al., 2018).

Teacher Categorical Differences

The two groups of NTs in our study significantly differed in the number of reflections coded in each of the four categories (see Figure 1 and Table 2) and with a range of effect sizes. The two groups of NTs were from different types of preparation programs (traditional [NPP] vs. alternative route to licensure [WPP]); however, both were graduate level and university based. As such, both preparation programs were expected to curate preparation experiences (coursework and fieldwork) aligned with standards and expectations for literacy instruction (e.g., ILA, 2017). Therefore, though the two programs differed in certification purpose (initial [WPP] vs. additional [NPP]), all participants were of novice teaching status, meaning that they were either newly certified (NPP) or teaching with a provisional license (WPP). However, one distinguishing feature between the two groups is that all but three NPP NTs had an undergraduate degree in elementary education. Because research has noted that planning for and adapting literacy instruction is a skill

that takes practice (Parsons et al., 2018), it is likely that NPP NTs had more opportunities to engage in instructional planning with support (e.g., traditional student teaching) prior to this study, whereas WPP NTs were teaching provisionally but did not have a background in education. Thus, previous experiences and experiences over time (e.g., 4-year degree) with teaching may have contributed to a larger number of reflections focused on planning and instruction for NPP NTs.

Conversely, a small effect was found for the category of teacher understanding. It is important to note that NPP NTs also reflected on their own knowledge; they just did so to a lesser extent than WPP NTs. Interestingly, both groups of NTs in this study had completed at least two graduate-level literacy courses prior to the course in which this study was conducted. However, as aforementioned, WPP NTs did not have a background in teaching and the information in the course was likely new to them. In fact, several WPP NTs commented in their reflections that what they were learning was new and/or connected to what they were doing in their own classrooms (see Table 1). This integration of new knowledge for the WPP NTs may be why the two groups differed significantly in this category. Though the content may not have been as novel to the NPP NTs, it is also important to think about how to support newly certified teachers to continue to make and/or deepen their understanding of using literacy assessment to inform their teaching.

Lastly, medium effects were found for the categories of teacher beliefs and teacher social awareness. Specifically, WPP NTs' reflections were more focused on beliefs about self and their own teaching in relation to the assessment and instruction process, whereas NPP NTs' reflections were more focused on the actual assessment process. The introspection on self that was evidenced in the WPP NTs' reflections, and to a lesser extent in the NPP NTs' reflections, is typical for novice teachers (Raymond-West & Rangel, 2020) and important for developing a strong sense of self-efficacy for literacy teaching (Raymond-West & Rangel, 2020; Tschannen-Moran, & Johnson, 2011).

In the category of teacher social awareness, it is notable that NPP NTs had more reflections in the nested code of empathy and perspective taking than WPP NTs. As aforementioned, WPP NTs reflections on social awareness were mostly focused on challenges in the instructional environment and to a lesser extent on building relationships with students. Empathy and perspective taking are key components of being socially aware (CASEL, 2020) but may be difficult for novice teachers if they are focused on understanding the what and how of the content (e.g., administering an assessment).

Limitations and Directions for Future Research

The findings of this study should be interpreted within associated limitations. First, we did not analyze all individual units of data for the level of reflection or types of reflection, as done in previous work (e.g., Allen & Swearingen, 2002; Schön, 1983). In future research, analysis of the level of NT reflection using a theoretically informed rubric (e.g., deBettencourt & Nagro, 2019) may provide a picture of the types and levels of reflection in which NTs are engaged. Further research may analyze reflections in this manner to understand the change in NTs' behavior, specifically related to literacy assessment and intervention.

In addition, we found that the two groups of NTs differed in the average number of reflections in each category. Although we offered possibilities as to why the groups differed, we cannot say for sure. Thus, future research could employ qualitative techniques such as interviews and focus groups over the span of the course/fieldwork to better understand NTs ' thoughts, beliefs, and experiences.

Implications for Teacher Education

Researchers have looked across various levels of reflection (Hatton & Smith, 1995). While analyzing the depth of reflection is important, NTs' capability to build and bridge their knowledge related to literacy assessment is essential when working with readers and writers. As teacher educators, we need to consider how we can structure reflective practices to support building knowledge and then helping NTs bridge their knowledge to practice regardless of the type of preparation (i.e., traditional vs. alternative route to licensure) and prior experiences with teaching. By having opportunities to debrief in class with their colleagues and engage in classroom discussions about related fieldwork experiences, NTs can further connect and reflect on their knowledge, beliefs, and skills about literacy assessment through interpersonal connections (Odo, 2016). Moreover, one way to further the thinking process of NTs with more experience is to encourage them to make explicit connections to their daily teaching experiences. In other words, giving NTs time and space to consider the what and the how of what they are learning in their assessment course and related fieldwork that is similar to and/or different from what is practiced or expected in their own schools and classrooms. Providing guiding questions that are designed to make explicit connections to daily practices has been reported to be more effective than open-ended questions (Oner & Adadan, 2011).

As teacher educators, before we dive into teaching NTs about literacy assessment, we have to formatively assess what they know about reading assessment. For example, we must formatively assess what they believe about literacy assessment, their previous experiences with classroom-based literacy assessments (both as a reader and as a teacher), and their general content knowledge about literacy learning and development. Formative assessment can be done through more traditional measures such as a survey of literacy-related knowledge and skills (e.g., Binks-Cantrell et al., 2012) and/or through other approaches (e.g., discussion, observation, written reflection). With such knowledge about our NTs, we can structure and tailor reflective practices, such as by providing guiding questions to support reflection and ultimately help guide NTs to make connections between learning and doing literacy assessment.

In this study, we found that ongoing reflection helped us, as teacher educators, see growth over the span of the semester-long course in NTs' content knowledge about literacy assessment, their beliefs and social awareness related to literacy assessment, and the ways in which they applied their knowledge and beliefs in practice. From the opposite vantage point, ongoing reflection also helped us see which NTs' written reflections did not provide evidence of growth. Therefore, if teacher educators choose to incorporate the use of written reflection in the context of a literacy assessment course, we recommend that they use ongoing reflection as a formative assessment tool to intentionally guide NT learning during the semester and one in which ongoing instructor feedback is aimed at building and bridging.

Conclusion

In conclusion, because literacy is a complex, multifaceted process, learning how and when to use literacy assessment to inform instruction is an essential skill for both novice classroom teachers and literacy specialists to possess (Afflerbach, 2016; ILA, 2017). Inclusion of reflective practices such as ongoing reflective writing may help to build and bridge teacher knowledge of literacy assessments. Analysis of NTs' reflections, whether formal as in this study or informal in the context of coursework, also may provide teacher educators with a window into NTs' knowledge and skill development as well as insight into ways to better support NT learning and improve literacy assessment courses (Conca et al., 2004; Hoffman et al., 2019; Mayor, 2005; Stefanski et al., 2018). Thus, continued and expanded research in this area of literacy teacher preparation has the potential to inform both practice and policy.

About the Authors

Erin K. Washburn, PhD, works as an associate professor of reading and elementary education at the University of North Carolina at Charlotte. Her research focuses on examining supports for striving literacy learners. In collaboration with educators and schools, she has conducted research on teacher knowledge of literacy-related constructs and dyslexia, the efficacy of school-based and out-of-school interventions, and the use of data-based decision making for literacy instruction.

Abby Pierce, EdD, works as an adjunct instructor of literacy education at Binghamton University and a LETRS district success manager for Lexia Learning. She supports school districts with the implementation of LETRS professional learning rooted in the science of reading. Abby is also a LETRS national trainer. Her research and professional interests center around literacy data-based decision making and ongoing professional development.

Chyllis E. Scott, PhD, works as an associate professor and program coordinator for literacy education in the Department of Teaching and Learning at the University of Nevada, Las Vegas. Her research focuses on content area and disciplinary literacy, academic writing, and mentoring practices for pre- and in-service teachers and students in higher education. Specifically, in the context of literacy instruction, she examines teacher knowledge and practices for pre- and in-service teachers.

*The work of this research and publication was supported by the University of Nevada, Las Vegas, by sabbatical assistance.

Carly Waters, PhD, works as a LETRS district success manager for Lexia Learning. She supports school districts with the implementation of LETRS professional learning and capacity building centered on the science of reading. Additionally, as a LETRS national trainer, she facilitates professional learning to strengthen educators' understanding of and application of the science of reading and structured literacy. Her professional interests include early literacy instruction and professional development.

References

Afflerbach, P. (2016). Reading assessment: Looking ahead. *The Reading Teacher, 69*(4), 413–419. https://doi.org/10.1002/trtr.1430

Afflerbach, P., Bass, L., Hoo, D., Smith, S., Weiss, L., & Williams, L. (1988). Preservice teachers use think-aloud protocols to study writing. *Language Arts, 65*, 693–701. https://www.jstor.org/stable/41411444

Afflerbach, P., Kim, Y. L., Crassas, M. E., & Cho, B. Y. (2007). Best practices in literacy assessment. In L. Gambrell & L. M. Morrow (Eds.), *Best practices in literacy instruction* (3rd ed., pp. 264–282).

Allen, D. D., & Swearingen, R. A. (2002). Development of pedagogical knowledge related to teaching at-risk students: How do inservice teachers and preservice teachers compare? *Reading Horizons, 43*(1). https://scholarworks.wmich.edu/reading_horizons/vol43/iss1/7

Bean, T. W., & Stevens, L. P. (2002). Scaffolding reflection for preservice and inservice teachers. *Reflective Practice, 3*(2), 205–218. https://doi.org/10.1080/14623940220142343

Bean, T. W., & Zulich, J. (1990). Teaching students to learn from text: Preservice content teachers' changing views of their role through the window of student professor dialogue journals. In J. Zutell & S. McCormick (Eds.), *Literacy theory and research: Analyses from multiple paradigms* (pp. 171–178). National Reading Conference.

Bean, T. W., & Zulich, J. (1991). A case study of three preservice teachers' beliefs about content area reading through the window of student-professor dialogue journals. In C. K. Kinzer & D. J. Leu (Eds.), *Literacy research, theory, and practice: Views from many perspectives* (pp. 463–474). National Reading Conference.

Bean, T. W., & Zulich, J. (1993). The other half: A case study of asymmetrical communication in content-area reading student-professor dialogue journals. In D. J. Leu & C. K. Kinzer (Eds.), *Examining central issues in literacy research, theory, and practice* (pp. 289–296). National Reading Conference.

Beauchamp, C. (2015). Reflection in teacher education: Issues emerging from a review of current literature. *Reflective Practice, 16*(1), 123–141. https://doi.org/10.1080/14623943.2014.982525

Binks-Cantrell, E., Washburn, E. K., Joshi, R. M., & Hougen, M. (2012). Peter effect in the preparation of reading teachers. *Scientific Studies of Reading*, *16*(6), 526–536. https://doi.org/10.1080/10888438.2011.601434

Braun, J. A., Jr., & Crumpler, T. P. (2004). The social memoir: An analysis of developing reflective ability in a pre-service methods course. *Teaching and Teacher Education*, *20*(1), 59–75. https://doi.org/10.1016/j.tate.2003.09.006

Brodeur, K., & Ortmann, L. (2018). Preservice teachers' beliefs about struggling readers and themselves. *Mid-Western Educational Researcher, 30*(1/2). https://commons.und.edu/tl-fac/10

Calandra, B., Brantley-Dias, L., & Dias, M. (2006). Using digital video for professional development in urban schools: A preservice teacher's experience with reflection. *Journal of Computing in Teacher Education, 22*(4), 137–145. https://doi.org/10.1080/10402454.2006.10784549

CASEL. (2020). *CASEL: SEL framework.* https://casel.org/casel-sel-framework-11-2020/

Conca, L. M., Schechter, C. P., & Castle, S. (2004). Challenges teachers face as they work to connect assessment and instruction. *Teachers and Teaching: Theory and Practice, 10*(1), 59–75. https://doi.org/10.1080/13540600320000170927

Davis, A., Griffith, R., & Bauml, M. (2019). How preservice teachers use learner knowledge for planning and in-the-moment teaching decisions during guided reading. *Journal of Early Childhood Teacher Education*, *40*(2), 138–158. https://doi.org/10.1080/10901027.2018.1534161

deBettencourt, L. U., & Nagro, S. A. (2019). Tracking special education teacher candidates' reflective practices over time. *Remedial and Special Education, 40*(5), 277–288. https://doi.org/10.1177/0741932518762573

Dewey, J. (1993). *How we think: A restatement of the relation of reflective thinking to the educative process*. Heath. (Original work published 1910)

Duffy, A. M., & Atkinson, T. S. (2001). Learning to teach struggling (and non☐struggling) elementary school readers: An analysis of preservice teachers' knowledges. *Literacy Research and Instruction, 41*(1), 83–102. https://doi.org/10.1080/19388070109558359

Duke, N. K., Cervetti, G. N., & Wise, C. N. (2016). The teacher and the classroom. *Journal of Education*, *196*(3), 35–43. https://doi.org/10.1177/002205741619600306

Duke, N. K., Cervetti, G. N., & Wise, C. N. (2018). Learning from exemplary teachers of literacy. *The Reading Teacher*, *71*(4), 395–400. https://doi.org/10.1002/trtr.1654

Filderman, M. J., Toste, J. R., Didion, L. A., Peng, P., & Clemens, N. H. (2018). Data-based decision making in reading interventions: A synthesis and meta-analysis of the effects for struggling readers. *Journal of Special Education, 52*(3), 174–187. https://doi.org/10.1177/0022466918790001

Gillett, E., & Ellingson, S. P. (2017). How will I know what my students need? Preparing preservice teachers to use running records to make instructional decisions. *Reading Teacher, 71*(2), 135–143. https://doi.org/10.1002/trtr.1609

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research.* Aldine.

Glasswell, K., & Ryan, J. (2017). Reflective practice in teacher professional standards: Reflection as mandatory practice. In R. Brandenburg, K. Glasswell, M. Jones, & J. Ryan (Eds.), *Reflective theory and practice in teacher education* (pp. 3–26). Springer.

Good, J. M., & Whang, P. A. (2002). Encouraging reflection in preservice teachers through response journals. *The Teacher Educator*, *37*(4), 254–267. https://doi.org/10.1080/08878730209555299

Gore, J. M., & Zeichner, K. M. (1991). Action research and reflective teaching in preservice teacher education: A case study from the United States. *Teaching and Teacher Education, 7*(2), 119–136. https://doi.org/10.1016/0742-051X(91)90022-H

Griffith, R. (2017). Preservice teachers' in␣the␣moment teaching decisions in reading. *Literacy*, *51*(1), 3–10. https://doi.org/10.1111/lit.12097

Griffith, R., Bauml, M., & Barksdale, B. (2015). In-the-moment teaching decisions in primary grade reading: The role of context and teacher knowledge. *Journal of Research in Childhood Education, 29*(4), 444–457. https://doi.org/10.1080/02568543.2015.1073202

Griffith, R., & Lacina, J. (2018). Teacher as decision maker: A framework to guide teaching decisions in reading. *The Reading Teacher, 71*(4), 501–507. https://doi.org/10.1002/trtr.1662

Harford, J., & MacRuairc, G. (2008). Engaging student teachers in meaningful reflective practice. *Teaching and Teacher Education*, *24*(7), 1884–1892.

Hatton, N., & Smith, D. (1995). Reflection in teacher education: Towards definition and implementation. *Teaching and Teacher Education*, *11*(1), 33–49. https://doi.org/10.1016/0742-051X(94)00012-U

Hill, C. E. (Ed.). (2012). *Consensual qualitative research: A practical resources for investigating social science phenomena.* American Psychological Association.

Hoffman, J. V. ., Wetzel, M. M., & Peterson, K. (2019). Approximating literacy practices in tutorials: What is learned and what matters for teacher preparation. *Literacy Research & Instruction, 55*(3), 183–208. https://doi.org/10.1080/19388071.2015.1128023

International Literacy Association. (2017). *Standards for the preparation of literacy professionals 2017*. Author.

International Literacy Association. (2018). *Beyond the numbers: Using data for instructional decision making.* Author.

Johnston, P., & Costello, P. (2005). Principles for literacy assessment. *Reading Research Quarterly, 40*(2), 256–267. https://doi.org/10.1598/RRQ.40.2.6

Kalk, K., Luik, P., Taimalu, M., & Täht, K. (2014). Validity and reliability of two instruments to measure reflection: A confirmatory study. *Journal of the Humanities & Social Sciences, 18*, 121–134. https://doi.org/10.3176/tr.2014.2.02

Lipsky, M., Schumm, J. S., Doorn, K., & Adelman, A. (2014). Preparing preservice teachers for data-based decision making in working with struggling readers: A collaborative effort. *Journal of Reading Education, 40*(1), 36–42.

Lobron, A., & Selman, R. (2007). The interdependence of social awareness and literacy instruction. *The Reading Teacher, 60*(6), 528–537. https://doi.org/10.1598/RT.60.6.3

Mandinach, E. B., & Gummer, E. S. (2016). What does it mean for teachers to be data literate: Laying out the skills, knowledge, and dispositions. *Teaching and Teacher Education*, *60*, 366–376. https://doi.org/10.1016/j.tate.2016.07.011

Mayor, S. (2005). Preservice teachers' developing perspectives on assessment and remediation of struggling readers. *Reading Improvement, 42*(3), 164–178.

McCutchen, D., Green, L., Abbott, R. D., & Sanders, E. A. (2009). Further evidence for teacher knowledge: Supporting struggling readers in grades three through five. *Reading and Writing, 22*(4), 401–423. https://doi.org/10.1007/s11145-009-9163-0

Mertler, C. A. (2014). *The data-driven classroom: How do I use student data to improve my instruction?* ASCD.

Nagro, S. A., & deBettencourt, L. U. (2019). Reflection activities within clinical experiences: An important component of field-based teacher education. In T. E. Hodges & A. C. Baum (Eds.), *Handbook of research on field-based teacher education* (pp. 565–586). IGI Global.

Odo, D. M. (2016). An investigation of the development of pre-service teacher assessment literacy through individualized tutoring and peer debriefing. *Journal of Inquiry and Action in Education, 7*(2), 31–61. https://digitalcommons.buffalostate.edu/jiae/vol7/iss2/2/

Oner, D., & Adadan, E. (2011). Use of web-based portfolios as tools for reflection in pre-service teacher education. *Journal of Teacher Education, 62*(5), 477–492. https://doi.org/10.1177/0022487111416123

Onwuegbuzie, A. J., & Collins, K. M. (2007). A typology of mixed methods sampling designs in social science research. *Qualitative Report, 12*(2), 281–316. http://www.nova.edu/ssss/QR/QR12-2/onwuegbuzie2.pdf

Parsons, S. A., Vaughn, M., Scales, R. Q., Gallagher, M. A., Parsons, A. W., Davis, S. G., Pierczynski, M., & Allen, M. (2018). Teachers' instructional adaptations: A research synthesis. *Review of Educational Research, 88*(2), 205–242. https://doi.org/10.3102/0034654317743198

Piasta, S. B., Connor, C. M., Fishman, B. J., & Morrison, F. J. (2009). Teachers' knowledge of literacy concepts, classroom practices, and student reading growth. *Scientific Studies of Reading*, *13*(3), 224–248. https://doi.org/10.1080/10888430902851364

Pierce, A., & Washburn, E. K. (2020, November). *A cross-case analysis of the connection between ongoing critical reflection and teacher candidates' experience with literacy assessments.* Paper accepted for presentation at the annual meeting for the Literacy Research Association, Houston, TX.

Raymond-West, T., & Rangel, V. S. (2020). Teacher preparation and novice teacher self-efficacy in literacy instruction. *Education and Urban Society, 52*(4), 534–560. https://doi.org/10.1177/0013124519879425

Risko, V., Roskos, K., & Vukelich, C. (1999). Making connections: Preservice teachers' reflection processes and strategies. In T. Shanahan & F. Rodriguez-Brown (Eds.), *Forty-eighth yearbook of the National Reading Conference* (pp. 412–422). National Reading Conference.

Rodgers, C. (2002). Defining reflection: Another look at John Dewey and reflective thinking. *Teachers College Record*, *104*(4), 842–866. https://doi.org/10.1111/1467-9620.0

Rogers-Haverback, H., & Mee, M. (2015). Reading and teaching in an urban middle school: Preservice teachers' self-efficacy beliefs and field-based experiences. *Middle Grades Research Journal*, *10*(1), 17.

Roskos, K., Vukelich, C., & Risko, V. (2001). Reflection and learning to teach reading: A critical review of literacy and general teacher education studies. *Journal of Literacy Research*, *33*(4), 595–635. https://doi.org/10.1080/10862960109548127

Scammacca, N. K., Roberts, G. J., Cho, E., Williams, K. J., Roberts, G., Vaughn, S. R., & Carroll, M. (2016). A century of progress: Reading interventions for students in grades 4–12, 1914–2014. *Review of Educational Research*, *86*(3), 756–800. https://doi.org/10.3102/0034654316652942

Schön, D. A. (1983). *The reflective practitioner*. Basic Books.

Schön, D. A. (Ed.). (1991). *The reflective turn: Case studies in and on educational practice.* Teachers College Press.

Snow, C. E. (2002). *Reading for understanding: Toward an R&D program in reading comprehension*. Rand.

Stahl, K. A. D., Flanigan, K., & McKenna, M. C. (2020). *Assessment for reading instruction* (4th ed.). Guilford Press.

Stefanski, A. J., Leitze, A., & Fife-Demski, V. (2018). Preservice teacher sense-making as they learn to teach reading as seen through computer-mediated discourse. *Reading Horizons, 57*(1), 32–54. https://scholarworks.wmich.edu/reading_horizons/vol57/iss1/4/

Teale, W. H. (2008). What counts? Literacy assessment in urban schools. *The Reading Teacher, 62*(4), 358–361. https://doi.org/10.1598/RT.62.4.10

Tschannen-Moran, M., & Johnson, D. (2011). Exploring literacy teachers' self-efficacy beliefs: Potential sources at play. *Teaching and Teacher Education, 27*, 751–761. https://doi.org/10.1016/j.tate.2010.12.005

Walker, B. J. (1991). A descriptive study of the reflective statements of preservice teachers. In T. V. Rasinski, N. D. Padak, & J. Logan (Eds.), *Reading is knowledge* (pp. 97–103). College Reading Association.

Walker, B. J., & Ramseth, C. (1993). Reflective practice confronts the complexities of teaching reading. In N. D. Padak & T. V. Rasinski (Eds.), *Inquiries in literacy learning and instruction* (pp. 171–177). College Reading Association.

Williams, L. M., Schramm-Possinger, M., & Scott, K. (2018). Putting reflection into action: Learning from preservice teachers' reflective practice during a summer literacy tutoring Program. *The Reading Professor, 41*(1), 18. https://scholar.stjohns.edu/thereadingprofessor/vol41/iss1/18

Yost, D. S., Sentner, S. M., & Forlenza-Bailey, A. (2000). An examination of the construct of critical reflection: Implications for teacher education programming in the 21st century. *Journal of Teacher Education, 51*(1), 39–49. https://doi.org/10.1177/002248710005100105