PRE-SERVICE TEACHERS' SENSE-MAKING OF UNIVERSAL DESIGN FOR LEARNING IN THE PLANNING AND IMPLEMENTATION OF LITERACY LESSONS

A Capstone Project

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by

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Executive Summary

Researchers have identified reading achievement as a critical factor in overall student achievement (NRP, 2000; Reis et al., 2011). Increasing diversity in schools requires that teachers be well versed in literacy pedagogy that meets the needs of students who struggle as well as those who are advanced learners (Firmender, Reis, & Sweeny, 2014; Ivey & Broaddus, 2001; Reis et al., 2004, 2008; Samuals & Farstrup, 2001). While research has shown that teachers are providing more targeted opportunities for remediation for struggling readers (Bender & Waller, 2011; Gambrell, Morrow, & Pressley, 2007), instruction for high-achieving readers is not begin given as much attention, leaving the more advanced readers with fewer meaningful learning opportunities in literacy (Firmender, Reis, & Sweeny, 2013). The majority of elementary students in the United States require targeted, differentiated literacy instruction (Firmender, Reis, & Sweeny, 2013; Robb, 2008).

Building, improving, and maintaining high teacher quality are essential in order to move toward equitable literacy learning opportunities for students. This is why it is vital that novice teachers enter the field prepared to design and implement literacy instruction that is responsive to students' strengths and needs. Teacher educators are becoming more aware of the evolving nature of reading development and the necessity of preparing new teachers to be able design and teach targeted literacy lessons (King, Williams, & Warren, 2010; McGuire-Schwartz, & Arndt, 2007). An approach that has been adopted by some teacher educators as a framework for designing instruction that addresses students' strengths and needs is Universal Design for Learning, which encourages teachers to proactively consider multiple methods in which to represent content, increase and sustain student engagement, and allow for student expression of understanding (CAST, 2007; Meyer, Rose, & Gordon, 2014; Rose, Meyer, & Hitchcock, 2005).

Purpose

The purpose of this capstone project was to explore pre-service teacher participants' sense-making of the integration of Universal Design for Learning in literacy lesson planning and implementation in order to provide information that had the potential to help the site university elementary education program coordinator and faculty members make informed decisions about future teacher preparatory coursework and field placements. This Capstone was structured as a multiple-case study of pre-service teacher participants, in which their integration of literacy lesson components that aligned with the UDL principles and their sense-making of planning and implementing literacy lessons were investigated.

Methodology

This capstone project was structured as a multi-case study of three pre-service teacher participants. Data were collected over a 12-week period of time in the fall of 2017. Data sources included screening surveys, interviews, observations, and collected lesson plans. These data collection methods were chosen in order to provide a rich description of each of the cases and to provide details about each participant's sense-making of UDL when planning and teaching literacy lessons during her student teaching experience. Data were stored and coded through the use of the qualitative software MaxQDA. I initially began data analysis by open-coding the collected data, later coding data into conceptual categories that emerged. I also used the Miles and Huberman (1994) interactive model for data analysis, which includes three steps: (a) data reduction; (b) data displays; and (c) conclusion drawing/verifying. Considerations about trustworthiness, credibility, transferability, dependability, and confirmability were addressed through data triangulation, analytic memos, a methodological journal, and utilizing a peer reviewer.

Findings

This research study was a multi-case study in which I investigated three participants' sense-making of UDL during their student teaching experiences. Each participant completed her student teaching in an elementary grade level placement, ranging from first-grade to fifth-grade. The school and district contexts varied between cases. Four cross-cutting themes arose as a result of data collection and analysis.

The three findings of this case are as follows:

Finding 1	Participants exhibited well-developed understandings of developmental literacy practices, but a lack of understanding of UDL as a framework for designing and implementing literacy lessons.
Finding 2	Participants felt limited in their ability to incorporate means of representation, engagement, and expression into their literacy lesson plans due to the factors of time and/or literacy curricular resources in their placement classrooms, indicating a lack of deep understanding of how to integrate UDL into their lesson plans.
Finding 3	Decisions made during the implementation of lessons were informed by student responses to instruction and by the factors of time and curricular resources, indicating a lack of understanding in how to integrate the UDL principles during lesson implementation, and also leading to feelings of dissonance between participants' personal literacy practices and the implemented literacy events.

Based on these findings, I determined specific recommendations for the site university's elementary education program coordinator and faculty members.

Implications and Recommendations

Based on my research questions and the corresponding findings, my three recommendations for the site university's elementary education program coordinator are:

Recommendation 1	Because the participants did not indicate readiness to integrate the UDL principles into lesson plans or during lesson implementation, it would be beneficial for the site university education program to offer a pre-service teacher course that is focused on the philosophy of differentiation and that

	includes instruction on the frameworks that can be used to assist them in the design and teaching of differentiated lessons.
Recommendation 2	It would be beneficial for the site university's teacher education program coordinator and faculty members to conduct as an assessment of all potential field placements for pre-service teachers to ensure flexibility in time and curricular resources. Additionally, it would be beneficial to provide training for pre-service teachers that enables them to differentiate lessons in spite of any contextual circumstances that may be present in their placement classrooms.
Recommendation 3	Prior to student teaching, it would benefit the site university's pre-service teachers to have authentic opportunities to design and implement differentiated lessons, using targeted frameworks for differentiation on which they have received instruction.

Summary

There was evidence collected as a result of this multi-case study on pre-service teachers' sense-making of UDL in the planning and implementation of literacy lessons, that participants demonstrated significant understandings of developmental literacy but indicated low understandings of UDL as a framework for the design and implementation of literacy lessons. This study was conducted to describe pre-service teacher participants' sense-making of UDL in literacy lesson planning and implementation. Further research on novice teachers' sense-making of UDL as a framework for literacy instruction would be beneficial, as very few studies have been conducted that focus on pre-service or novice teachers' theoretical understandings of UDL and/or the integration of UDL principles in planning and teaching lessons.

DEDICATION

This is dedicated to my parents, who raised me to pursue my dreams and to always persevere, no matter how challenging the journey; my mom, Nancy Henson, who not only offered me constant love and support throughout this process, but who serves as my role model for dedication, hard work, and stamina; and my dad, William Wade Henson, Jr., who lived his life with purpose, determination, and persistence, and who would have given anything to be here with me to celebrate this milestone.

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Dr. Catherine Brighton, you have played an essential role in making me the educator I am today. Thank you for pushing me to be the very best I could be, even when I didn't think I could be pushed any further. Thank you for your encouragement to press on through this process. I am forever grateful.

Dr. Carol Tomlinson, your work has inspired me since I was a novice teacher. Thank you for being part of this process with me and for inspiring me to teach pre-service teachers to take time to *know* their students in order to design instruction that will be meaningful and enduring.

Dr. Julie Cohen, thank you for your nurturing support. You consistently pushed me to be better and always followed it with a "you've got this." I can't tell you how much that meant to me!

Drs. Brighton, Tomlinson, and Cohen, I feel very fortunate to have had you work side by side with me during my time at the University of Virginia's Curry School of Education.

Finally, I would like to acknowledge Dr. Sandra White, one of my undergraduate education professors at Mary Washington College. Sandi, I remember telling you twenty-three years ago that I wanted to be you "when I grow up." I pray that I can have the same level of impact on my students that you had on me. Sadly, you're not here with us today, but I want you to know that your work made a real difference. I still aspire to be you "when I grow up."

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Chapter One: Introduction

Reading achievement is widely recognized as a critical factor in overall student success in school (National Reading Panel, 2000; Reis et al., 2011), yet research has indicated that many students are not having their instructional reading needs met in today's schools (Firmender, Reis, & Sweeny, 2014; Ivey & Broaddus, 2001; Reis et al., 2004, 2008). As current classrooms are becoming increasingly diverse (NCES, 2015), the number of struggling readers is also increasing (Bender & Waller, 2011; Gambrell, Morrow, & Pressley, 2007), as is the gap between struggling readers and advanced readers, all of whom require targeted, effectual learning opportunities (Brighton, 2002; Cunningham & Allington, 2003; Firmender, Reis, & Sweeny, 2013; Ivey & Broaddus, 2001; Tomlinson, 2001b). Instruction that is tailored for advanced elementary readers appears to be limited at best (Firmender, Reis, & Sweeny, 2013), as researchers have found that classroom teachers tend to focus on instructional modifications for students who require remediation (Latz, Speirs, Adams, & Pierce, 2009; Moon, Brighton, & Callahan, 2003). Today's teachers shoulder the daunting responsibility of designing and implementing instructional literacy strategies for students with a wide range of strengths and needs.

Many educators work to design and implement lessons that are targeted to meet the varied needs of their students, but research has shown that strategies for instructional differentiation, or strategies that are employed with the goal of meeting all students' individual learning needs, are sporadically and inconsistently implemented in many elementary reading classrooms (Hawkins, 2009; Reis et al., 2004; Reis et al., 2008). A high percentage of students in the United States require differentiated reading instruction, targeted to their individual strengths and needs, yet many are not receiving it (Robb, 2008). Too often, struggling readers are continuing to struggle and advanced readers are not receiving instruction that allows them to

continue to advance. The current role of the elementary teacher consists of more than an understanding of effective literacy practices. Teachers need to come into classrooms prepared to address diverse learning needs and have the skill set to be able to design and implement literacy instruction based on students' strengths and needs.

Background of Study

Investigating the ways in which elementary students experience reading instruction is a necessary starting point to understanding how to effectively address the gaps that exist between struggling and advanced readers. As classrooms become more diverse (NCES, 2015), there are growing numbers of students who struggle in literacy as well as students who demonstrate high achievement in literacy (Gambrell, Morrow, & Pressley, 2007; Brighton, 2002; Cunningham & Allington, 2003). The process of differentiating reading instruction in a way that allows all students to succeed has drawn much attention from educators (Alexander, 2003; Allington & McGill-Franzen, 2000; Bowe, 2003; CAST, 2011; Coyne, et al., 2006; Gregory & Chapman, 2013; Hall, 2002; Hall, Strangman, & Meyer, 2003; Hawkins, 2009; Hitchcock, Meyer, Rose, &Jackson, 2002; McGuire-Schwartz & Arndt, 2007; McTighe & Brown, 2005; Mulroy & Eddinger, 2003; Pressley, 2002; Reis et al., 2004; Renzulli, 1988; Robb, 2008; Tomlinson, 2001b; Tomlinson, 2009). Differentiation is a classroom practice that balances teachers' understanding of individual students with teachers' presentation of content (Tomlinson & Imbeau, 2010). The goal of differentiated instruction is to maximize student growth and individual success by meeting students where they are, fitting the curriculum to the students, rather than trying to force the students to fit the curriculum (Huebner, 2010; Robb, 2008; Tomlinson, 2003). Teachers who practice differentiated instruction factor in students' individual learning styles and levels of readiness first *before* designing a lesson plan, benefitting students

who struggle as well as those who are high achievers (Tomlinson 2001b, 2003; Tomlinson & Imbeau, 2010). When teachers plan and implement differentiated instruction, much focus is placed on the students as individuals, not only what they need to be successful, but also on what they bring to the learning opportunity. According to the researchers at the National Center on Accessing the General Curriculum,

> To differentiate instruction is to recognize students' varying background knowledge, readiness, language, [culture], preferences in learning and interests; and to react responsively. Differentiated instruction is a process of teaching and learning for students of differing abilities in the same class. The intent of differentiating instruction is to maximize each student's growth and individual success by meeting each student where he or she is and assisting in the learning process. (Hall, Strangman, & Meyer, 2011, Section 2)

When lessons are differentiated, student variance is embraced and student learning is increased through responsive teaching (Tomlinson et al., 2003). There are many current efforts among educators to design and plan for differentiated curricula and instruction in ways that allow accessibility to all students. One example, "Universal Design for Learning" (UDL), was developed as a framework for providing greater curricular flexibility through the presentation of content (multiple means of representation), through students' processes of demonstrating knowledge and skills as well as variety of products that represent understandings (multiple means of action and expression), and by meeting students' affective needs through multiple means of engagement (Meyer, Rose, & Gordon, 2014; Rose & Meyer, 2006; Rose, Meyer, & Hitchcock, 2005). The term "universal design" originated in the field of architecture, where it was discovered that modifications in building structures meant to accommodate those with disabilities also served many without disabilities (CAST, 2011; Rose & Meyer, 2006; Rose et al., 2005). UDL was formed with the intention to reduce obstacles in curriculum and instruction by allowing for appropriate supports so that all students are able to access the curriculum. UDL calls for diverse, flexible ways of presenting content and learning processes, as well as flexible

expectations for student products that demonstrate learning (Cochran-Smith & Dudley-Marling, 2012; Rose & Meyer, 2006; Rose et al., 2005). The design element of UDL refers to the proactive nature of the UDL framework (Meyer, Rose, & Gordon, 2014). Because student variability is a given, the UDL framework guides teachers to frontload these variable needs upon lesson design, through the planning for multiple means of representation, engagement, and/or expression, thereby minimizing the need for subsequent accommodations (Cochran-Smith & Dudley-Marling, 2012; Meyer, Rose, & Gordon, 2014; Rose & Meyer, 2006; Rose et al., 2005).

Originally conceptualized as a framework for the design of instruction to meet the needs of students receiving special education services, UDL is gaining popularity among general educators as a framework that has the potential to assist teachers in the development of lessons designed to meet various student needs. The goal of UDL is to reduce the need for retroactive instructional remediation through the use of a framework that guides teachers into thinking systematically about individual student variability at the planning stage of lesson design. This proactive planning for multiple means of representation, engagement, and expression has the potential to help teachers systematically address the diverse needs of students in their classrooms. "Thinking about differentiation as a kind of universal design makes it seem achievable" (Tomlinson & McTighe, 2006, p. 96). If teachers seek to proactively understand and diminish the barriers that exist to student understanding in reading, they may be better able to determine the best way to meet these needs; to create a "ramp" of sorts that supports student learning (2006). Additionally, if teachers are able to deepen instruction by presenting content in multiple ways through different modalities and allowing students to demonstrate their understandings in various ways, students at all levels of achievement will have greater opportunities to grow and thrive.

Statement of Problem

Years ago, John Dewey (1897, 1938) posited that people learn best by applying theory to practice and by putting theories into action. Constructivist learning theory is built upon these beliefs. As pre-service teachers embark upon their new careers, they actively become "full participants" (Lave & Wenger, 1991) in their school environments via apprenticeship—a process defined by Lave and Wenger as "legitimate peripheral participation" (Darling-Hammond, 2006; Lave & Wenger, 1991). This means that, in order to become proficient educators, pre-service teachers must practice authentically engaging with students in real contexts (Darling-Hammond, 2006). This requires college and university teacher education faculty to create opportunities in which their students can put learned theories into action. As suggested by Cochran-Smith and Fries (2005), pre-service teachers learn from their own practice and reflection, which makes learning reflexive and iterative. Therefore, in order to fully understand pre-service teachers' understandings and sense-making of how to teach in ways to meet all students' needs, teacher educators need to set the stage for this learning, understanding that, as pre-service teachers gain more experience in the field, they will grow in their understandings and modify their sense-making of instructional approaches.

Grossman, Valencia, Evans, Thompson, Martin, and Place (2001) also posited that it is necessary to study the practices of beginning teachers in relation to their corresponding teacher education programs if we are truly seeking to understand preparedness of novice teachers to differentiate reading instruction. The National Commission on Excellence in Elementary Teacher Preparation for Reading Instruction, which was created to address some of the gaps in research on teacher preparation (Hoffman et al., 2005), studied reading teacher educators and teachers who were graduates from university teacher preparation programs. They found that, "Though

there is evidence of the positive effects of pre-service programs on teacher attitudes and student learning . . . how this process occurs is less well known" (p. 270). The question of how effective teacher preparation programs are in preparing novice teachers to teach differentiated literacy has received surprisingly little attention from the research community (Anders, Hoffman, & Duffy, 2000; Hoffman et al., 2005; Maloch et al., 2003).

While few studies have been conducted that have investigated pre-service teachers' preparedness to design and implement differentiated literacy instruction, those that have been done have yielded the common finding that teacher preparatory coursework and field experiences directly inform novice teachers' understandings of how to develop and teach reading lessons that meet diverse student needs (Flint, Maloch, & Leland, 2010; Griffith, Swaggerty, Hu, Thompson, & Cannon, 2010; IRA, 2010; Scales et al., 2014), concluding that novice teachers typically mirror the pedagogies learned and observed through university-based preparatory coursework and authentic classroom field placements in their own reading instruction. Griffith et al. (2010) found that the pre-service and novice teachers were not likely to develop sound literacy pedagogical approaches independently of what they learned prior to teaching, suggesting that preparatory coursework and field placements played an important role in their instructional beliefs and approaches. Risko (2009) found that, when explicit connections were made between teacher preparatory coursework and field experiences, pre-service teachers were more likely to be able to represent learned theory in authentic teaching contexts.

In their 2010 cross-case analysis of three novice teachers' literacy beliefs and practices in diverse classrooms, Flint, Maloch, and Leland (2010) found that teacher preparation programs had a strong influence on novice teachers' ability to plan and instruct differentiated literacy lessons. This was demonstrated through the participants' choices to fill their classrooms with a

variety of texts and genres, the needs-based range of literacy events offered in their classrooms, and their approaches to discussing texts with students, all of which were concepts advocated within the respective teacher programs that trained the participants. Flint, Maloch, and Leland (2010) also noted that, despite much public interest in teacher development, there have been relatively few studies that investigate new teachers' literacy practices. They expressed a strong need for such studies.

In 2010, the International Reading Association (IRA), now the International Literacy Association, convened the National Commission on Excellence in Elementary Teacher Preparation for Reading Instruction with the goal of identifying common characteristics of "excellent" reading teacher education programs and the effectiveness of their teacher graduates, in terms of classroom practice and student achievement (IRA, 2010). Key findings from this study concluded that teachers who graduate from education programs that have strong literacy preparation are more successful and confident as they begin teaching, are able to effectively create literacy-rich classroom environments, are better at preparing their students to read, and are more effectively about to engage students in reading (IRA, 2010). This study also concluded that the critical features of "excellent" reading teacher preparation programs are ones that consist of a comprehensive literacy curriculum, field-based experiences under the tutelage and supervision of exemplary models, a vision of high quality instruction, resources to support this vision, faculty autonomy to continually revise the program as needed, and ongoing assessment for the purpose of program improvement (IRA, 2010).

Following this 2010 IRA study were two large-scale investigatory studies in which the researchers interrogated the degree to which pre-service and novice teachers demonstrated the qualities of "excellent reading teachers" as defined by the IRA (Griffith, Swaggerty, Hu,

Thompson, & Cannon, 2010; Scales et al., 2014). Not surprisingly, both studies yielded the finding that the quality and foci of the teacher preparation programs had a significant impact on new teachers' ability to demonstrate the characteristics of "excellent reading teachers." While some studies have indicated that teacher preparatory coursework and field experiences have a direct influence on teachers' approaches to planning and teaching (Flint, Maloch, & Leland, 2010; Griffith, Swaggerty, Hu, Thompson, & Cannon, 2010; IRA, 2010; Risko, 2009; Scales et al., 2014), there is a need for more research in this area.

This Capstone project was an investigation of elementary pre-service teachers' sense-making of the UDL framework as a tool for the planning and implementation of literacy instruction, with a focus on the considerations made during the processes of lesson-planning and implementation. Information gleaned from this study has the potential to help teacher education faculty members better understand pre-service teacher candidates' conceptualizations of needs-based literacy instruction as well as the integration of the UDL principles in the design and implementation of literacy lessons.

Theoretical Framework

Two lines of inquiry provided the framework for examining the ways in which pre-service teacher participants conceptualized and implemented literacy instruction during their student teaching experience. Barton and Hamilton (1998, 2000) suggest that *literacy practices* and *literacy events* are distinctly different entities, describing this lens as a "social theory of literacy" to be utilized as an orienting theoretical approach to the research of literacy. Literacy events, the observable activities that take place in a particular setting (Barton & Hamilton, 2000; Flint, Maloch, & Leland, 2010), are defined as any occasion in which text is integral to the nature of students' interactions with and learning of content. This text can be written, oral, and/or

visual (Barton & Hamilton, 2000; Flint, Maloch, & Leland, 2010). *Literacy events* in the elementary classroom may entail guided reading, discussions around a piece of text, comprehension strategy use, text critiques, and all forms of writing.

Literacy practices, on the other hand, involve the participants' cultural, social, political, and historical ways of interacting and making sense of the content at hand (Barton & Hamilton, 2000; Flint, Maloch, & Leland, 2010). In novice teachers' classrooms, literacy practices are commonly shaped by their own pedagogical beliefs and ideologies, impacted often by the structure of the school and district in which teachers' classrooms reside. "Literacy practices are as fluid, dynamic, and changing as the lives and societies of which they are a part" (Barton & Hamilton, 2000, p. 13), meaning that, upon teaching and reflection, literacy practices are prone to modification. The understanding that one's reflection leads to deeper understandings and modifications in application of knowledge reflects Dewey's constructivist theory (1897, 1938).

Barton and Hamilton (2000) presented their theory of literacy as a social practice in the form of six propositions concerning the nature of literacy instruction (see Table 1). The underlying assumption to this theoretical approach is that literacy, by nature, is a social practice. The concept of literacy practices offers an impactful way of conceptualizing the link between observable activities of literacy (literacy events) and the social structures in which they are embedded (Barton & Hamilton, 1998, 2000). Simply put, literacy practices are what teachers *believe* about literacy instruction. Literacy practices are not observable due to the fact that they are based on social expectations, education, values, and feelings, making them extraordinarily personal to the teacher.

Table 1

Six Theoretical Propositions of Literacy as a Social Practice
(adapted from Barton & Hamilton, 2000)

Proposition 1	Literacy is best understood as a set of social practices which can be inferred from events and are mediated by written texts.
Proposition 2	There are different literacies associated with different domains of life.
Proposition 3	Literacy practices are patterned by social institutions and power relationships. Some literacies are more dominant, visible, and influential than others.
Proposition 4	Literacy practices are purposeful and are embedded in broader social goals and cultural practices.
Proposition 5	Literacy is historically situated.
Proposition 6	Literacy practices change and new ones are frequently acquired through processes of informal learning and meaning-making.

Literacy events, or observable text-centered learning opportunities, are shaped by teachers' *literacy practices*, or their personal beliefs about pedagogy (Barton & Hamilton, 1998, 2000). Many classroom literacy events are repeated activities, making them a viable starting point for literacy research. Barton and Hamilton (2000) theorized that the analysis of literacy events will lead to deeper understanding of teachers' evolving literacy practices, recognizing that literacy practices are rooted in historical understandings, are impacted by social expectations, and are reflexive in nature, often being modified due to practice, reflection, and changes in meaning-making. This concept was the underlying theoretical framework for my study, as my observations were focused on participants' *literacy events*, and the post-teaching interviews delved deeply into participants' evolving *literacy practices*, which were typically shaped by the success, or lack of success, of their implemented literacy events.

Conceptual Framework

A conceptual framework, or the expression of emerging concepts and ideas, is necessary to define so that conclusions drawn by the researcher may be contextually understood (Ravitch & Riggan, 2011). According to Miles and Huberman (1994), the conceptual framework serves several purposes: (a) identifying study participants; (b) describing the existing relationships that exist based on logic, theory, and experience; and (c) providing the researcher with the opportunity to collect general constructs into "intellectual bins" (p. 18). A conceptual framework serves as the anchor of a study.

A review of the literature on literacy instruction and UDL, pre-service teachers' experiences in designing instruction based on students' strengths and needs, and pre-service teachers' instructional approaches informed the conceptual framework for this study (see Figure 1). The conceptual framework driving this study reflects a constructivist view, which proposes that people construct their own understanding and knowledge through having experiences and then reflecting on those experiences (Crotty, 1998; Darling-Hammond, 2006; Dewey, 1897, 1938; Lave & Wenger, 1991). Upon reflection, people will reconstruct, incorporate, or abandon beliefs, ideas, or knowledge (Creswell, 2012). Likewise, Barton and Hamilton (2000) proposed that teachers of literacy will modify their literacy practices based on ongoing reflection and meaning-making.

This study was a descriptive investigation of pre-service teachers' sense-making of UDL in the planning and implementation of literacy lessons during their student teaching experiences. Factors that have the potential to impact pre-service teachers' conceptualizations and use of UDL in literacy, as indicated by research literature, are pre-service teachers' preparatory coursework, field placement experiences, and their own personal experiences with literacy in school.

Teachers are largely entering the teaching field through the gateway of a teacher education program (Clark, Byrnes, & Sudweeks, 2015; IRA, 2003), which has led to an increased emphasis at the university level on learning pedagogical theories and applying them in authentic contexts (IRA, 2003).

However, instructional literacy practices learned in teacher preparation courses are sometimes initially disregarded by pre-service teachers who experienced alternative pedagogical approaches throughout their own elementary school experiences (Barnyak & Paquette, 2010). For this reason, it is incumbent upon education professors to guide pre-service teachers into self-reflection of their preconceived beliefs about literacy instruction. Acknowledging preconceived beliefs about literacy pedagogy in coursework and field placements may be key in helping pre-service teachers understand, internalize, and implement effective literacy practices. The role of reflection on a pre-service teacher's use of UDL in planning and implementing reading lessons is exhibited in the conceptual framework (see Figure 1).

Research on teacher education indicates a correlation between teachers' beliefs and their instructional practices (Fang, 1996; Yoo, 2005), suggesting that educators may lean toward teaching in the same methods they were taught unless university coursework directly addresses any existing pedagogical preconceptions (Barnyak & Paquette, 2010; Fang, 1996, Yoo, 2005). The impact that teacher education coursework and authentic field placement experiences have on pre-service teachers' pedagogical understandings is represented in the conceptual framework that guided this study (see Figure 1). Similarly, Barton and Hamilton (2000) acknowledged the role that literacy *practices*, or teachers' personal beliefs about literacy instruction, play in the planning and teaching of literacy *events*, and that observed outcome of literacy events will likely lead to confirmation or modification of a teacher's personal literacy practices. The influence of

Barton and Hamilton's theoretical framework centered on *literacy events* and *literacy practices* is exhibited in the conceptual framework (see Figure 1).

The literature points us to an additional salient factor that impacts pre-service teachers' reading pedagogical understandings: pre-service teachers' recognition of their own metacognitive use of reading strategies. Prevalent in the literature is the important role of pre-service teachers' understandings of their own approaches to reading and comprehending (Dobler, 2009; Luttenegger, 2012; Pressley, 2002; Pressley & Gaskins, 2006). Metacognitive readers understand that reading comprehension requires active reading processes in which comprehension strategies are utilized (Luttenegger, 2012; Pressley, 2002). Because reading strategies need to be explicitly taught to students, it is important that pre-service teachers develop and maintain an awareness of their own use of metacognitive reading strategies (Pressley, 2002; Pressley & Gaskins, 2006). Awareness of one's own use of strategies is a prerequisite to the ability to effectively teach literacy strategies (Dobler, 2009), and without this awareness, pre-service teachers' ability to effectively teach reading will likely be impacted (Pressley, 2002; Pressley & Gaskins, 2006). The conceptual framework that guided this study demonstrates the link between pre-service teachers' awareness of their own use of literacy strategies and their sense-making of instructional approaches (see Figure 1).

Grossman et al. (2001) found that self-reflection plays a large role when teachers are in the process of developing personal literacy practices, or pedagogical beliefs. They specifically found that the practice of teaching literacy and then reflecting on the effectiveness of that teaching informed novice teachers' pedagogical approaches to literacy instruction. As pre-service teachers get more practice with using UDL principles to guide the development and implementation of literacy events, or literacy lessons, the continued practice will lead to multiple

opportunities for reflexive learning and reflection (Dewey, 1897, 1938; Darling-Hammond, 2006; Grossman et al., 2001; Lave & Wenger, 1991). This iterative cycle of learning, applying, reflecting, and reconstructing is evident in the conceptual framework for this study (see Figure 1).

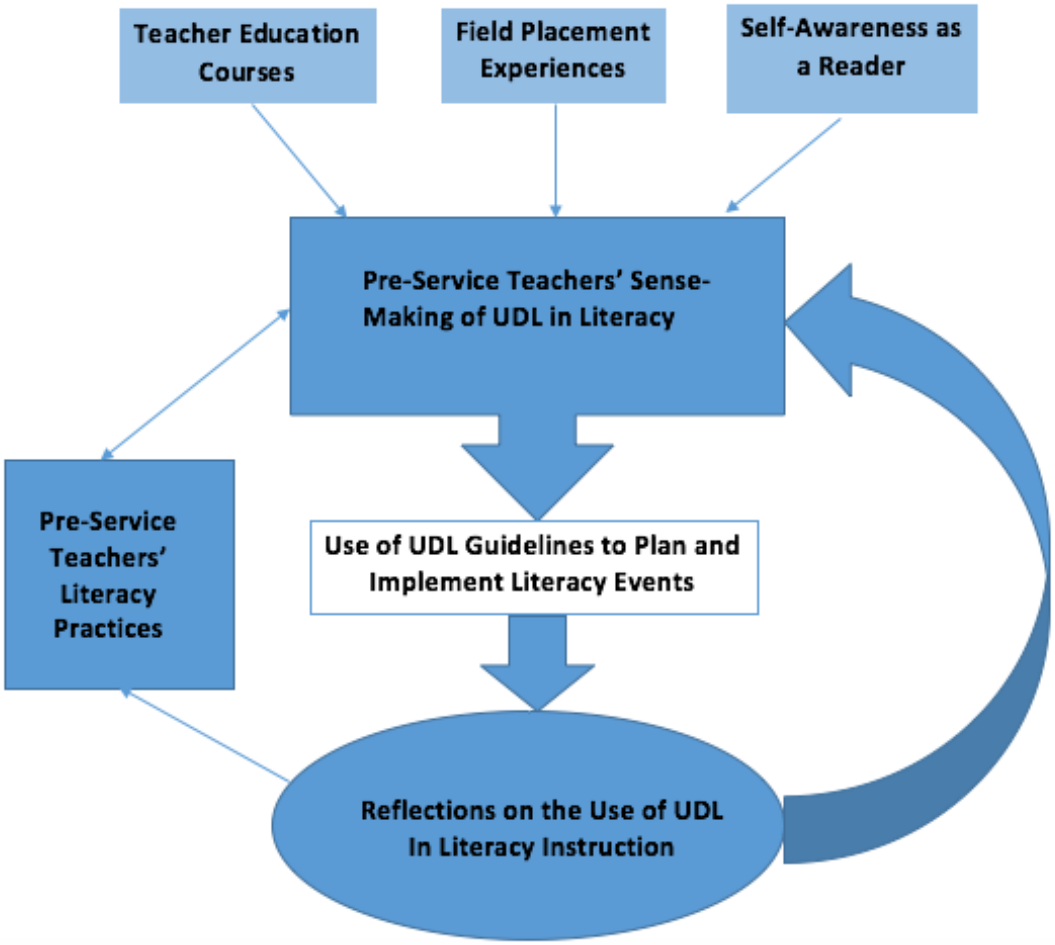

Figure 1. *The conceptual framework for this study took into consideration the roles played by pre-service teacher university coursework, prior field experiences, and self-awareness of themselves as readers. Literature tells us that these factors inform educators' sense-making of literacy pedagogical approaches, which reciprocally informs their personal beliefs about literacy practices.*

Research Questions

Given the importance of understanding how pre-service teachers conceptualize, plan, and implement literacy instruction that is designed to meet the varied needs of their students, the following research questions were the focus for this Capstone project:

- How do elementary pre-service teachers conceptualize and make meaning of UDL as an approach to addressing learners' diverse needs in literacy?
- How do elementary pre-service teachers integrate literacy and UDL in the lesson planning process?
    - What guides their decisions in planning literacy lessons?
- How do elementary pre-service teachers integrate literacy and UDL in the implementation of their planned literacy lessons?
    - What guides their decisions during the implementation of literacy lessons?

Capstone Description

In this Capstone project, I examined elementary pre-service teachers' sense-making of the use of UDL when planning and implementing reading lessons during student teaching. Study participants were three pre-service teachers who were completing their student teaching experience through the site university's teacher education program. In pre-service teacher courses at this university, students are instructed by faculty members on the use of UDL as a framework for the planning of instruction that is designed to meet diverse student needs. The integration of UDL principles in the planning of lessons is also evaluated by supervisors during their student teaching experience (see Appendix A for the site university's student teaching lesson plan scoring rubric). This study was the first investigation done at the site university concerning pre-service teachers' understandings and meaning-making of UDL to plan and implement literacy lessons. The following terms are commonly used throughout this paper. The terms are defined to provide clarity to the reader of how they are used within the context of this Capstone study.

Definition of Terms

- *Literacy events* refer to observable instruction that includes one or more of the following text-based components: reading skills, fluency, vocabulary, comprehension strategies, word work (such as word study or sight word review) and writing (Barton & Hamilton, 2000).
- *Literacy practices* refer to teachers' beliefs and inclinations that inform their planning of literacy lessons (Barton & Hamilton, 2000). According to Barton and Hamilton (2000), literacy practices are typically modified through the perceived success of implemented literacy events. A teacher's literacy practices will inform their planning of literacy events.
- *Developmental literacy*, within the context of this study, refers to the understanding that literacy knowledge is continually evolving, and that while the sequence of literacy development follows the same general pattern (from emergent to fluent), individual rates of growth may vary (Duke & Pearson, 2002; NRP, 2000; Pressley, 2002; Reis et al., 2011; Robb, 2008). Teachers of developmental literacy use their understandings of students' strengths and needs in literacy to develop and teach needs-based, targeted instruction.
- *Pre-service teachers* refer to university students in the teacher education program who are participating in their final extended semester-long field placement (student teaching).
- *Student teaching* refers to pre-service teachers' final semester-long internship experience in which they are practicing teaching with the guidance of a mentor or an experienced in-service teacher.

- *Differentiation* is a teaching philosophy in which teachers proactively modify curricula, instruction, materials, and learning opportunities based on the diverse needs of each student (Renzulli, 1988; Tomlinson, 2003; Tomlinson & Imbeau, 2010).
- *Universal Design for Learning (UDL)* is a framework that guides the design of equitable learning opportunities for all students through multiple means of representation, action and expression, and engagement (Meyer, Rose, & Gordon, 2014; Rose & Meyer, 2006; Rose, Meyer, & Hitchcock, 2005). Differentiation is the driving philosophy behind the UDL framework. UDL is one approach that educators may use to assist them in designing and teaching lessons with differentiation in mind.
- *Multiple Means of Representation* refers to the UDL principle that advocates for teachers' use of multiple methods to represent the content to be learned, such as the use of visual cues, different font sizes, options for audio access, and the use of electronics or projection tools (CAST, 2011; Coyne et al., 2012; Meo, 2008; Rose & Meyer, 2006; Rose, Meyer, & Hitchcock, 2005).
- *Multiple Means of Engagement* refers to the UDL principle that discusses the variety of ways in which students become and remain engaged or motivated to learn (CAST, 2011; Guthrie & Wigfield, 2000; Rose & Meyer, 2006; Rose, Meyer, & Hitchcock, 2005; Seidel, Perencevich & Kett, 2005).
- *Multiple Means of Expression* refers to the UDL principle that highlights different ways in which students may demonstrate their understanding of learned content (CAST, 2011; Rose & Meyer, 2006; Rose, Meyer, & Hitchcock, 2005).

Capstone Setting

The participants in this study attended a state university in the Mid-Atlantic region that had over 5,000 students enrolled, 68% female and 32% male. It is a diverse campus, representing students from 25 states and from over 20 countries around the world. The education department at this university offers several tracks for teacher licensure and endorsements, including elementary licensure, middle school licensure in a content area, and high school licensure in a content area, as well as graduate degrees or endorsement opportunities in special education, speech and language, counseling, librarianship, and literacy. As the largest instructional department on the campus during the time frame of this study, the education department had just over 1,000 students taking education courses. Approximately 550 of these students were/are seeking elementary (Pre-K-6th grade) licensure. This Capstone project was focused on pre-service teacher participants who were working toward Pre-K-6th elementary teaching licensure.

The literature review that follows was conducted to deepen my understandings of current research on effective literacy instruction, teacher preparation in literacy, instructional approaches to design literacy lessons for students with varied strengths and needs, and the use of the UDL framework as a tool for the planning and teaching of literacy lessons for students with diverse reading needs. There is a recognized need to prepare effective reading teachers (IRA, 2010) due to the ever-increasing diversity in classrooms and in students' academic literacy needs. Conducting this review revealed that teacher education programs are recognizing that need and are trying to determine how to train pre-service teachers in both literacy instruction and in ways to plan literacy events that are based on students' strengths and needs to best prepare them for the teaching field (Grisham, 2000; Grossman et al., 2001; IRA, 2007, 2010; Kent, Giles, & Hibberts, 2013; Risko, 2009; Scales et al., 2014).

Chapter 2: Literature Review

Elementary students have always come to school with a range of literacy experiences, abilities, and interests. In recent years, many efforts have been made by educators to attempt to tailor their reading instruction to meet students' diverse academic needs. Unfortunately, no simple formula exists that details what to do to effectively address the diverse reading needs of students. Differentiated reading instruction, or literacy instruction that is designed for accessibility for all students, can only truly take place if the teacher possesses knowledge of the reading process, an understanding of the strengths and needs of each student, and the ability to address those in teaching (Ankrum & Bean, 2008). This presents a challenge to teacher preparation programs to provide the appropriate tools, instruction, and field experiences for pre-service teachers to help them effectively teach reading to students with varied academic needs (International Reading Association (IRA), 2003).

It is evident through research that quality of teacher instruction makes a significant impact in students' competence and achievement (Darling-Hammond, 2006, 2007, 2009, 2012; IRA, 2010). It is with this foundational understanding that institutions of higher education are seeking to refine teacher preparation programs in order to develop high quality, effective reading teachers (IRA, 2003, 2010; Kent, Giles, & Hibbert, 2013). Some teacher preparation programs have responded to the need to prepare teachers to meet students' increasingly diverse academic needs by incorporating instruction on differentiation and approaches that have been developed to assist teachers design individualized instruction, such as the Universal Design for Learning framework (Meyer, Rose, & Gordon, 2014; Rose, Meyer, & Hitchcock, 2005).

In order to make informed decisions for this study, I completed a review of the literature on: current research on effective literacy pedagogy; how research informs current approaches to

teaching literacy to diverse elementary learners; the preparation of pre-service teachers to address diverse learning needs in literacy instruction; and the consideration and incorporation of UDL principles in the development of literacy instruction designed to address diverse student needs. Prevalent in the literature was research focused on pre-service teachers' perceptions of self-efficacy in literacy instruction for students with diverse reading needs.

Documents that were reviewed included, but were not limited to, current books on elementary literacy research and instructional approaches, current books on Universal Design for Learning, peer-reviewed journal articles, personal correspondences, workshops, meta-analyses, educational law documents, and UDL-related websites and discussion boards. I began my review by searching for resources in EBSCO Host, which searched seven databases for information on the topics of interest **(**ERIC; Academic Search Complete; Education Full Text; Education Index Retrospective: 1929-1983; Education Research Complete; Psychology and Behavioral Sciences Collection; SPORTDiscus).

Key terms that were used for my initial search were "pre-service teachers or student teachers," "reading instruction or literacy instruction," "elementary literacy," "differentiation," "Universal Design for Learning or UDL," "teacher preparation for literacy instruction," and "UDL and literacy." As I familiarized myself with the literature on these terms, "representation," "expression," and "engagement" in combination with "elementary literacy instruction" were added to this list.

Many of the research studies cited in this review of the literature discussed the role of federal education laws and their impact on current approaches to literacy instruction. In order to understand the scope of current research on literacy, it is important to first gain an understanding

of the laws that play an important role in informing current approaches to literacy curricula and instruction.

Laws that Impact and Inform Current Literacy Instruction

In December 0f 2015, President Barack Obama signed into law the Every Student Succeeds Act (ESSA), which replaced the No Child Left Behind Act (NCLB). It is well acknowledged that the aftermath of NCLB included many flaws in terms of the teaching of literacy (Afflerbach, 2016; Afflerbach, Pearson, & Paris, 2008; Cummins, 2007; Dennis, 2016; Dewitz & Jones, 2013; Stahl, 2011). This was due in large part to NCLB's authorization of Reading First, a federal education act which called for use of "scientifically based reading curricula" and which ultimately mandated "what, how, and when to teach reading to students" (Afflerbach, Pearson, & Paris, 2008, p. 364).

Years of Reading First data ultimately demonstrated a lack of evidence in its efforts to improve literacy achievement, leaving researchers to argue that the federal program had further increased the gap between literate and illiterate students, decreasing educational equity in reading (Allington, 2013; Cummins, 2007). This was due, in part, to an increased focus on core, scripted literacy curricula, which not only stripped teachers of their autonomy, but did not allow freedom for teachers to adjust and differentiate curricula to meet individualized literacy needs of students (Allington, 2013; Dennis, 2016; Husband & Hunt, 2015). When used in instruction, core scripted programs typically guide teachers to instruct reading through the teaching of constrained, isolated skills, with little to no focus on how skills and strategies interrelate or how acquiring these skills leads one to become a better reader (Dewitz, Jones, & Leahy, 2009).

ESSA (2015) acknowledged the gaps created in literacy instruction and learning through the implementation of NCLB and Reading First and answered this with a call for a

comprehensive, balanced approach to literacy instruction, basing this call on the recent research that demonstrates the importance of expanding instruction beyond isolated skills to a focus on approaches that encourage synthesis and higher-level comprehension (Cunningham & Allington, 2015). Educators have answered this call through efforts to design literacy instruction that is balanced and that is based on students' needs and strengths. While current research indicates that many educators in the field are employing instructional literacy methods with balance and students' needs in mind, levels of effectiveness of this instruction are inconsistent due to teachers' struggle to design and teach literacy in ways that meet the ever-changing diverse needs of students (Bender & Waller, 2011; Gambrell, Morrow, & Pressley, 2007).

Current Research on Effective Literacy Instruction

Current research on literacy instruction has demonstrated that the most effective instruction embeds explicit and balanced instruction in phonemic awareness, phonics, vocabulary, fluency, and comprehension, teaching them as interrelated skills and strategies rather than in isolation (Adams, 2011; Cunningham & Allington, 2015; Kuhn, Groff, & Morrow, 2011; Paratore & McCormack, 2011). Explicit instruction in these five components of reading aid learners in achieving the ultimate the goal of reading, which is comprehension (Duke, Pearson, Strachan, & Billman., 2011; Pressley, 2002; Routman, 2003).

Research in the area of reading comprehension has consistently identified between six and ten instructional strategies that support developing readers (Duke & Pearson, 2002; Duke, Pearson, Strachan, & Billman, 2011; Keene & Zimmerman, 2007; NRP, 2000). Duke and Pearson (2002) have found that, when comprehension strategies are explicitly taught and modeled by teachers, students are aided in their ability to utilize strategies in their comprehension of text. "Teacher modeling is most effective when it is explicit, leaving the

student to intuit or infer little about the strategy and its application, and flexible, adjusting strategy use to text" (Duke & Pearson, 2002, p. 215). Pearson (2002) stated that explicit strategy instruction and teacher modeling guides students into not only employing the strategies during reading, but also into becoming more metacognitive in their thinking while they are reading.

Metacognition refers to the readers' thinking about thinking, or knowing about one's own thinking. "The metacognitively sophisticated reader knows that high comprehension requires active reading: predicting, questioning, imaging [visualizing], clarifying, and summarizing while reading" (Pressley, 2002, p. 305). In their research on comprehension learning with elementary students, Boulware-Gooden, Carreker, Thornhill, & Joshi (2007) examined the connection between teaching metacognitive comprehension strategies and the levels of comprehension and vocabulary acquisition with third graders. In their study, the students who were in the intervention group demonstrated significant gains over the comparison group who did not receive explicit comprehension instruction. They found that the students who were taught metacognitive comprehension strategies became more engaged in the reading process and came away with deeper levels of understanding (Boulware-Gooden, Carreker, Thornhill, & Joshi, 2007).

In their recent research on the necessary elements of fostering and teaching reading comprehension, Duke, Pearson, Strachan, and Billman (2011) found there to be ten essential elements of explicit reading comprehension instruction that is effectively designed for all students, including struggling and advanced readers. These approaches are well supported through recent research on effective reading instruction and echo many of the findings from prior decades of reading research. The primary difference between the findings of Duke, Pearson, Strachan, and Billman (2011) and the findings of early reading research studies is that recent

research highlights the importance of a balanced approach to reading instruction, teaching each component not in isolation, but in correlation, with the other components (Cunningham & Allington, 2015). Literacy practices found to be effective for all students (Duke, Pearson, Strachan, & Billman, 2011), include reading instruction that:

- Builds background knowledge and activates schema (Bos & Anders, 1990; Kendeou & van den Broek, 2007).
- Provides exposure to a volume and range of texts, including various genres (Cunningham & Allington, 2015; Donahue, Finnegan, Lutkus, Allen, & Campbell, 2001; Hoffman, Sailors, Duffy, & Beretvas, 2004; Taylor, Pearson, Clark, & Walpole, 2000).
- Provides motivating texts and classroom environments (Brophy, 2004; Cunningham & Allington, 2015; Guthrie, 2004; Guthrie et al., 2006).
- Embeds instruction of explicit strategies for comprehension (Brown, 2008; Duke & Pearson, 2002; Guthrie, et al., 2004).
- Includes instruction and discussion of text structures (Armbruster, Anderson, & Ostertag, 1987; Meyer, Brandt, & Bluth, 1980; Robinson & Kiewra, 1995).
- Promotes student discussion (Langer, 2001; McKeown, Beck, & Blake, 2009).
- Builds vocabulary and word knowledge (Adams, 2011; Baumann, 2009; NRP, 2000).
- Integrates reading and writing in authentic ways (Cunningham & Allington, 2015; Fitzgerald & Shanahan, 2000; Pressley et al., 1997; Shanahan, 2006).
- Involves consistent teacher observation and progress monitoring (Bolt, Duke, Billman, & Betts, 2011).
- Is designed based on students' strengths and needs (Connor et al., 2009; Taberski, 2000).

Although research in reading instruction over the past several years has demonstrated the

importance of teaching specific comprehension strategies to elementary students, it is still not commonly seen in classrooms (Luttenegger, 2012). Often, students are provided with many opportunities to practice comprehension strategies, but they have not been provided with explicit instruction or teacher modeling of how to use the strategies (Pressley, 2002). Learning how to explicitly teach comprehension strategies can feel daunting to novice teachers. Even experienced teachers often struggle with learning how to feel competent in their instruction of reading comprehension (Pressley, 2002; Pressley & Gaskins, 2006). For this reason, it is important that pre-service teachers have opportunities to develop an awareness of their own use of reading comprehension strategies. In her research on the impact of teachers' metacognition on their students' learning of reading, Dobler (2009) stated, "Developing an awareness of [comprehension] strategy use may be a prerequisite for effective comprehension instruction" (p. 12). Dobler expressed concern that, if teacher preparation programs do not offer teacher candidates opportunities to become aware of their own metacognitive strategies, this could potentially impact the candidates' ability to explicitly teach strategies (2009).

Though current research findings have offered some clarity on the components of effective reading instruction, it is still a challenge for teachers to orchestrate all of these practices in a way that meets the increasingly diverse reading needs of their students (Samuels & Farstrup, 2011). Current educational trends reflect significant changes in student diversity over the past several years (Gregory & Chapman, 2013; Guild, 2001; Hall, 2002; McCoy & Ketterlin-Geller, 2004; Subban, 2006; Tomlinson, 2001b, 2004). The homogeneity that was present in elementary classrooms many decades ago has been replaced with students who come into the classroom with widely varying learning needs, from language barriers to a wide spectrum of learning disabilities to gifted and accelerated learning abilities. To assume that academic homogeneity exists in

today's classrooms, and to teach as such, would be a "prescription for failure" (Tomlinson, 2009). More now than ever, it is necessary for educators to take students' vast differences into account, acknowledging their strengths while planning lessons that accommodate limitations (Guild, 2001; Mulroy & Eddinger, 2003; Tomlinson, 2002, 2004), designing lessons based on the foundational understanding and belief that all learners are essentially different (Brighton, 2002; Guild, 2001, Subban, 2006).

Differentiating Literacy Instruction Based on Student Needs

Reading achievement has long been acknowledged as a critical factor in student success (National Reading Panel, 2000; Reis et al., 2011). Within the increasing diversity in reading needs is a growing number of struggling readers (Bender & Waller, 2011; Gambrell, Morrow, & Pressley, 2007), as well as advanced readers who require targeted instruction and learning opportunities (Brighton, 2002; Cunningham & Allington, 2003; Tomlinson, 2001b). Educators are tasked with incorporating the best strategies to teach reading in effective ways to all of these students. An instructional approach that continues to be discussed and researched as a strategy for meeting diverse academic needs is differentiation (Gregory & Chapman, 2013; Hall, 2002; Meyer, Rose, & Gordon, 2013; Mulroy & Eddinger, 2003; Tomlinson, 1999, 2001b, 2004, 2009).

Differentiation is a method of teaching that requires that teachers know their students so that they are able to respond to individual student needs and provide tasks and learning experiences that help each student achieve. Tomlinson et al. (2003) define differentiation as an "approach to teaching in which teachers proactively modify curricula, teaching methods, resources, learning activities, and student products to address the diverse needs of individual students and small groups of students to maximize the learning opportunity for each student in a

classroom" (p. 21). A classroom of students typically represents a wide range of expertise with reading, writing, problem solving, and oral language. Therefore, they require differentiated instruction that acknowledges where they are and that helps move them forward (Meyer, Rose, & Gordon, 2013; Renzulli, 1988; Robb, 2013; Tomlinson, 1999, 2001b, 2009).

Much research has been done on ways in which effective differentiation occurs in classrooms. Renzulli (1988) suggested that differentiation can occur across five classroom dimensions: content of curriculum, instruction/teacher practices, classroom organization and environment, student products, and teachers' choices of strategy implementation. Tomlinson's research (1999, 2001b) suggests that differentiation can occur through modifications in curriculum content, instructional processes, student products, student affect, and the classroom environment. Robb (2013) based her research of differentiated reading instruction on the following three key principles of differentiation: the understanding that learners have diverse needs, the need for continuous formative assessment to determine what needs exist and if they are being met, and the need for tiered instruction, or instruction that aligns with students' needs and levels of expertise. In their development and refinement of the Universal Design for Learning framework, developed to guide teachers to design and implement student-centered individualized instruction, Meyer, Rose, & Gordon (2014) found that learning opportunities can be differentiated when teachers offer multiple ways of presenting content information, multiple ways of assessing content knowledge and understandings, and multiple means of engaging students in learning. Though current frameworks/approaches to differentiation may differ slightly, they are all based upon the foundational belief that curriculum, instruction, and assessment opportunities must be aligned to students' demonstrated strengths and needs.

Research on differentiation in literacy instruction has emphasized the use of literacy

assessments to help design instructional groups to differentiate reading instruction based on students' demonstrated reading needs (Duke & Pearson, 2002; Firmender, Reis, S., & Sweeny, 2013; Gentry, 1999; Moon, 2005; Robb, 2008; Walpole, McKenna, & Philippakos, 2011). A number of studies, conducted to document the teaching practices of teachers who have been identified as exemplary literacy instructors (Pressley et al., 2001; Taylor, Pearson, Clark, & Walpole, 2000; Wharton-McDonald, Pressley & Hampston, 1998), found that a cornerstone in the teachers' classrooms was the use of assessments to form targeted instructional groups. These studies revealed that teachers who were regarded as effective literacy instructors employed a variety of needs-based grouping formats, including whole group, small group, and individual lessons, typically employing small group instruction more often than whole-group lessons. It was found that teachers were able to embed a great deal of individual student coaching into their small-group lessons, allowing them to individualize instruction in a way that tailored it to students' strengths and weaknesses (Wharton-McDonald, Pressley, & Hampston, 1998).

By using formative assessments to observe and understand the differences and similarities among students, teachers can use this information to plan differentiated instruction (Moon, 2005; Robb, 2013). Research conducted on the use of literacy assessment data to form instructional reading groups with differentiated content instruction has consistently resulted in findings of increased student achievement, including students at all developmental levels of reading (Cunningham & Allington, 2003, 2015; Duke & Pearson, 2002; Gambrell, Morrow, & Pressley, 2007; Gentry & Owen, 1999; Ivey & Broaddus, 2001; Reis et al., 2004, 2011; Robb, 2008). A meta-analysis conducted by Kulik (1992), which focused on instructional groupings in reading, found that the random grouping of students without adjusting the curriculum based on needs or incorporating differentiated instructional strategies had little impact. Not surprisingly, it

was also found that, when students were taught with curricular and instructional adjustments based on their demonstrated needs, overall reading achievement was greater (Kulik, 1992). Classrooms in which the expectation is for all students to be successful in reading means that teachers must design reading instruction in which students are well-matched to texts and instructional strategies used to teach the texts. A one-size-fits all reading curriculum has no place in the classroom for any teacher who wishes to design developmentally appropriate reading instruction (Cunningham & Allington, 2003; Tomlinson, 2009).

In addition to utilizing literacy assessment data to form differentiated instructional groups, reading content and instruction may be differentiated to address the wide variation of student's reading needs (Reis et al., 2004, 2011; Renzulli, 1988; Robb, 2008, 2013; Tomlinson, 1999, 2001b, 2004, 2009). Unfortunately, far less is found in the literature concerning the differentiation of literacy content and instructional strategies than the practice of using reading assessments to form needs-based groups. The research of Reis and colleagues (2004, 2011) and Robb (2008, 2013) focused on curricular and instructional decisions made by literacy teachers as they worked to differentiate reading instruction, yielding similar findings. In their investigations of differentiated approaches to reading instruction in classrooms, Reis and colleagues (2004, 2011) found that several strategies were consistently implemented that effectively differentiated reading instruction and learning opportunities. These strategies included the use of developmentally appropriate literacy materials, the facilitation of student group discussions about texts, a focus on critical thinking and deep comprehension, and curriculum differentiation that eliminated content already mastered by students and supplements to fill any instructional gaps demonstrated by students. In her research on how to best differentiate reading instruction, Robb (2013) echoed similar findings about instructional approaches that supported the

differentiation of the teaching of reading: the use of anchor texts to explicitly model comprehension strategies for the students, consistent use of formative assessments for progress monitoring to ensure that students were receiving appropriately leveled texts and instruction, making daily time for independent reading, and acquiring appropriately leveled materials for instructional reading.

Unfortunately, what is negligible in the research literature is a detailed description of *how* differentiated reading instruction occurs, what specifically occurs during differentiated reading lessons, and how these lessons differ from each other. Although individualized, differentiated reading instruction is widely suggested as an approach to help teachers design lessons that meet varied learning needs (Reis et al., 2004, 2011; Tomlinson, 1999, 2003), the implementation of differentiated instruction based on differing needs is sporadic at best (Reis et al., 2004, 2011). Despite the interest expressed in the design of differentiated learning opportunities and some noted attempts to differentiate reading instruction based on student needs (Allington, 2002; Reis et al., 2011), research has shown that differentiation approaches are rarely and inconsistently implemented in reading classrooms across the country, with teachers often feeling ill-prepared to design differentiated literacy opportunities (Reis et al., 2004, 2011; Westberg, Archambault, Dobyns, & Salvin, 1993).

With increasing student diversity comes increasing variance in student needs, highlighting the importance of pre-service teacher training in the design of instruction and learning opportunities for students with a variety of academic needs. It is evident through research that quality teaching makes a difference in student learning (Darling-Hammond, 2006, 2007, 2009, 2012; IRA, 2010). It is with this foundational knowledge that teacher preparatory programs are seeking to refine their programs in order to develop high quality, effective teachers

in all content areas, particularly in the area of literacy (Kent, Giles, & Hibberts, 2013).

Pre-Service Teacher Preparation in Literacy

Studies have revealed that a primary factor linked to student achievement in literacy is teacher effectiveness (Darling-Hammond, 2006, 2007, 2009, 2012; IRA, 2010; Lyon & Weiser, 2009). Because the provision of effective literacy instruction is an essential step in addressing the varied reading needs of students (Paratore & McCormack, 2011; Gambrell, Morrow, & Pressley, 2007), teachers must be equipped with the knowledge and skills necessary to provide quality instruction to meet those diverse needs (Gregory & Chapman, 2013; Guillaume, 2008; Jennings, Caldwell, & Lerner, 2010; McTighe & Brown, 2005). There is widespread consensus that an effective reading teacher in every elementary classroom is of critical importance (Duncan, 2011; IRA, 2010; U. S. Department of Education, 2002, 2007). Learning to read, arguably a student's most crucial academic achievement, is directly impacted by a teacher's understanding of reading development and reading pedagogy, which is perhaps the most challenging and complex endeavor for novice teachers.

Largely, teachers in elementary schools enter the profession through the gateway of a college or university-based teacher preparation program (Clark, Byrnes, & Sudweeks, 2015; IRA, 2003). There has been increased emphasis in these programs on the teaching of reading as preservice teachers are expected to learn theories of teaching reading and apply them to their practice. The process of training to become a teacher within a university-based preparation program typically entails a combination of pedagogical literacy methods courses alongside opportunities to apply learned pedagogical knowledge in apprenticeships/field placements under the tutelage of mentor teachers. Because quality teachers of reading are those who are "knowledgeable, strategic, adaptive, responsive, and reflective" (IRA, 2003), teacher preparation

programs have a responsibility to prepare teachers by providing them with opportunities to learn and develop these characteristics in their teaching (p. 1). Much time and effort have been devoted to identifying the essential components of teacher preparation programs that best prepare novice teachers to teach reading (IRA, 2003; 2010).

Characteristics of Effective Reading Programs in Teacher Education

In 2003, the International Reading Association convened the National Commission on Excellence in Elementary Teacher Preparation for Reading Instruction with the goal of identifying characteristics of excellent reading teacher preparation programs and the effectiveness of the graduates of these programs in terms of reading pedagogy and student achievement (IRA, 2010). Key findings from this study concluded that teachers who are prepared in effective reading preparation programs: demonstrate more confidence and experience greater success in their early years of teaching reading; are able to effectively create literacy-rich classroom environments; have greater efficacy in preparing students to read; and successfully engage students in reading (IRA, 2010). Findings from this study further concluded that the critical features of excellent reading teacher preparation programs consist of a comprehensive curriculum, apprenticeships (field experiences) under the tutelage of strong mentor teachers, a clear vision of high quality literacy instruction, resources (professional, financial, and intellectual) to support this vision, a responsive, individualized curriculum for teacher candidates, faculty autonomy to have the freedom to make revisions as needed, a learning community of stakeholders including program faculty, public school personnel, and students, and continuous progress monitoring for the purpose of program improvement (IRA, 2010).

The International Reading Association (2007) identified six essential features of effective reading teacher preparatory programs. First, the content of the literacy courses is based on

current research of strong reading pedagogy and engagement of students in reading. Second, the faculty that teach the literacy courses share a common vision of effective literacy implementation. Third, pre-service teachers take part in field experiences that foster the integration of theory and practice with knowledgeable mentor teachers. Fourth, diversity is instructed as an asset, not a hindrance, in the planning of reading instruction. Fifth, progress monitoring takes place regularly and guides program revisions and curriculum changes. Finally, effective reading teacher education programs maintain the expectation that great teachers have a genuine impact on students' achievement and on the future (IRA, 2007). An examination of these six elements acknowledges that there is not one specific way to best prepare teachers to teach reading. Therefore, much variation exists in the courses and field experiences offered in quality teacher preparatory programs.

Research on Effective Teacher Education

Despite the interest in reading teacher development, there have been relatively few longitudinal studies that investigate the influence made by teacher preparation programs on novice teachers' literacy teaching practices. Grisham (2000), Grossman et al. (2001), Kent, Giles and Hibberts (2013), and Scales et al. (2014) are notable exceptions. Using a constructivist paradigm, Grisham (2000) discussed the interplay between novice teachers' theoretical understandings of reading instruction and what was gleaned from their experiences in teacher education programs. Grossman et al. (2001) investigated ways in which beginning teachers conceptualized and utilized the concepts, strategies, and tools for teaching literacy from their teacher education programs, as well as how they continued to develop their understandings of literacy instruction over time. Kent, Giles, and Hibberts (2013) studied the evolution of novice teachers' self-efficacy in reading instruction, and Scales et al. (2014) looked at the direct impacts

made by teacher preparatory programs on pre-service teachers' literacy approaches. Each of these studies concluded that teacher preparatory coursework and field experiences have a direct impact on novice teachers' approaches to literacy instruction, as the beginning teachers in these studies were consistently observed teaching literacy in ways that represented what they had learning in their respective teacher education programs. Results from these studies also suggest that the teacher participants' literacy practices evolved over time due in part to opportunities to participate in professional development as well as in their students' responses to instruction (Grisham, 2000; Grossman et al., 2001; Kent, Giles, & Hibberts, 2013; Scales et al., 2014).

Though there are relatively few studies that have investigated the impact of teacher education programs on novice teachers' literacy pedagogy, there is a significant body of research on overall effective teacher preparation. In a recent review of the literature, Risko (2009) offered insights about some common themes across studies on effective teacher preparation. These common themes included helping pre-service teachers make connections between and among courses and course content, explicitly creating links between coursework and field experiences, collecting and analyzing student data for progress monitoring purposes, and instructing with clear guidance and coaching. Research clearly shows that the "learn through apprenticeship" approach is a significant component of teacher education, which is achieved through pre-service teachers' participation in various field placements. Commeryas, Reinking, Heuback, and Pagnucoo (1993) found that pre-service teachers identified their field experiences as the most relevant and significant factor the development of self-efficacy in the teaching of reading. Findings of Swafford, Chapman, Rhodes, and Kallus (1996) support the notion that field experiences are vital in teacher development, finding that authentic teaching allowed pre-service teachers opportunities to make decisions and reflect upon their literacy practices.

While studies demonstrate the important role of field-based experiences, the research on university-based classroom instruction also guides the practices of teacher education faculty. Risko's (2009) review of teacher education studies revealed three common characteristics across effective reading teacher preparation programs. The first characteristic was that the teacher educators modeled effective teaching practices through demonstrations. The second characteristic was the use of deliberate and explicit lesson planning that emphasized the teaching of explicit reading strategies. Finally, specific feedback on lesson plans and reflections was offered by teacher education faculty in the studies reviewed. In their study on the impact of reading methods courses on the development of reading teachers, Griffith et al. (2010) found that preservice teachers are not intuitively inclined to develop effective reading teacher characteristics independently, suggesting that coursework and field placements play a vital role in this development. Griffith et al. (2010) found that teachers were more likely to demonstrate qualities of excellent reading teachers, as identified by IRA (2010), when provided with scaffolding in the university classroom as well as in field experiences. These findings highlight the importance of planning and structuring teacher preparation courses with consideration of research and with pre-service teachers' needs in mind.

Building, improving, and maintaining high teacher quality is an essential component of achieving equity and universal proficiency in reading. There are several routes to this goal, and one is to ensure that all instruction is done by teachers who are well prepared in reading instruction (Samuels & Farstrup, 2011). Given that the field of reading instruction is not static due to the new understandings and approaches that are revealed through research, the second imperative is that teacher educators need to keep up with new research findings and train teachers to use new ideas in effective ways. Teacher education program faculty must

acknowledge and consider the evolving nature of reading development in order to design and deliver coursework and learning opportunities that produce teachers who are competent in their teaching of reading to students with diverse learning needs (Samuels & Farstrup, 2011).

UDL Instruction in Teacher Education Programs

Increasing diversity in schools requires teachers to be well versed in pedagogy that involves planning lessons designed to differentiate instruction for all students, including students who struggle and those who are advanced learners. It is important that pre-service teachers learn effective, efficient, and proactive approaches to lesson planning and implementation in order to meet the needs of all their students. Rather than planning and teaching, and then making needed modifications afterward, or *retrofitting*, to accommodate individual students' needs, it is beneficial for pre-service teachers to learn ways in which they can proactively address common learning barriers (Al-Azawei, Serenilli, & Lundqvist, K., 2015; Gargiulo & Metcalf, 2010; Hitchcock, Meyer, Rose, & Jackson, 2002; Williams, Evans, & King, 2012). Instructing pre-service teachers in methodology that guides them to differentiate instruction in order to teach, engage, and assess all learners is a critical component to pre-service teachers' success in teacher preparation programs (King, Williams, & Warren, 2010; Kurtts, Matthews, & Smallwood, 2008; McGuire-Schwartz & Arndt, 2007).

A promising approach for differentiating planning and instruction to address the needs of students in diverse classrooms is Universal Design for Learning (Al-Azawei, Serenilli, & Lundqvist, K., 2015; CAST, 2007; Meyer, Rose, & Gordon, 2014; Rose & Meyer, 2002; Rose, Meyer, & Hitchcock, 2005). UDL provides a framework for differentiating instruction through the integration of flexible options for teachers and their students across three major components: *representation* (multiple means of delivering content to be learned), *engagement* (multiple means

of engaging students in participating in learning activities), and *expression* (multiples ways in which students can demonstrate what they've learned). The aim of UDL principles is to guide teachers into designing and modifying instruction and environments for engagement in the learning process and access to the curriculum for all students. UDL is based on the concept that it is important to offer all students multiple ways to draw on individual strengths, minimize the impact of potential challenges, and learn content in effective ways (Spooner, Baker, Ahlgrim-Delzell, Browder, & Harris, 2007; Williams, Evans, & King, 2012).

Development of the Universal Design for Learning Framework

Ronald Mace, an architect and director of the Center for Universal Design at N.C. State, first coined the term "Universal Design" as a reference to the concept of making products and communication systems that were usable by more people at little or no extra cost (Bowe, 2000). Examples of such products and systems include closed captioning (for individuals who are hard of hearing and those who try to view media in loud surroundings), and ramps/curb cuts (for those who require wheelchairs, baby strollers, and other wheeled transportation) (McGuire, Scott, & Shaw, 2006). In 1984, David Rose and Ann Meyer co-founded the Center for Applied Special Technology (CAST) and began to evaluate and extend the principles of universal design to classroom teaching and learning (Rose & Meyer, 2000, 2002). They designed the Universal Design for Learning framework, which was created to guide educators to thoughtfully design inclusive instruction that proactively eliminates or reduces barriers to student success (CAST, 2007; Hitchcock, Meyer, Rose, & Jackson, 2005; Meyer, Rose, & Gordon, 2014; Rose & Meyer, 2002; Rose, Meyer, & Hitchcock, 2005).

Initially conceptualized as a means for providing students with disabilities access to the general education curriculum, UDL is now often understood and utilized as a general education

initiative that can be used to design instruction and learning opportunities for all students (Meyer, Rose, & Gordon, 2014). According to the following three UDL principles, decisions made around curriculum and instruction should provide multiple, varied, and flexible options for representation, expression, and engagement:

- Principle 1: Provide multiple means of representation of content: In layman's terms, the teacher designs instruction in a way that teaches content in multiple ways.
- Principle 2: Provide multiple means of action and expression: When allowing students to demonstrate their learning in more than one way, it allows for fairer assessment of student understanding.
- Principle 3: Provide multiple means of engagement: Motivation is key in gaining and maintaining student interest in learning. When employing this principle, teachers consider their students and how to best motivate them to attend to the content instruction.

Further examination of how UDL is put into place in the planning and implementation of lessons requires an understanding of the UDL guidelines (see Appendix D for UDL principles and guidelines). Applying UDL within a classroom in which there are various levels of student need involves the teacher defining appropriate goals that allow for multiple means of access to content, designing/developing multiple ways to assess student understanding, and evaluating any curriculum barriers that may exist. Teacher provision of *multiple means of representation* provides learners various ways of acquiring information. For example, in a reading lesson about visualizing, a teacher can explicitly teach the strategy, model it, have an anchor chart that depicts how and why readers visualize, and show a short video of a student discussing the use visualization. These multiple means of representation have the potential to make the content accessible to all students. Instruction that provides students with *multiple means of expression*

allows several alternatives for learners to demonstrate what they know and what they have learned. For example, if a teacher were to assess student understanding of the solar system, he/she may have students individually, in pairs, or groups create a poster, script a news report, build a model, and/or develop a video or media-based presentation on the topic. These methods provide viable alternatives for students who find it challenging to demonstrate knowledge through more traditional means (e.g., writing a paper). Teachers who create *multiple means of engagement* encourage motivation and affective learning by tapping into students' areas of interest and offering appropriate challenges. For example, a teacher may use current pop songs when introducing students to the concept of literary rhetorical devices, such as imagery or symbolism, in order to familiarize them with these concepts and engage them in the learning process (Jiminez, 2007).

CAST developed these three principles that are primarily based on Vygotsky's (1978) seminal work describing the Zone of Proximal Development, or the range in which effective learning takes place (Rose & Meyer, 2006). Vygotsky's work concludes that there are three things necessary for learning. First, one must recognize patterns in learned information. Second, a learner must be engaged by the task at hand. Finally, one must have strategies for engaging with and acting upon the perceived patterns (Vygotsky, 1978). The UDL principles of representation, expression, and engagement mirror Vygotsky's findings about the necessity of recognition, engagement, and strategies for acting upon new knowledge.

UDL was developed not as a single practice or method, but as a framework that encompasses existing instructional methods to enhance learning for students with diverse needs. The UDL framework purposes that teachers proactively modify the way they view the processes of teaching and learning, and how they initially approach lesson planning and instruction,

requiring teachers to anticipate how instructional activities and methods encompass multiple means of presentation, expression, and engagement. UDL complements many existing research-based instructional practices, such as the concept of differentiated instruction and the practices of reciprocal teaching, thematic teaching, and cooperative learning (see Table 2) (Coyne et al., 2006). Rather than viewing UDL as yet another approach that teachers must adopt, it is suggested that teachers first use the existing tools and strategies at their disposal to reinforce the UDL principles of multiple means of representation, expression, and engagement (Rose & Meyer, 2002).

Table 2

Instructional Approaches that Align with the Goals of the UDL Principles
(adapted from Coyne et al., 2006, and Jimenez, Graf, & Rose, 2007)

UDL Principles	Instructional Approach and Definition	Literature Source(s)
Multiple Means of Representation, Expression, and Engagement	*Differentiated Instruction* Definition: Modifying curriculum, instruction, and/or environment to meet individual student needs Differentiation of *Content*: What Students Learn Differentiation of *Process*: How Students Learn Differentiation of *Product*: How Students Demonstrate Their Knowledge	(Renzulli, 1988, 2008; Tomlinson, 1999, 2001a, 2001b, 2002, 2003, 2004, 2009)
Multiple Means of Expression and Engagement	*Cooperative Learning* Definition: Students work collaboratively in small groups, enabling them to utilize each other's strengths	(Wood, Algozzine, & Avett, 1993)
Multiple Means of Representation and Expression	*Reciprocal Teaching* Definition: Refers to an instructional activity in which students become the teacher in small group reading sessions. Teachers model, then help students learn to guide group discussions using comprehension strategies.	(Palinscar, 1986; Palinscar & Brown, 1985)

Multiple Means of Representation, Expression, and Engagement	*Thematic Teaching* Definition: Lessons are structured around specific themes that embed cross-curricular components.	(Eichinger & Downing, 2002)

Note: Each instructional approach may support UDL principles with varying degrees.

According to Rose & Meyer (2006), the UDL framework represents more than just effective teaching practices. It is a promising framework that has the potential to provide clarity on "what good teaching is" (Rose & Meyer, 2006) in order to support full access to curriculum and learning opportunities for all students (p. 35). As teacher education program faculties work to prepare pre-service teachers to design learning experiences for students with diverse needs, some teacher preparation programs have begun to include instruction on the utilization of the UDL framework in pre-service teacher lesson planning and implementation (Evans, Williams, King, & Metcalf, 2010).

UDL in Teacher Preparation Programs

Pre-service teachers are called upon to teach in classrooms with children who have highly diverse learning needs. Disparities in learning needs may be exhibited through students' cognition and/or affect. One way in which some teacher preparation programs have begun preparing general education teachers to meet a variety of student needs is through instruction on UDL (Vitelli, 2015). Given its focus on the learning needs of all students, UDL is frequently highlighted as an educational approach that facilitates access to the curriculum for all students (Coyne et al., 2006; Gargiulo & Metcalf, 2012; Jackson, 2005; Vitelli, 2015). Research indicates that classrooms in which teachers have used the UDL principles to design instruction yield promising learning outcomes for all students (Coyne et al., 2010; Dymond et al., 2006; Kortering, McClannon, & Braziel, 2008).

Results of initial studies in post-secondary settings indicated that, after receiving

instruction in UDL principles, pre-service teachers effectively planned lessons that incorporated elements of UDL (Spooner et al., 2007; Van Laarhoven, Munk, Lynch, Bosma, & Rouse, 2007). A review of the literature suggests that, while UDL incorporation in teacher planning and implementation has yielded positive results, the incorporation of UDL instruction in teacher education programs has been fairly slow on the uptake. Studies that have been conducted on UDL instruction in teacher education programs (Frey, Andres, McKeeman, & Lane, 2012; McGuire-Schwartz & Arndt, 2007; Van Laarhoven et al., 2006; Van Laarhoven, Munk, Lynch, Bosma, & Rouse, 2007; Vitelli, 2015; Wu, 2012) have been focused primarily on pre-service special education teachers, and the Frey et al. study (2012) was focused solely on pre-service secondary teachers. While these studies did not provide detail on the UDL content that was instructed or how it was presented in teacher education courses, some discussed barriers to UDL instruction in pre-service general education teacher programs. McGuire-Schwartz and Arndt (2007) discovered a barrier as their pre-service teacher participants were working with teacher mentors who lacked understanding and experience working with the UDL framework. In their study on the use of the UDL framework and technology inclusion, O'Brien, Aguinaga, and Mundorf (2009) found that there were some teacher educators who resisted the inclusion of UDL into their pre-service general education courses due to lack of understanding and/or willingness to modify their curriculum.

In the 2008 Higher Education Opportunity Act, the U.S. Department of Education offered the provision of funding to teacher preparation programs to encourage the inclusion of UDL in their curricula. A few years after this offer of funding, Vitelli (2015) conducted a study that examined the inclusion of UDL instruction in teacher education programs. Results from his study indicated that UDL instruction was primarily occurring at universities in which they received the

aforementioned funding from the Department of Education. Vitelli found that instruction of UDL in pre-service general education programs was taking place in at least 21 states. He also found that over 60% of faculty participants claimed that they provided instruction on—in the words of the Higher Education Opportunity Act—"strategies consistent with the principles of universal design for learning" (p. 3136), even if they were not specifically teaching UDL. Vitelli's 2015 study was the first to broadly examine the incorporation of UDL in pre-service teacher general education programs, potentially making it a foundation for future related research.

UDL and Literacy Instruction

The UDL framework was designed to help teachers design learning opportunities and environments that scaffold and provide multiple ways in which students can access information and knowledge, multiple ways in which students are able to approach strategic tasks, and multiple ways to engage and maintain engagement of students in learning (Al-Azawei, Serenilli, & Lundqvist, K., 2015; Meyer & Rose, 1998, 2005; Rose & Meyer, 2002). It is based in the belief that designing for diverse learners will result in better learning opportunities and outcomes for all individuals. Scaffolding is a core feature of UDL. In their seminal work on the concept of scaffolding, Wood, Bruner, and Ross (1976) defined scaffolding as being situated within a social context whereby the mentor "enables a child or novice to solve a problem, carry out a task, or achieve a goal that would be beyond his unassisted efforts" (p. 90). Scaffolding plays a vital role in literacy development, as teachers provide and slowly remove supports in reading to maximize students' learning.

The UDL framework represents a shift in how educators view learners' differences and emphasizes the need for curriculum and instruction that are adaptable to student needs rather than requiring students to adapt to inflexible curricula and practices (Meyer & Rose, 2005; Meo,

2008). The two most prevalent reasons for disparities in students' classroom reading success are lack of access to individualized reading instruction and differences in learning needs that are not addressed by the teacher (Dalton & Proctor, 2007). Reading instruction must be intentionally designed to align students' identified needs with effective instructional practices to achieve the desired learning goals (Dalton & Proctor, 2007; Meo, 2008). This begins by identifying the literacy needs of all students in a classroom and determining what boundaries exist that could impede their learning as well as what levels of scaffolding are required for each student to successfully meet learning goals (Narkon & Wells, 2013).

Reading lessons typically include three essential elements: (a) before reading, (b) during reading, and (c) after reading instruction (Pressley, 2002; Robb, 2008). Instruction that precedes student reading is purposed to build and support students' background knowledge and activate prior understandings. During effective reading instruction, teachers incorporate modeling and guide the students into practicing the lesson components and strategies. Instruction that takes place after reading incorporates students' independent work with the strategy or component they practiced during the guided portion of the lesson. The UDL principles of multiples means of representation, expression, and engagement may be incorporated interchangeably during each of these components of reading instruction. As teachers plan reading lessons that incorporate the UDL principles, four interrelated components must be considered: learning goals, instructional methods, materials, and assessment options (CAST, 2011).

Within the UDL framework, learning goals are differentiated in a way that acknowledges learner variability. Where a traditional curriculum would typically focus on content or performance goals, a UDL-based reading curriculum focuses its goals on developing "expert learners" in reading through scaffolding, gradual release of supports, and practice (CAST, 2011).

Instructional methods, generally defined as decisions made by teachers about how to teach content, are differentiated within the UDL framework to incorporate the principles of multiple means of representation, expression, and engagement. Instructional methods are adjusted based on progress monitoring of student understanding. Within the UDL framework, materials are meant to be variable and flexible based on the supports needed to help each individual student achieve. Representation of literacy content may be varied through multiple resources and media, which offer differing levels of support. Student expression of understanding and engagement may be enhanced through the provision of materials that offer choice and varied levels of support and challenge that pique interest and sustain motivation. In UDL-based reading lessons, the goal of assessment is to provide timely and accurate information about students' reading accuracy and comprehension. By broadening means of assessment to accommodate the variability of each student, barriers to accurate assessments of student knowledge may be removed. As teachers build UDL-based curricula and lessons that incorporate student-centered goals, instructional methods, materials, and assessments, they may refer to the UDL guidelines for additional guidance (see Appendix D). The UDL guidelines support the three UDL principles of multiple means of representation, expression, and engagement, and further delineate how teachers may make curriculum and instruction fully accessible.

The goal of the UDL framework is to assist teachers in the planning and implementing of instruction that is designed to meet the differentiated needs of students. Teachers who aspire to plan and teach in order to meet varied student needs may utilize the UDL framework to plan and teach lessons in which multiple means of representation, engagement, and expression are integrated.

The UDL Principle of Representation in Literacy Instruction

Learners differ in the ways that they perceive and comprehend new content. For example, those with sensory disabilities (e.g., blindness or deafness), learning disabilities (e.g., dyslexia), accelerated learning abilities, and cultural differences, may likely access content knowledge in different ways. When multiple methods are used to represent content, students are more easily able to make connections within and between concepts (CAST, 2011; Coyne et al., 2012; Meo, 2008; Rose & Meyer, 2006; Rose, Meyer, & Hitchcock, 2005). There is not one way of presenting content that will be impactful for all learners, which is why it is important for teachers to offer multiple means of access to the content being instructed.

One of the UDL guidelines under the principle of multiples means of representation is the allowance of multiple options for perception. To reduce barriers to learning and enhance it for all students, it is important to provide equal access to information through the provision of multiple modalities (taking the senses of hearing, seeing, and touching into consideration), along with providing ways in which content may be made adjustable by the learner, such as enlargeable text and audio enhancements. Examples of ways in which options for perception may be supported in reading lessons are through the use of a word wall for vocabulary and parts of speech, texts with larger fonts, audio books, and the use of an interactive whiteboard or overhead projector for the purpose of projecting text (Coyne et al., 2012; Dalton & Proctor, 2007).

Another UDL guideline that supports the principles of multiple means of representation is the provision of options for language, expression, and symbols. In every classroom, there is variability in students' linguistic knowledge and understanding. Vocabulary that may clarify understandings for some students may be difficult for other students to grasp. Even symbols such as the equals sign (=) may be challenging for some students to understand, as it represents the

need for balance on either side of the symbol. Graphs, charts, and tables that are meant to clarify understanding may be helpful to some students, while creating confusion for others. For this reason, it is important for teachers to provide visual supports that allow for clarity of content as well as accessibility (CAST, 2011). Instructional strategies that may be incorporated by teachers to support options for expression and symbols are: pre-teaching of vocabulary words, or frontloading knowledge; clarifying language structures that students will encounter in a text; and providing alternatives for text symbols (Dalton & Proctor, 2007; Meo, 2008).

The final UDL guideline that supports the principle of multiple means of representation is offering options for comprehension. The purpose of teaching comprehension strategies is not to make information accessible, but to teacher students how to transform that information into useable knowledge (CAST, 2011; Duke & Pearson, 2002; Duke, Pearson, Strachan, & Billman, 2011; Keene & Zimmerman, 2007; NRP, 2000). Students differ greatly in their skills in information processing and in their prior knowledge, through which new information is assimilated. UDL-based reading lessons are designed to have built-in scaffolds that are necessary to ensure access to the text for all students. In UDL-based reading lessons, the teacher will take time to activate students' prior knowledge, highlight essential information and big ideas in text, guide comprehension and information selection, and support the transfer of knowledge (CAST 2011; Rose & Meyer, 2005). This may be done through the use of graphic organizers such as KWL charts, concept maps, pre-teaching content that will be encountered in a text, and scaffolding as necessary for student comprehension of text.

The UDL Principle of Engagement in Literacy Instruction

All learning is filtered through affect (Seidel, Perencevich & Kett, 2005). Students differ markedly in the ways in which they become and remain engaged or motivated to learn. There are

a variety of factors that can influence individual affect, including culture, relevance of material being learned, background knowledge, and individual learning needs (Guthrie & Wigfield, 2000). While some learners are inspired and engaged by spontaneity, others shut down when new content is unexpectedly introduced. Some students prefer a strict routine, while others thrive in consistent change. Some students are more engaged when working independently, while others learn more effectively in small groups. There is not one means of engagement that will be optimal for all learners in all contexts (CAST, 2011; Coyne et al., 2012; Meo, 2008; Rose & Meyer, 2006; Rose, Meyer, & Hitchcock, 2005).

A UDL guideline that supports the principle of multiple means of engagement is that of options for recruiting interest. In order for students to learn new content, they need to engage with it. Information to which students do not attend becomes inaccessible, leaving the new content unlearned. Because students differ significantly in their interests and how they become engaged, it is necessary for teachers to have multiple ways in which they can recruit interest. One way to recruit and sustain student interest is to allow flexible timing and sequence of reading tasks. Another way is to provide students with the freedom to choose how they will demonstrate their learning. When activities are meaningful and relevant to students' lives, they are more encouraged to self-reflect and set attainable learning goals (Coyne et al., 2012; Dalton & Proctor, 2007).

Another guideline that supports the principles of multiple means of engagement is ensuring that reading tasks are designed to sustain student effort and persistence. When motivated to do so, many students can regulate their attention in order to sustain the effort required to learn new content. However, learners differ in their ability to self-regulate in this way. Differences are typically seen in students' capacity for self-regulation, their initial

motivation, and their distractibility (CAST, 2011). Therefore, it is important for teachers to support students by providing multiple ways in which students are encouraged to self-regulate and sustain motivation. One way in which teachers may do this in reading lessons to have the reading goals clearly displayed so that the students and teacher may refer to them throughout the lesson. Allowing students to work in collaboration may also help support to sustain effort and persistence. Finally, teacher feedback is very important, as students may use that to modify or recreate learning goals (Coyne et al., 2012; Narkon & Wells, 2013).

The third guideline for the principle of multiple means of engagement is the offering of options for self-regulation. While the prior guidelines focus somewhat on the environment of the classroom and how it can be used to support engagement, this guideline focuses more strongly on students' intrinsic ability to self-regulate emotions and motivation (CAST, 2011). The ability to self-regulate is not often easy for students, and students differ in their abilities to effectively modulate their own emotions and engagement. One way in which teachers can support self-regulation is reading lessons is through the provision of beginning and ending times, as many students thrive on predictability. Teachers may also provide students with checklists and rubrics to help them self-monitor learning and understandings. Finally, teachers may make use of peer mentors and models to provide feedback, guidance, and support.

The UDL Principle of Expression in Literacy Instruction

Students differ in ways of demonstrating what they know and understand. Some may be able to express themselves strongly through written text but not as strongly through oral language, while other students have opposite strengths. There is not one means of expression that is optimal for all learners. Because of this, the UDL principles of engagement encourages educators to allow multiple ways in which students can express their understandings.

Two interrelated UDL guidelines that support the principle of multiple means of expression are the provision of options for physical action and the provision for options for expressive skills and fluency (CAST, 2011). While a text offers limited means of physical interaction (page-turning or writing in provided spaces), there are also technologies available that support the options for physical action and for expressive skills and fluency (Rose, Meyer, & Hitchcock, 2006). During reading lessons, teachers may tap into these two UDL guidelines through use of alternatives in rate, timing, amplitude, and materials for reading tasks along with sensory-rich materials that are related to the text. There are many assistive technologies available that allow students to navigate through text by use of voice or technology. While one student may practice oral reading fluency by reading aloud with a teacher or a classmate, another student may use headphones and a voice recorder to practice reading fluency, expression, and accuracy.

Another guideline that supports the principle of multiple means of expression is the offering of options for executive functions. Executive functions help students overcome impulsive reactions to their environment and help them focus on long-terms goals, guiding students to plan strategies to help them meet those goals through progress monitoring and modification if needed. The UDL framework purposes to expand executive functioning through the scaffolding of lower level skills so that they require less executive processing and the scaffolding of higher level skills so that they are more effectively adapted and developed (CAST, 2011). To adhere to this guideline, teachers of reading may offer a variety of tools to support student memory, such as story starters, concepts maps, pocket charts, word walls, magnetic words, and anchor charts. The strategies of peer sharing and “stop and think” allow students the opportunity to tap into executive functioning by encouraging metacognition about the learning task at hand (Dalton & Proctor, 2007; Narkon & Wells, 2013).

Summary

The quality of teacher instruction is directly linked to student achievement in reading (Darling-Hammond, 2006, 2007, 2009, 2012; IRA, 2010). Because of this, many teacher education programs are working to develop or refine course design and field experiences which yield effective teachers of literacy (IRA, 2003, 2010; Kent, Giles, & Hibbert, 2013). Research in literacy pedagogy from the last several decades has informed many current instructional approaches, such as phonics work (Alexander & Fox, 2004; Glaser, 1978), miscue analysis that focuses on learners' interpretation of text (Goodman, 1965; Halliday, 1969), linking new content to students' schema (Allington, 1980; Lundebeg, 1987), cooperative learning (Alexander, 1996), and student-centered interest-based learning (Almasi, McKeown, & Beck, 1996; Ames, 1992; Schallert, Meyer, & Flower, 1995). Two major paradigm changes in approaches to current research that distinguish it from prior research are the recognized importance for literacy components to be taught interchangeably, with all elements in balance with each other, rather than each literacy component being instructed in isolation (Adams, 2011; Cunningham & Allington, 2015; Duke, Pearson, Strachan, & Billman, 2011; Kuhn, Groff, & Morrow, 2011; Paratore & McCormack, 2011; Pressley, 2002) and the recognized need for teachers to be able to develop literacy instruction that is designed to meet increasingly diverse student needs (Dennis, 2016; Guild, 2001; Mulroy & Eddinger, 2003; Reis et al., 2011; Subban, 2006).

Some teacher preparation programs have responded to the need to prepare teachers to plan instruction for students with vastly varying literacy needs by incorporating instruction on differentiation, which is a philosophy that informs approaches to lesson planning and implementation involving the modification of curricula, instruction, assessment, and materials (Renzulli, 1988; Robb, 2013; Tomlinson, 1999, 2001b, 2009). The Universal Design for

Learning framework (Meyer, Rose, & Gordon, 2014; Rose, Meyer, & Hitchcock, 2005) is an example of one such framework for differentiation that was developed to assist teachers in the planning and teaching of individualized instruction based on their understandings of the strengths and needs of their students.

There is an existing body of literature that supports the inclusion of instruction on differentiation in teacher preparation programs. However, relatively few studies have been conducted that investigate pre-service teachers' understandings of how to plan and implement differentiated literacy lessons based on students' strengths and needs. The purpose of this study was to collect more information in order to understand pre-service teachers' sense-making of UDL as a framework for differentiation to guide their planning and implementation of literacy lessons. While the conceptual framework for this study acknowledged that there may be other contributing factors to pre-service teachers' understandings and incorporation of the UDL framework in literacy, such as their prior coursework, prior field placements, and personal experiences in reading, an analysis of the impact of those factors was not conducted, though some of the data collected supported the contribution of those factors to pre-service teachers' sense-making of literacy and UDL. This study utilized what research informs us about differentiated literacy instruction and the use of the UDL framework to guide the planning and implementation of literacy instruction to describe the understandings and conceptualizations made by pre-service teacher participants during their student teaching semester.

Chapter Three: Methodology

In this chapter, I discuss the methods of the study and the justification for those choices. I also define the purpose of the study, the study approach, data sources and collection methods, data analysis methods, trustworthiness and credibility, ethical considerations, and researcher biases and assumptions.

Purpose and Research Questions

The purpose of this study was address specific research questions related to pre-service teachers' sense-making of UDL during the planning and teaching of literacy lessons. The questions and accompanying sub-questions for this study were aimed to glean the most pertinent information possible:

- How do elementary pre-service teachers conceptualize and make meaning of UDL as an approach to addressing learners' diverse needs in literacy?
- How do elementary pre-service teachers integrate literacy and UDL in the lesson planning process?
    - What guides their decisions in planning literacy lessons?
- How do elementary pre-service teachers integrate literacy and UDL in the implementation of their planned literacy lessons?
    - What guides their decisions during the implementation of literacy lessons?

In this study, I focused on describing the sense-making of UDL and literacy made by pre-service teacher participants who were completing their student teaching semester through an education program in Virginia.

Research Approach

In this study, I sought to describe the sense-making of UDL integration in the planning and implementation of literacy lessons by pre-service teachers. Therefore, this study was conducted with a postpositivist approach (Creswell, 2009; Guba & Lincoln, 1994; Lincoln & Guba, 1985). Postpositivism is a paradigmatic philosophy in which causes are thought to lead to effects or outcomes (Creswell, 2009). Therefore the problems investigated by postpositivists reflect the need to identify and evaluate the causes that influence outcomes. Understandings that arise through a postpositivist lens are based on careful observation and "measurement of the objective reality that exists 'out there' in the world" (Creswell, 2009, p. 7).

Postpositivists believe that while there is an existing reality, it can only be known imperfectly because of limitations in human understanding (Maxwell, 2004; Schwartz-Shea & Yanow, 2012). Postpositivists approach research deductively, with the underlying belief that truths can be derived from observable behaviors and experiences. However, postpositivists also believe that, while truths may be uncovered, theories cannot be fully proven.

This study was a descriptive study that investigated three cases within a cohort of pre-service teacher participants. Descriptive case studies are used to describe a phenomenon and the real-life context in which it happened (Creswell, 2009; Rossman & Rallis, 2012; Yin, 2014), offering evidence that describes conditions and situations that are occurring in the present (Creswell, 2009). Multiple case studies enable the researcher to explore similarities and differences within and between cases (Baxter & Jack, 2008; Yin, 2014). The use of multiple cases allows for more robust and reliable data collection and analysis (Baxter & Jack, 2008). In this multiple-case study, the presupposition was that pre-service teacher participants' experiences in education coursework and field placements informed their understandings of differentiation,

literacy instruction, and the use of UDL as a framework to design and teach literacy. Case studies were used to better understand the thought processes described by pre-service teachers as they planned and implemented literacy lessons during their student teaching experience.

Case study design was appropriate for this study because I sought to understand experiences in different and highly contextualized educational settings. According to Yin (2014), a case study design should be considered if: (a) the focus of the study is to answer "how" and "why" questions; (b) one cannot manipulate the behavior of study participants; (c) contextual conditions are relevant to the phenomenon being studied, and/or (d) there are not clear boundaries between the phenomenon and the context (Baxter & Jack, 2008). This study focused on the "how" and "why" of pre-service teacher participants' approaches to planning and teaching literacy lessons.

As defined by Miles, Huberman, and Saldana (2014), each case in a case study is a "phenomenon of some sort occurring in a bounded context" (p. 25). In this study, the three cases were pre-service teacher participants during their student teaching experience. Prior to the student teaching semester, each participant had unique experiences, as well as unique interpretations and constructions of meaning within those experiences, all of which were out of control of the researcher, further justifying the use of multiple cases in this study. Case studies allow the researcher to make observations and collect data in natural settings, which is one of the aims of this study (Yin, 2014). Additionally, this study was bound by time and place (Creswell, 2009), as it was conducted in the fall of 2017 in the contexts of school districts that were within 45 miles of the site university.

Sampling Design and Participant Selection

I conducted this study with pre-service teachers who were completing their final extended field placement of student teaching through a teacher education program at a public university located in southeastern Virginia. Graduates of this program earn PreK-6th grade teaching licensure. In the Fall 2017 cohort of student teachers from the site university, there were twenty-four pre-service teachers, 100% female, 96% of whom identified as Caucasian and 4% of whom identified as Hispanic.

Students within the university's teacher education program complete an extended twelve-week field placement (student teaching) after completion of coursework as a final step to earn their state teaching licensure. Of the twenty-four student teachers, ten expressed interest in being a participant in this study. In order to collect data about pre-service teachers' sense-making of UDL in the planning and teaching of literacy, it was necessary to ensure that each selected participant was entering the student teaching experience with at least a foundational understanding of UDL concepts as well as developmental literacy. While pre-service teachers' university coursework included instruction on both UDL and developmental literacy, it was necessary to inquire about their understandings of each of these before participant selection. Each potential participant completed a sampling screening survey that consisted of targeted questions to ascertain their understandings of UDL and developmental literacy (see Appendix C).

A purposive sampling design was utilized to select participants for this study (Miles, Huberman, & Saldana, 2014; Yin, 2003), as each participant needed to demonstrate at least basic levels of understanding of UDL and developmental literacy to be selected. Of the ten interested pre-service teachers, each indicated strong understandings of developmental literacy on the

sampling survey. Three indicated no understanding nor recognition of UDL, which took them out of consideration for participation in this study. Of the seven remaining possible participant candidates, three were assigned student teaching placements in the same school. Additionally, three were assigned first grade placements, two were assigned fifth grade placements, and two were assigned second grade placements. Because I felt it was important to conduct this study in various contexts, this led me to choose candidates who were placed in different school districts for student teaching, as well as in different grade levels.

In this study, the range of understandings exhibited by participants varied from a limited understanding of UDL to a deep understanding of UDL. Each participant indicated well-informed understandings of developmental literacy. Additionally, convenience sampling played a role (Miles, Huberman, & Saldana, 2014), as I sought to conduct research with participants who were each student teaching within an hour of the site university (see Figure 2 for the sampling design).

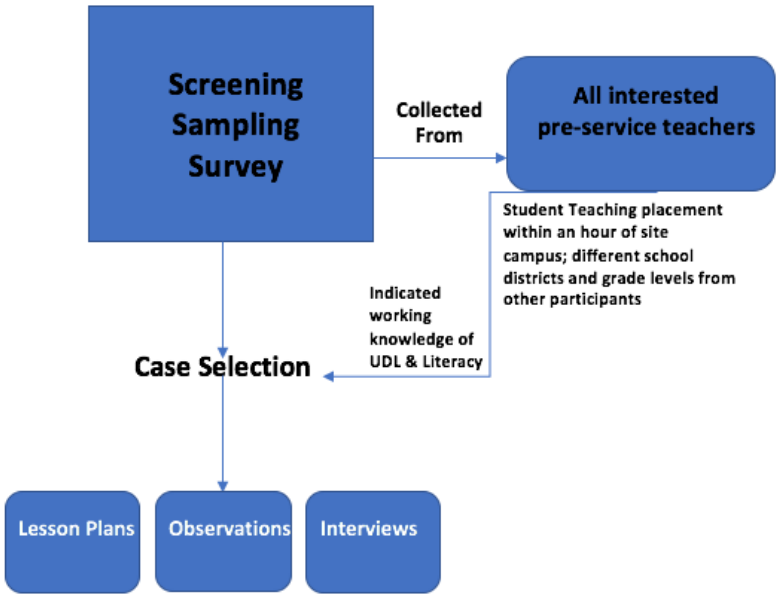

Figure 2. *The sampling design used for participant selection focused on choosing participants who indicated levels of understanding of developmental literacy and UDL, as well as those who were assigned student teaching placements in various school districts and grade levels.*

After analysis of the screening survey responses (see Appendix C), I selected "Hannah," "Maren,", and "Lori" as participants, due to the fact that they exhibited degrees of understanding of both developmental literacy and UDL. Additionally, the participants were assigned to student teaching placements in differing school districts and in different grade levels, all within sixty miles of the site campus.

Research Site and Access

The site university's student teaching program was selected for this study for three main reasons: (a) the elementary education program's instructional methods courses have included instruction on UDL for the last several years, including the expectation that student teachers will use UDL as a framework in planning and implementing lessons, but no data has been collected on pre-service teachers' understanding of UDL incorporation in coursework and field placements; (b) the coordinator of the elementary education program indicated that data was needed about student teachers' understandings of UDL to help inform programmatic decisions; and (c) as a university faculty member, I was able to gain access to observe and collect data in each of the field placement schools because of professional relationships between university faculty and the cooperating public school districts' administrators and staff members.

Data Sources and Data Collection

In this study, there were multiple data sources which enabled me to more deeply explore the questions in the study and to triangulate my data. Rossman and Rallis (2012) and Yin (2014) recommend using multiple sources of data to ensure reliability of reporting. Data sources for this study included lesson plans, direct observations, and interviews with participants. More specifically, I collected and analyzed written lesson plans, observed each participant teach three literacy-based lessons over the duration of the study, and conducted interviews with each

participant before the student teacher semester began and before and after the implementation of each observed lesson.

Pre-Service Teachers

The primary data source in this study was the pre-service teacher participants. I collected and analyzed their literacy lesson plans, observed them teach the planned lessons, and conducted interviews with them, pre- and post- lesson implementation. A clear process for how and when data is collected is a necessary component of good research design (Creswell, 2009). In qualitative case study research, common pieces of data upon which researcher rely are interviews, observations, and document analysis (Baxter & Jack, 2008; Creswell, 2009; Rossman & Rallis, 2012). A plan for how these data were collected is provided to ensure study credibility (see Table 3 for data collection frequencies).

Interviews. I conducted structured interviews at the beginning of the student teaching semester, as well as pre- and post- lesson interviews (see Appendix E for original interview protocols). Questions asked prior to the student teaching experience investigated participants' beliefs and understandings of literacy and of UDL. The pre-lesson implementation interviews included questions about decisions made during the lesson-planning process, specifically on modifications made to address student needs and participants' sense-making of why and how they planned instruction for the specific students in their classrooms. Post-lesson interviews included similar questions about ways in which the lesson was modified or adapted to increase access to learning for students, in addition to asking participants to reflect on specific instructional decisions made during the teaching. After completing the first post-teaching interview with each participant, I modified the interview questions to more tightly focus on the research questions (see Appendices H and I).

During the interviews with participants, I documented their responses. I also recorded anecdotal notes concerning each of the respective interviews. I audio-recorded the interviews for later transcription. I emailed the pre-lesson implementation interview questions to participants before each interview via my secure university electronic mail address so that participants were able to consider their responses beforehand (see Appendix H for pre-lesson implementation interview protocols). Post-lesson implementation interviews took place immediately after the closure of each observed lesson (see Appendix I for post-lesson implementation interview protocols).

Observations. I observed participants' literacy lessons three times each over the course of the student teaching semester. Observation times were determined by participants' schedule and preferences of days and times. In my observation field notes, I noted all relevant information, such as the time, setting, and a description of the context in which the lessons were taught. I took anecdotal notes as I observed and coded my lesson observations (see Appendix F for the lesson observation protocol). I observed each participant three times over the course of their student teaching experience. Observed literacy-based lessons took place in September, October, and November of 2017.

Documents. Participants each provided the three literacy-based lesson plans that accompanied the lessons that were observed. The plans were submitted to me via email at least 24 hours prior to each observation.

Table 3
Data Collection Methods

Source	**Collection Frequency**	**Notes**
Interviews with participants	3 times each during the fall of 2017 (September, October, November) Approximately 15 minutes to complete each pre-implementation interview; approximately	All interviews were conducted in person.

	20 minutes to complete each post-implementation interview	
Classroom observations	3 times per participant during the fall of 2017 (September, October, November)	Length of observations will be dependent on the participant.
Document analysis of lesson plans	Collected 3 times in the fall of 2017 (September, October, November)	Documented and coded

Instrumentation

Interview protocols. I sent the participants the interview protocol electronically before each interview (see Appendix H for the pre-implementation interview protocol). The questions were structured but respondents were encouraged to elaborate on their responses. As themes were revealed in the data over the duration of the study, I added question prompts that related to those themes. Participants were ensured that all responses were confidential, as stated on the informed consent forms (see Appendix J for the informed consent form).

Observation protocols. During each of the nine observations (three per participant), I documented what I observed during instruction. I also made notes concerning students' responses to instruction and to the context of the classroom during each observation. My original observation protocol focused on identifying the three principles of UDL as they were being implemented during the implementation of literacy lessons (see Appendix F). After the first round of observations, I modified the observation protocol (see Appendix L). This modification was made because I found that, during the first round of observations, the specificity of the observation protocol served as a hindrance. Modifying the protocol allowed me to script everything I observed through the lens of Before Lesson, During Lesson, and After Lesson, in order to capture all observations.

Document protocols. Participants sent their lesson plans to me at least 24 hours prior to the lesson observation. Lesson plans were sent via email and were stored in a password-protected file.

Data Analysis Methods

Data analysis helps the researcher go beyond initial thoughts and perceptions (Miles, Huberman, & Saldana, 2014). Through Barton and Hamilton's (2000) theoretical lens, which distinguishes literacy practices from literacy events, I was able to note the similarities and differences between participants' preparation to plan literacy lessons for students with varied academic needs (literacy practices) and how they implemented their planned lessons (literacy events). I also used the Miles and Huberman (1994) interactive model in this study for data analysis, which includes three steps: (a) data reduction; (b) data displays; and (c) conclusion drawing/verifying. I reduced the data by making analytical choices about the data, choices that determined what was relevant to include when reporting the study findings. I made use of data displays to visually represent information to make it understandable to the reader. I then drew conclusions and considered the meaning that was presented in the collected and analyzed data. These processes of data reduction, data displays, and conclusion drawing and verifying were iterative throughout the course of this study.

A typical trademark of case study research is the use of multiple data sources, as this enhances credibility (Yin, 2014). Several documents were collected from each of the data sources in this study. Each of the documents were open-coded. The benefit of using open coding is that the concepts emerge from raw data and are later grouped into conceptual categories, building a descriptive multi-dimensional framework for later analysis (Miles, Huberman, & Saldana, 2014).

Coding

To code the data, I used MaxQDA, a qualitative research software. I used the same coding scheme for the coding of observational data, interview data, and lesson plan document data (see Figure 3). The codes were inputted into MaxQDA through a cyclical process that included the reviewing of all data, making notes of themes that arose, then confirming/disconfirming that theme through data review. My start codes focused on participants' knowledge of student needs and inclusion of the UDL principles of representation, engagement, and expression in lesson planning and lesson implementation (see Appendix G). After applying my original codes to the first set of observations, lesson plans, and interviews, I found that I needed to broaden my categories, as my original codes specified several specific guidelines under each of the three UDL principles, making coding difficult and too specific to allow for common themes. As the study progressed, I modified my coding scheme, still looking for instructional planning and practices that aligned with UDL and participants' knowledge of student needs in literacy, but the broadening of these coding categories allowed common themes to be expressed through the data (see Figure 3 for coding scheme). As contextual factors became common factors across cases, I included those as codes as well (time, curricular resources, cooperating teacher, student behavior), which led me to recognize the important role played by the student teaching classroom and school context during the student teaching experience (see Appendix N for coding examples). Example excerpts for each of the respective codes can be found in Appendix O.

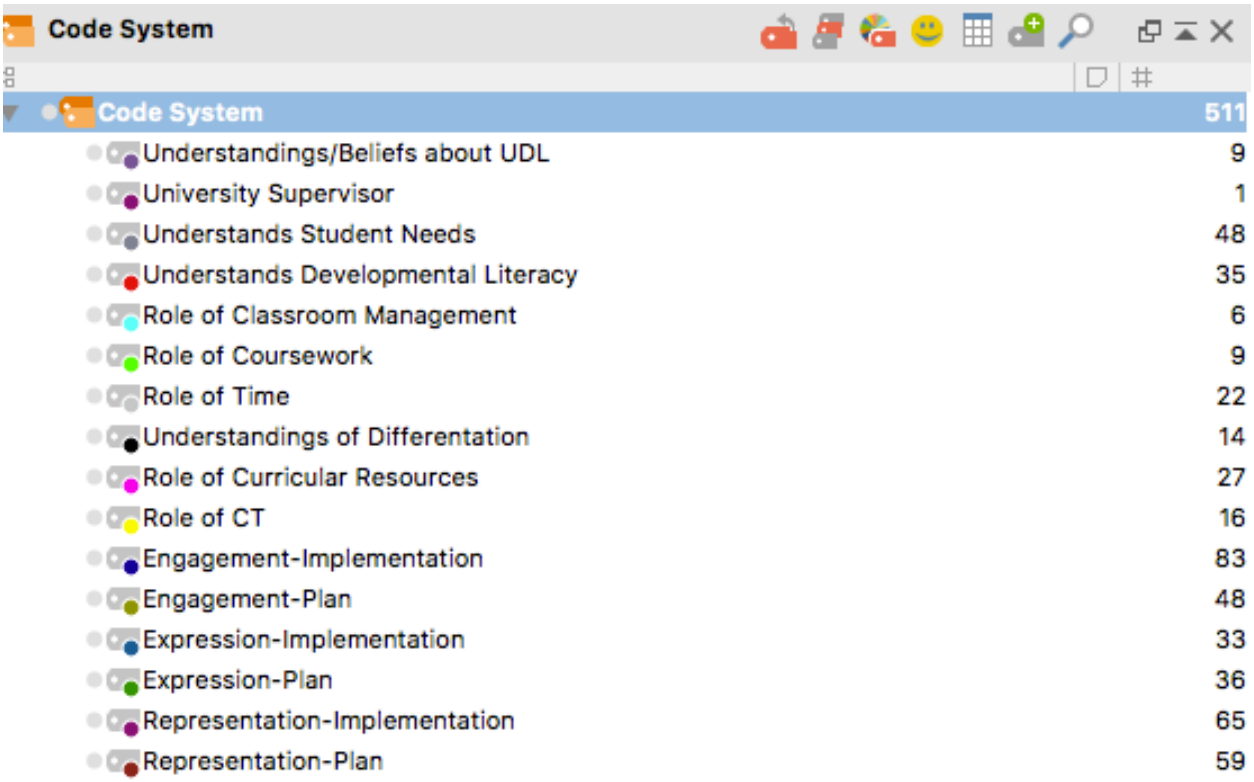

Figure 3**.** *Original start codes were focused on literacy and the UDL principles of representation, engagement, and expression. As themes arose, codes were added to represent those.*

Data Reduction

In the data reduction stage, I analyzed data to determine what data was necessary to relay in order to address the research questions. All decisions and reflections on the data were documented in my analytic log. I then aggregated the data into visual representations to present relevant findings and conclusions (Miles & Huberman, 1994; Miles, Huberman, & Saldana, 2014).

Data Display

Data display in qualitative research needs to be carefully designed so that the reader understands the intended message (Yin, 2014). I displayed the overall study findings for each of the respective cases in Chapter Four. Each of the individual data sources in this study were

displayed in different ways, through the presentation of observational and interview data, figures, or tables.

Researcher as Instrument

In this study, my role as a researcher was as instrument, meaning that all collected data were mediated through me. Therefore, it is important to address my role in this research, along with my beliefs, experiences, assumptions, and any factors that had potential to influence my findings and data analysis. I have been working in the field of education for approximately 20 years. I have been a classroom teacher, a literacy specialist, a trainer of other teaching professionals (both in-service and pre-service), supervisor of teachers–in-training, and a graduate student. I am currently an instructor at the site university and I have a strong investment in pre-service teachers' understandings of how to best meet the diverse literacy needs of their students. Each participant in this study was a former student of mine, and while I made it clear that, in the context of this study, I was a non-evaluative researcher and was not in any supervisory role, I did have a vested interest in their understandings of both literacy and of UDL. I believe wholeheartedly in the necessity of differentiation and in the necessity to put students' needs at the forefront of planning and teaching.

I have spent time reading and researching the topics of literacy and differentiation for years and I have been reading the research on UDL for approximately two years. Not only do I believe that pre-service teachers need to be trained in methods that guide them toward effectively differentiating instruction, but I have also taught in elementary schools in which there were very diverse literacy needs. I believe these experiences have influenced my desire to understand this topic more deeply. Effective models of literacy instruction and frameworks designed to help teachers plan differentiated lessons have been topical interests of mine for several years. My

interest in this area has sustained throughout my years as a public-school educator and reading specialist, through my Master's program of study, and through my doctoral coursework. This research interest has exposed me to a number of theoretical and practical approaches to the design of instruction to meet varied needs of students.

While I recognize that my exposure to the topics of differentiation and UDL may have the potential to bias my selection and interpretation of the data, I remained mindful of these potential biases. To avoid imposing generalizations from the literature and from my own beliefs onto the participants and the analyses, I engaged in several tasks that Erickson (1986) cited as important: (a) I regularly examined my own assumptions about the topics of differentiation and UDL; (b) I made conscious choices not to impose any assumptions onto this research; and (c). I sought to gain the perspectives of the participants by documenting participants' behaviors plus the sense-making that they ascribed to these behaviors.

Trustworthiness

In research, it is important that the researcher takes specific measures to ensure trustworthiness of the study. According to Rossman and Rallis (2012), the trustworthiness of qualitative research depends on three interrelated sets of standards. First, the study must be conducted according to norms for acceptable, competent research. Second, the student must be conducted in an ethical manner than honors participants. Third, the researcher must be sensitive to the politics surrounding the topic and the setting (Rossman & Rallis, 2012). Simply put, an unethical study is not a trustworthy study. Trustworthy research should pose questions that may be answered through empirical means, link research to theory, use appropriate methods to investigate the question(s), provide a coherent chain of reasoning, be replicable and

generalizable, and offer full disclosure to encourage professional critique (Rossman & Rallis, 2012).

Researchers are obligated to conduct research that has "intellectual honestly, the suppression of personal bias, careful collection, accurate reporting of data, and candid admission of the limits of the scientific reliablity of empirical studies" (Christians, 2005, p. 159). In qualitative case studies, a researcher must strive for credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985; Guba & Lincoln, 1994).

Study Credibility, Transferability, Dependability, and Confirmability

For a study to be useful, readers must trust in its integrity. It must read as credible to potential users—researchers, participants, practitioners, and other stakeholders (Rossman & Rallis, 2012). Credibility is confidence that, due to the data collected, the findings are real and believable (Lincoln & Guba, 1985). Triangulation of data is a useful way to achieve research credibility. For this, I had multiple data sources, allowing for data triangulation. I also had a peer reviewer who reviewed my data analysis and offered advice concerning areas where greater detail or greater clarity was needed.

Transferability is the applicability of research findings to other contexts (Miles, Huberman, & Saldana, 2014). For this study, I provided rich contextual descriptions through observational and interview data collection. This can allow future researchers to compare other contexts to the ones I described. According to Miles, Huberman, and Saldana (2014), "thick description" may allow readers to assess for potential transferability into their own research settings.

Dependability is demonstrated when research findings may be repeated in other studies (Cohen & Crabtree, 2006). In order to achieve dependability in a study, it is necessary that all

factors that impact the research have been addressed and that the procedures have been described in detail. My research design is clearly defined and can be replicated. All procedures are described and protocols for observations, lesson plan document analysis, and interviews are provided.

Confirmability refers to the degree to which study results can be confirmed or corroborated by others, requiring neutrality on the part of the researcher (Guba & Lincoln, 1994). For this purpose, I kept a reflexive journal in which I will took notes each time I interacted with or analyzed the data. I documented my thoughts and opinions in this reflexive journal. I also considered rival possibilities for any conclusions drawn, which led to the discussion of contextual factors in Chapter Four.

Ethical Considerations

In social science research, it is incumbent upon the researcher to take precautions in order to protect study participants. As part of the Institutional Review Board Process, participants in this study were informed of these measures of protection. Because this study was deemed exempt from requiring IRB approval (See Appendix P for IRB exemption notices from the site university and UVA), I was asked to instead provide participants with an informational letter of consent (see Appendix J). The following sections review the measures that were taken to protect study participants, discuss researcher bias and assumptions, and pose possible study limitations.

Confidentiality and Disclosure

As part of the IRB consent process, participants were informed of the measures in place to protect their rights and confidentiality. In this particular study, there is minimal risk to participants. However, protocols for any unforeseeable risks were addressed. In addition, participants were made aware of their ability to withdraw from the study at any time and ways in

which their personal information were going to be kept confidential and secure. Each participant was assigned a pseudonym that was used in data collection and in this study report. Participants were informed of the amount of information from their lesson plans, observations, and interviews that were going to be disclosed in this report (see Appendix J).

Summary

This descriptive multi-case study explored pre-service teachers' sense-making of UDL to help guide design the planning and implementation of literacy lessons for students with diverse needs. Evidence gathered included observations of literacy lessons, interviews with pre-service teacher participants, and analysis of participants' literacy lesson plans. My research processes and data analysis were documented through anecdotal memos and journal entries. Findings from this study will be shared with teacher education professionals, university stakeholders, and members of my Capstone committee.

Chapter Four: Findings

In this capstone project, I explored pre-service teachers' sense-making of Universal Design for Learning as framework for planning and implementing literacy lessons. I intended for the findings from this multi-case study to provide the site university's education program stakeholders with relevant information about pre-service teachers' understandings and applications of UDL in literacy lessons during their final extended field placement, student teaching. The study was guided by the following research questions:

1. How do elementary pre-service teachers conceptualize and make meaning of UDL as an approach to addressing learners' diverse needs in literacy?
2. How do elementary pre-service teachers integrate UDL and literacy in the lesson planning process?
    i. What guides their decisions in the planning of literacy lessons?
3. How do elementary pre-service teachers integrate UDL and literacy in the implementation of their planned literacy lessons?
    i. What guides their decisions during the implementation of literacy lessons?

In this chapter, I present the findings related to each research question, demonstrated through quotes, vignettes, images, and document data. First, I describe the participants, focusing on their background knowledge as related to literacy and UDL, as collected from data sources. I then describe the individual contexts of their student teaching field placements. Next, I address each research question, presenting case-by-case findings in the form of excerpts, visual images, quotes, and vignettes. Last, I synthesize the findings into five cross-cutting themes that outline the common generalizations across the participants, settings, and experiences. The findings presented in this chapter are a result of rigorous and iterative data collection and analysis. This

chapter provides answers to the research questions, presented through discussions of each case, supported by data, and aligned with the theoretical framework of literacy practices and literacy events. Because several of the findings related directly to the contexts of the field placements, this section begins with a discussion of each participant and the contexts of the schools and classrooms in which they student taught.

These findings represent the application of Barton and Hamilton's (2000) work in this theoretical framework, which differentiates literacy *events*, or events that are observable, from literacy *practices*, which stem from teachers' personal beliefs about implementation of content, to the findings. Observation data that was collected and analyzed led to findings concerning participants' literacy *events*, or the lessons in which I was able to see each employ strategies and interact with students. The pre- and post-implementation interviews delved into participants' thoughts on their literacy *practices*. Barton and Hamilton (2000) inform us that teachers' practices inform their events which then help them confirm or modify their approach to practices.

Descriptions of Participants and Field Placement Contexts

In this section, a description of each participant is provided, as well as contextual information about each of their student teaching placements.

Hannah. Hannah is a 22-year-old Caucasian female from Virginia. She described her upbringing as "traditional and supportive" and said that she is very close with her family (personal communication, September 1, 2017). She attended public school from kindergarten through twelfth grade in a central Virginian suburban district. Hannah stated that, overall, she had positive school experiences while growing up, except for some of her high school classes, which were "lecture and textbook-based and not at all kinesthetic." As a young reader, she

struggled with comprehension and was pulled out regularly to work with a reading specialist. She stated that she believes this was beneficial as she no longer struggles with reading comprehension. Upon completion of her final field placement (student teaching), Hannah plans to go straight into the elementary teaching field and hopes to pursue a Masters degree in Physical Education after a few years of teaching, "because I enjoy teaching movement to kids and I think it's an important part to learning that sometimes isn't taught" (personal communication, September 1, 2017).

Hannah's placement for student teaching was in a first-grade placement in a city district located in central Virginia. The school, which is small and houses 200 students in grades K-5, is a quaint brick building and is deemed a "school of innovation." When I inquired about what was meant by "school of innovation," I was informed that it means that arts and theater are infused into each classroom on a regular basis (personal communication, September 27, 2017). Eighty-two percent of the students at the school qualify for free or reduced lunch. Additionally, the school receives Title 1 funding for resources and instructional support. Hannah's placement classroom was diverse, consisting of 19 students, 12 of whom were African American, 3 Hispanic, and 4 Caucasian.

In Hannah's placement classroom, literacy was instructed between 8:30-10:00am, consisting of 15 minutes of whole-group morning work, then moving into 75 minutes in which small leveled reading groups rotated between working for 15 minutes with the teacher to stations in which they worked on Chromebooks, wrote independently in journals, or read to themselves. Each observation of Hannah took place from 8:30-10:00am and during each, she led the 15 minutes of whole-group morning work and then led each rotating small guided reading group.

Maren. Maren is a 21-year-old Caucasian female. She attended public school in an affluent suburb in central Virginia from kindergarten through twelfth grade. She described her upbringing as "idyllic" and stated that her school experiences were all positive, which is what inspired her to go into teaching (personal communication, September 1, 2017). As a child, Maren was considered a "gifted reader" and was placed in advanced reading classes from early on. She stated, "I know it's corny, but I really want to be that teacher that inspires students. I want to be a mentor and an encourager" (personal communication, September 1, 2017). She is unsure about whether or not she intends to pursue a graduate degree, and stated that she waivers between going straight into graduate school or going straight into teaching, acknowledging that she thinks she will likely end up going straight into teaching because she "just can't wait."

For her student teaching placement, Maren was placed in a fifth-grade classroom in a school that was in the same district in which she was raised. The school building was recently refurbished and houses grades K-5. There are 377 students that attend the school, 24% of whom qualify for free or reduced lunch. Eighty-six percent of the students that attend the school are identified as Caucasian and twelve percent are identified as African American. The school is not deemed a Title 1 school, and therefore, does not receive state-level Title 1 funding. Maren's placement classroom consisted of 23 students, 20 Caucasian, and 3 African American students. Throughout the duration of this study, all teachers in Maren's placement school were receiving mandatory district intensive training to become "Google certified" so that this school could be deemed a "Google certified school." Upon inquiry, I was informed that this distinction means that all teachers will utilize Google Classroom in their teaching of every subject, so that most of what students will learn will be accessible on their classroom's Google Classroom page (personal communication, September 27, 2017).

The literacy block in Maren's class took place from 1:00-1:45. During this time, all fifth-grade students at the school (three classes) were divided up into three groups for reading and writing work. Though Maren said that the fifth-grade teachers used reading data to determine groupings (personal communication, September 27, 2017), this meant that each reading group was large, ranging from 12 to 18 students. The group that Maren instructed was deemed the "high" group and all were provided with the same grade-level texts during their literacy block. Each observation of Maren occurred from 1:00-1:45pm.

Lori. Lori is a 22-year-old Caucasian female. She grew up and attended public school in a "middle class" town in the eastern part of Virginia (personal communication, September 1, 2017). Lori stated that her school experiences were all positive and that she always worked hard to achieve strong grades. "I even got A's in my AP and dual enrollment classes in high school. My grades were really important to me" (personal communication, September 1, 2017). As a young student, she was a voracious reader, taking part in activities such as her school's Reading Olympic Team. Lori stated that, as she got older, reading became much more of a chore. Because she found it less enjoyable, she said that she had to approach reading through a new lens, focusing on the learning she would get from reading rather than her enjoyment of the text. She plans to pursue a graduate degree in special education immediately after student teaching, stating, "I really hope to teach in an inclusion class and getting a degree in special education would help me have the tools I need to be successful."

For her student teaching semester, Lori was placed in a second-grade placement in an elementary school located in a rural district in southern Virginia. The school houses 419 students in grades K-5, with 56% qualifying for free or reduced lunch. Seventy percent of the enrolled students are identified as Caucasian, and 28% of the students are identified as African American.

The school is deemed a Title 1 school and receives funding for instructional support. Lori's placement classroom consisted of 21 students, 15 Caucasian, 4 African American, and 2 Hispanic students. Three students in this class had IEPs for various learning needs and most of the students received free or reduced lunch (personal communication, September 20, 2017). The classroom had an interactive whiteboard, which Lori later told me was rarely utilized. A textbook series entitled *Journeys* was used with all students for literacy instruction, school-wide (personal communication, September 20, 2017).

The literacy block in Lori's class took place from 9:30-10:30. Because each child was expected to read from the same grade-level textbook, there were not rotating reading groups or stations. Each observation of Lori took place from 9:30-10:30am. During each observation, Lori instructed a whole-group literacy textbook-based lesson.

In the previous section, I provided information about the participants and the contexts of the classrooms in which they completed their student teaching experiences, which played a large role in the answers to the research questions. In the following section, I provide evidence from the analyzed data that illustrates how I generated my findings and that addresses each research question presented in this study.

Research Question One

My first research question was: How do elementary pre-service teachers conceptualize and make meaning of UDL as an approach to addressing learners' diverse needs in literacy? This question is guided by the belief that investigating participants' overall understandings of developmental literacy is necessary before inquiring about how those understandings were integrated with UDL in the approach to planning and teaching literacy lessons. Consequently, I answer this question first by providing a brief description of each participant's self-described

understandings related to developmental literacy. Following this, I answer the second part of the question, addressing how they extract meaning about UDL within the context of that developmental literacy.

Literacy Understandings That Informed Literacy Practices.

Hannah. In Hannah's screening survey responses, she indicated that she had foundational understandings of developmental literacy as well as the belief that it is necessary to design literacy instruction that is student-oriented. When asked to document what she currently knew/believed about developmental literacy, she responded:

> Literacy instruction is one of the most critical elements to a child's success in school and life. Children need literacy instruction so they can be able to read, comprehend, write, communicate, and everything else. In literacy instruction, a teacher needs to be able to determine where a child's reading level is at and base that on the other elements of instruction such as the type of book. Literacy instruction involves a variety of aspects such as guided reading, shared reading, interactive and shared writing, read-alouds, sight word practice, word levels like letter name, and phonemic/phonological awareness. Guided reading instruction is small group work where the teacher works with specific students that are usually on the same reading level and constantly models with them to help them become better readers. Shared reading is when the whole class is involved and the teacher usually focuses on one main element of comprehension such as making connections. There is so much involved with literacy instruction, but this is just a snip bit (personal communication, August 6, 2017).

In her response, Hannah exhibited understandings concerning the different instructional approaches to reading, such as guided and shared, as well as the need to know "where a child's reading level is at" in order to teach them. Having working knowledge concerning different approaches to the teaching of reading and understanding students' developmental levels are precursors to effective literacy instruction, according to Cunningham and Allington (2015) and Adams (2011). Pre-teaching interview data collected throughout the duration of the study demonstrated that Hannah kept students' developmental literacy levels in mind when planning lessons as she tried to tailor her instruction to meet their needs.

When interviewing Hannah before the teaching of her first observed lesson on September 27, 2017, she stated:

> I made sure to differentiate the reading levels so that all students could further their reading abilities. I made sure to really focus on incorporating echo, choral, and whisper reads for certain groups to better understand the text. I also made sure to incorporate phonics with the lower groups to help address their putting sounds together to form words they are reading.

She also stated that she built in time to preview the text and introduce a comprehension strategy "such as predicting or questioning" in the lesson planning process (personal communication, September 27, 2017). The teaching of strategies to support text comprehension is an approach that is well-supported in research as being an effective way to support developing readers (Duke & Pearson, 2002; Duke, Pearson, Strachan, & Billman, 2011; Keene & Zimmerman, 2007).

When interviewed before her second observed lesson on October 25, 2017, Hannah stated that she had completed assessing all of the students with running records "so some of the groups have changed because I'm grouping them based on the running record data." She stated that, in her lesson plan, she denoted that some students would be "whisper reading" while others would be silent reading and that she planned to use some of the literacy time to review the importance of self-correcting, rereading for meaning, and using picture cues to help support text understanding (personal communication, October 25, 2017). During our interview before her third observed lesson on November 20, 2017, Hannah stated:

> All of the students are in the same reading groups and are reading books on their levels. Some students will receive different word work opportunities based on their DSA [Developmental Spelling Analysis] scores since we just finished giving the DSA. I will be spending more time with the lower reading groups so they get more practice to boost their reading skills. My higher groups are on chapter books and so I have them answering comprehension questions on paper throughout their reading time (personal communication, November 20, 2017).

It was evident through her screening interview, as well as collected pre-teaching interview data, that Hannah understood the importance of planning literacy lessons that were developed based on students' needs, as demonstrated by the assessments she had administered (e.g., running records and DSA). The indication of this understanding lent additional credence to her foundational knowledge of developmental literacy that informed her approach to literacy practices (Barton & Hamilton, 2000). In other words, Hannah's explanations made clear that she believed that students' literacy *needs*, as determined by assessment data, informed her beliefs in literacy *practices*, and that she intended to align her lesson literacy *events* with these practices.

Maren. In Maren's screening survey, her responses indicated that she understood developmental literacy, but her responses did not indicate the same depth of understandings as were demonstrated by Hannah. In her August 6, 2017 screening survey response about her current beliefs and understandings of developmental literacy, Maren stated:

> In order to have successful literacy instruction, I know that there are numerous important components. A major piece of literacy instruction is having a system that focuses on all areas of literacy, such as phonemic awareness, vocabulary expansion, fluency, writing skills, and understanding of what is being written and read. Literacy instruction should be scaffolded based on a child's ability, not only their grade level or age, since every child learns differently.

While this response indicated that Maren demonstrated necessary understandings of the different components of literacy instruction (Cunningham & Allington, 2015; Kuhn, Groff, & Morrow, 2011; Paratore & McCormack, 2011), I was unsure about her depth of understanding of the "scaffolding" that she mentioned because of the lack of elaboration. Because of this, I inquired about her approach to meeting students' needs in her lesson plans before the teaching of each observed lesson. In my interview with her prior to the teaching of her first observed lesson, on September 27, 2017, she stated, "During my planning, I considered what level my kids were on and what prior experience that they needed to have compared to what they actually have in order

to be successful in this lesson." Her response demonstrated an understanding of the importance of recognizing that her students were at different levels of literacy (Connor et al., 2009) and that each had different prior knowledge through experiences (Kendeou & van den Broek, 2007), thereby necessitating considerations of how to meet their needs during planning. Maren also stated that her students seemed familiar with the strategies of predicting, visualizing, and summarizing, and that she planned to teach her literacy lessons with the incorporation of those in order to deepen student understanding and use of them (personal communication, September 27, 2017).

During her post-teaching interview on September 27, 2017, Maren expressed frustration about the literacy groupings that were made by her cooperating teacher and the other fifth grade teachers at her placement school. She stated that her ability to address development literacy needs was impacted due to student reading groups that were formed by the teachers:

> According to how they've been tested, the kids are put into these large reading groups. It's almost a whole class. There are 4 groups but there are 4 teachers so it's basically a whole class. I think it would work better group-wise if they were all in the same class because then groups would be 4-5 people instead of 15-16.

This frustration was expressed before and after each of her observed literacy lessons during the course of the study. Maren's frustration concerning the large group numbers for guided reading demonstrated that she understood the value of small-group, targeted instruction. She felt that the factor of large predetermined groups inhibited her use of that information to plan instruction based on developmental literacy needs. This indicated that, while Maren's understanding of the importance of targeting students' literacy *needs* informed her approach to literacy *practices* (Barton & Hamilton, 2000), the literacy *events* that she planned during her student teaching experience conflicted with her personal literacy practices, due to the context of the large student groupings. In other words, Maren's explanations made clear that she believed that students'

needs inform her literacy *practices* and that her planned literacy *events* did not align with her literacy practices due to the factor of large student groupings.

Lori. Lori exhibited foundational understandings of developmental literacy, both through stating different ways in which to teach reading, such as through guided reading, shared reading, and read-alouds, as well as in her statements concerning the importance of teaching students with materials that they are able to access. In her response to the August 6, 2017 screen survey question concerning her understandings and beliefs about developmental literacy, Lori responded:

> Literacy instruction is important at all levels of learning, not just the beginning stages. Though it is vital that the early years of education should incorporate a vast amount of literacy instruction and resources, it is vital at all ages and levels. There should be frequent conferencing to ensure that students comprehend and progress at a steady pace. Guided reading, reading aloud, and shared reading are all ways to ensure that students are receiving the correct literacy instruction based on their needs. Supplying students with resources that they can use at their leisure, giving multiple means of representation, and conferencing with the students to make sure that they are comfortable are all ways to ensure that the literacy instruction is effective and appropriate.

In her response, Lori demonstrated the understanding that students all have varied needs in literacy. Her focus on conferencing indicated that she deemed it valuable to have one-on-one conversations with students in order to better be able to target their needs in the teaching of literacy. The act of conferencing is strongly supported by Pressley (2002), who found that metacognition plays a vital role in reading comprehension, and who therefore encouraged teachers to engage students in discussions to give them opportunities to discuss their thinking.

Lori's statements about the context of teaching literacy in her student teaching placement indicated strong understandings of developmental literacy in her recognition that literacy develops differently with each child. In her pre-teaching interviews, Lori expressed her desire to teach literacy in a way that met students' needs, stating, "I know it's best to teach with leveled

books so I can work with kids on their instructional level" (personal communication, September 20, 2017) and "It's frustrating to me that all of the students are only allowed to read out of the same textbook. A lot of them aren't able to read it because it's too high and some of them are bored because they read at higher levels that then textbook" (personal communication, October 27, 2017). Lori regularly stated that she felt limited because the classroom teacher expected for literacy to always be taught as a whole-group and with each child reading out of the same grade level *Journeys* reading textbooks (personal communication, October 27, 2017). She stated:

> I am working harder to find ways to differentiate since everything is taught as a whole group. There is also a pretty big gap between the higher-level readers and the lower-level readers, which means making reading groups is a hard task to tackle when you're teaching everyone at the same time. When I plan my lessons, I try to consider my students' abilities and their interactions with everyone around them and work from there.

The data indicated that Lori's prior understandings of developmental literacy and her recognition of students' literacy *needs* informed her *literacy practices* (Barton & Hamilton, 2000). However, similar to Maren, Lori was unable to plan literacy *events* that aligned with her literacy *practices* due to the mandated school literacy curricular resources. In other words, Lori conceptualized that student *needs* informed her personal literacy *practices*, but expressed that she felt limited in her ability to align her planned literacy *events* with her *practices* due to the mandatory literacy textbook series.

Overall, I found that Hannah, Maren, and Lori began their student teaching experiences with solid foundational understandings of developmental literacy through their shared recognition of the importance of teaching students with materials that are targeted to their strengths and needs, which demonstrated. Each participant expressed the belief that students' literacy *needs* as well as their personal understandings of development literacy informed their literacy *practices*. Over the course of the study, participants found that there was often a struggle

in their implementation of literacy *events* that aligned with their *practices* due to factors such as curricular resources and pre-determined student groupings.

Because each participant exhibited strong understandings of developmental literacy, I was then able to focus on their sense-making of UDL as a framework for planning and teaching literacy. It was important to glean participants' sense-making of literacy before investigating their sense-making of UDL as a framework for literacy instruction. In the previous section, I presented participants' conceptions of literacy practices. In the following section, I present the second portion of the response, related to the participants' conceptions of UDL.

Participants' Understandings of UDL.

Hannah. Hannah's interview responses regularly indicated that many of her literacy events were not necessarily planned with UDL in mind, though, on a couple of occasions, multiple means of representation, engagement, and/or expression were integrated into her lessons. When asked about her understandings of UDL and her beliefs about the purpose of it in her screening survey, Hannah stated:

> I know that UDL stands for Universal Design for Learning and that it was formed to help teachers differentiate in the classroom. Students learn differently from each other, so we [teachers] need to be able to meet their needs. I know the principles are representation, engagement, and action and expression. I think representation means giving students a lot of different tools and ways to learn what's being taught. Representation is kind of like the modeling piece. Engagement means letting the students be really involved in what they're learning so they don't lose interest. And the last one [action/expression] is that students are able to learn material in lots of different ways to show what they know" (personal communication, August 6, 2017).

During the three observations conducted of Hannah's literacy lessons, she occasionally incorporated lesson elements that were consistent with the UDL principle of representation, through the use of a variety of visual supports, anchor charts, and explicit modeling. While she included some lesson elements that aligned with the principle of engagement, such as small-

group collaborative work and guiding students in the creation of personal reading goals, most of the observed lesson elements that focused on engagement were reactionary, in response to student behavior. The inclusion of lesson elements that demonstrated multiple means of expression were rarely present in Hannah's lessons. In other words, I rarely observed her assessing student knowledge or giving students opportunities to share their understandings.

When asked after her second observed lesson about her consideration of UDL principles when thinking about literacy lessons, Hannah stated, "I mean, some of the stuff just means that it's good teaching, like sharing visuals and writing things for the students when they need it. So, I'm not sitting back thinking, 'I need to make sure I use UDL.' I'm thinking, 'How can I help my students really understand this?' And it just happens that what I end up doing usually would be considered a UDL approach" (personal communication, October 25, 2017). This response indicated a lack of full understanding of the complexity of UDL, as she attributed common effective teaching approaches with the UDL framework without consideration of the inclusion of multiple means.

In Hannah's final interview, she stated that her views and understandings of UDL did not change over the course of her student teaching experience (personal communication, December 4, 2017). When asked to define UDL in her own words, she stated:

> UDL is a great strategy for teachers to use to differentiate their reading curriculum. At times, students become bored or uninterested in a lesson if the teacher doesn't approach it in different ways. Teachers need to model to represent content, engage their learners, and have them express the lesson in more ways than one.

This statement made it clear that Hannah saw UDL as a strategy, not as a framework that could be used to design instruction to meet students' needs. Because her definition of UDL during her final interview was similar to the definition she provided in her original screening survey, I found that her understandings of UDL were not likely impacted in any way during her

student teaching experience. In other words, Hannah's literacy *practices* were not shaped with the UDL principles in mind, but on a few occasions, her literacy *events* consisted of components that aligned with the UDL framework. Hannah surmised after her final observed lesson, "I guess I just think good teaching is good teaching. If it happens to be a UDL approach then that's great but that's not really how I thought about my lessons. I just wanted to do whatever I could so that my students would understand what I taught" (personal communication, November 20, 2017). In stating this, Hannah indicated the understanding that student needs drove her planning and teaching, but her response indicated a surface-level understanding of UDL. While some of her observed literacy events contained elements that aligned with the UDL principles, it became clear through her interview responses that this alignment was coincidental and not proactively planned or implemented.

Maren. Of the three participants, Maren indicated the lowest level of understanding of UDL at the beginning of her student teaching semester. When asked about her understandings of UDL and the UDL principles in her screening survey, Maren stated:

> UDL stands for Universal Design for Learning, I believe. I think it's all about accessing and focusing on different parts of the brain to help children learn and understand the material better, and in multiple ways. But I'm not sure of what each specific principle means" (personal communication, August 6, 2017).

While Maren demonstrated limited initial understandings about the principles of UDL, some of the components that she incorporated into her observed literacy lessons were consistent with methods supported through UDL research (e.g., provision of multiple visual supports, allowance of student choice, and self-regulation techniques). During her final interview at the conclusion of the study, when asked to define UDL in her own words, Maren stated, "I would define UDL as being able to teach and instruct to reach all learners. Making sure to get their attention and keep it, providing examples of what you're teaching as you're teaching it, and

providing them [students] with multiple ways of showing what they've learned" (personal communication, December 4, 2017). She was quick to add:

> I really wasn't familiar with UDL at the beginning of the [student teaching] semester. I'd heard of it in classes but I didn't really remember all of the details of it or how to use it. After student teaching, I really understand it a lot more—what it is and why it's important to use it. At [site university], I really learned a lot about how to teach reading and literacy but this semester really made me think about what I could do to help students really get what I was teaching, and I think that's why I understand UDL more now.

Of the three study participants, Maren exhibited the least amount of understanding of UDL and how to use the UDL principles in the planning and teaching of lessons at the onset of her student teaching experience. The data collected and analyzed during the course of this study indicated that Maren made attempts to plan and implement lesson components that aligned with the UDL principles, though her sense-making of UDL as a proactive framework for planning and implementing literacy lessons was not evident.

Lori. Lori indicated some working knowledge of UDL and the principles at the beginning of her student teaching semester. When asked about her understandings of UDL and the UDL principles in her screening survey, Lori responded:

> Universal Design for Learning is a framework that allows students to flourish in their own ways with instruction that fits each individual person's needs. UDL is a way to look past teaching the average student, and teach each student from where they are. Having multiple means of representation allows students of all abilities and disabilities the chance to understand the topic clearly. For engagement, while some students may learn directly, some students will need extra assistance to engage their minds. Differentiation comes into play here as well. For action and expression, there are ample amounts of ways that students can show off their literacy knowledge, but giving them choices is imperative. It is easy for teachers to give written tests to students for every subject matter, but it is not always the most accurate. When teachers allow students to choose how they would like to exemplify their learning, students are likely to express a more accurate depiction of their skills (personal communication, August 6, 2017).

Lori's description of her understandings of UDL demonstrated some working knowledge of each principle, though her understanding of the UDL principles of representation and

engagement did not seem as well-grounded as her understanding of the principle of expression. During her interview before the teaching of her first observed literacy lesson, Lori stated, "When planning my lesson, I had to consider my students' abilities and their everyday interactions. Something that I have noticed through working with this class is that there are a few different levels of abilities. This is normal in every class, but it gives a need for differentiation" (personal communication, September 20, 2017). This statement exhibited Lori's understanding that her students had a variety of academic needs and her recognition that she needed to do something in the planning phase to address those needs.

During observations of Lori's literacy lessons, it was evident that there were contextual factors that limited her ability to design and implement lessons that effectively incorporated her understandings of developmental reading and integration of lesson components that were designed to differentiate instruction. These factors are discussed in greater detail in the discussions for Research Questions 2 and 3, as they played a role in both lesson planning and lesson implementation. In terms of Lori's overall sense-making of UDL as an approach for designing literacy instruction, Lori exhibited some basic, surface-level understandings of the purpose of UDL, though she regularly expressed that she felt inhibited from implementing lesson components for the purpose of differentiation. During her final interview, at the conclusion of the study, Lori stated:

> My understanding of UDL has changed mostly because of [being a part of] this research. I have been, for lack of a better term, forced to incorporate UDL in many of my lessons. Until really thinking about UDL, I just planned lessons that I thought would help my kids 'get it'. It really helped being a part of this [research] because it opened my eyes to a more diverse and differentiated way of teaching each student. [Site School] and [cooperating teaching] did not have an impact on how I felt about teaching reading and using UDL to help with that (personal communication, December 4, 2017).

Similar to Hannah, Lori indicated that she thought designing and teaching literacy in ways to meet the differing needs of students was simply "good teaching." She stated at the end of her final interview, "I never realized that a lot of the stuff I just did naturally was actually stuff that would be considered a UDL approach. I just did what I thought made sense for my kids" (personal communication, December 4, 2017). This statement indicated that Lori tapped into her understandings of developmental literacy and students' needs to inform her literacy *practices* and that some of her planned literacy *events* included modes of representation, engagement, and/or expression. However, she did not indicate deep levels of understanding of the UDL framework or the use of the UDL as a framework to design literacy events.

Overall, Hannah, Maren, and Lori expressed varied levels of understanding in terms of being able to speak about the components of UDL. However, the data indicated a lack of deep understanding concerning how to use the UDL framework to plan and implement differentiated lessons that integrated multiple means of representation, engagement, and expression. At the beginning of the student teaching semester, Hannah and Lori indicated stronger recognition of UDL than Maren, whose knowledge of it was limited. Over the course of the student teaching semester, each participant responded to interview questions with answers that indicated that they seemed to view UDL as an extra tool that can be used as a consideration when designing individualized instruction, indicating that the consideration of UDL did not play a pertinent role in their approaches to literacy practices (Barton & Hamilton, 2000). However, each participant also made clear through interview responses that she believed designing and teaching individualized instruction was a common expectation, regardless of the framework used, indicating that the addressing of student needs played a large role in each participant's consideration of literacy practices (Barton & Hamilton, 2000). According to Hannah, "Good

teaching is just good teaching" (personal communication, November 20, 2017). Maren stated, "I really learned a lot about how to teach reading and literacy but this [student teaching] semester really made me think about what I could do to help students really get what I was teaching, and I think that's why I understand UDL more now" (personal communication, December 4, 2017). Lori surmised, "I know that sounds silly because I was going to do everything I could to make sure I met all of my students' needs, but being a part of this study made me think about that through UDL instead of just 'what can I do to make sure my kids get this?'" (personal communication, December 4, 2017).

Overall findings for the first research question indicated that each participant demonstrated foundational understandings of developmental literacy, as well as the importance of identifying and teaching to address students' needs. These conceptualizations played a major role in each participant's literacy *practices* throughout the duration of the study. Participants' consideration of UDL as a framework for the design and implementation of literacy lessons was not concrete. Participants exhibited varied understandings of UDL. While a few of their observed literacy lesson *events* included elements that aligned with UDL principles, participants' interview responses revealed that, more often than not, this was coincidental, indicating that the consideration of UDL did not play an active role in their literacy *practices* and also indicating a lack of authentic conceptual understandings of the UDL framework, its purpose, and how to utilize it.

Research Question Two

My second research question was, "How do elementary pre-service teachers integrate literacy and UDL in the lesson planning process?" with the subquestion, "What guides their decisions in planning literacy lessons?" Because this research question focused on the lesson

planning process, the theoretical focus was on participants' literacy *practices*, or the decisions made about pedagogy as they designed literacy *events* (Barton & Hamilton, 2000). Data collected and analyzed from documents (lesson plans) and participants' interview responses indicated that each considered students' needs, abilities, and interests when planning her literacy lessons, and that consideration of the integration of UDL principles was less of a priority than the consideration of student needs. Participants also indicated a lack of deep understanding of UDL as they planned and implemented literacy lessons. Additionally, each shared that she felt limited in her ability to fully incorporate lesson components that were differentiated or that aligned with the UDL principles due to the contextual factors of time allotment for literacy lessons and/or mandated literacy curricular materials. These factors regularly led to feelings of dissonance for the participants and often left them feeling limited in their ability to fully tap into their personal literacy practices.

As discussed in the findings below, Hannah felt that the integration of means of representation, engagement, and expression in her planning of literacy lessons was impacted by the brief amount of time allotted to reading groups in her placement classroom, though the curricular resources utilized in the class allowed her to conduct needs-based instruction through the use of leveled readers. The role of time proved to be a factor that made Hannah feel limited in her freedom and ability to differentiate literacy instruction.

Likewise, two factors came into play that made Maren feel inhibited in her ability to fully integrate methods of representation, engagement, and expression into her literacy lesson plans. Maren stated that the large sizes of the reading groups, as pre-determined by the fifth-grade teachers in her placement school, limited her ability to plan literacy events that addressed students' needs. Additionally, due to the fact that all teachers in Maren's placement school were

required to utilize Google Classroom for all instruction, she felt inhibited in her ability to incorporate appropriately leveled material as there were not leveled electronic resources that were made available to her. The role of large guided reading group sizes and the role of the school's curricular resources (Google Classroom) played significant roles in Maren's experiences with integrating methods of representation, engagement, and expression in her literacy lesson planning.

Finally, while Lori felt she was given full freedom to plan literacy events as she wanted, she stated that role of the school's literacy curricular resources limited her ability to do so, as each student in her placement classroom was expected to use the same grade level textbook for reading and literacy. During the course of the student teaching semester, Lori consistently reflected on the dissonance she felt between her personal literacy practices (Barton & Hamilton, 2000) and the literacy events that she planned for her students due to the role played by the mandatory literacy textbook series.

Findings are discussed case-by-case, and the significant roles played by time allotment and the schools' curricula are addressed in the following discussions of each participant's experiences with integrating literacy lesson elements that aligned with UDL principles in the lesson planning process.

Research Question 2: Hannah. Hannah's collected and analyzed lesson plans consistently included elements that demonstrated the incorporation of various means of content representation, though she did not regularly plan to provide *multiple* means of representation during the same lesson. Her lesson plans indicated that she understood the importance of providing visual supports. However, these were not regularly accompanied by additional methods of representation of literacy content. As discussed below, her incorporation of lesson

elements that allowed for means of engagement and means of expression were rarely present in her lesson plans. During interviews, Hannah regularly expressed concern that the brief time allotment for each guided reading group (15 minutes per group per day) did not allow her to incorporate meaningful ways to engage the students or allow them to show their understandings. In the next sections, I address Hannah's integration of means of representation, engagement, and expression into her lesson plans, as well as her sense-making of UDL during the planning process.

UDL Principle of Representation. Analysis of data collected from Hannah's lesson plans and her pre-teaching interviews demonstrated that Hannah attempted to plan literacy events that included components that were consistent with the UDL principle of representation. She did this through planning for differentiated reading groups, based on assessment-based instructional reading levels, inclusion of texts that aligned with students' instructional levels to introduce new content, and the use of visual supports to increase student comprehension of texts. However, while her lesson plans often included the usage of visual supports, they did not include the provision of *multiple* means of representation for each lesson. This finding indicated that, while she understood the benefits of visual supports as a means of representation, she lacked a full understanding of the UDL principle that calls for the provision of *multiple* means of representation.

In her lesson plan for her first observed lesson on September 27, 2017, Hannah wrote, "I will be using graphic organizers with the students and will assist with oral reading for students who need assistance while also discussing the story throughout our guided reading time together." Graphic organizers are supported through UDL research as an effective way to present content that serves as an option for comprehension, one of the guidelines of the UDL principle of

representation (CAST, 2011; NRP, 2000). Also in her first lesson plan, Hannah stated, "Students will interact in an activity using their words in which I will write their word study words on a whiteboard and have them tell me which feature it should be sorted by." The use of a whiteboard is supported through research on UDL as an example of provision of an option for perception (Coyne et al., 2012; Dalton & Proctor, 2007). In her second lesson plan, Hannah once again made use of graphic organizers to introduce character details. She detailed in her plan that she intended to model the graphic organizer by completing it about a character from a book the group had previously read (*Frog and Toad*) and that students would then complete their own as they read through the new text (lesson plan, October 25, 2017). In Hannah's third lesson plan (November 20, 2017), she integrated a means of content representation into her plan for reading through the inclusion of a picture walk to activate students' prior understandings and build context for those who needed it. She wrote:

> We will then begin our picture walk of our fiction text and discuss the importance of making predictions. "What does it look like we will be reading about?" "Why might this family have boxes?" "Does the boy look bored, why?" "Do you think he will make a new friend somehow?" "What are the boys thinking about doing?" "Have you ever played with boxes?" "What will they make out of the boxes next?" "Do you think the original boy will end up happy, how so?" etc.

Hannah's inclusion of a picture walk, in which she planned to facilitate a text-based discussion, is supported by the UDL representation guideline of the provision of options for language, expression, and symbols (CAST, 2011; Dalton & Proctor, 2007; Meo, 2008).

Overall, in her three collected and analyzed plans, Hannah included numerous instructional components that included means of literacy content representation. However, while her modeling and use of visual supports indicated her understanding of students' needs, they did not demonstrate integration of *multiple* means of representation, which calls for teachers to present content in multiple ways throughout the same lesson (CAST, 2011). During her pre-

implementation interview on October 25, 2017, Hannah stated, “I try to include a lot of visuals because I have a lot of students who need them. I do a lot of modeling for that reason, too.” This response indicated that Hannah’s sense-making of the integration of these lesson elements were primarily based on her interpretation of students’ needs, rather than a proactive incorporation of the UDL principle of representation. In other words, the addressing of students’ literacy *needs* drove Hannah’s literacy *practices* during the lesson-planning process, and while some of her plans embedded elements that are supported by UDL research, the use of the UDL framework did not guide Hannah’s sense-making during literacy lesson planning.

UDL Principle of Engagement. Hannah’s lesson plans included a few lesson elements that were consistent with the UDL principle of engagement, though methods for increasing and sustaining student engagement were prevalent in her plans. In the three lesson plans and pre-teaching interviews that were analyzed, Hannah’s incorporation and discussion of her attempts to plan for student engagement were addressed a total of six times. Her methods in which means of engagement were integrated into her lesson plans included the use of partner talk during reading, provision of reading materials that were differentiated to be on students’ instructional levels, review of previously taught material, and the allowance of student choice of whether or not to use a whisper phone during reading time. Partner and small group discussions and the provision of whisper phones as a choice are both supported through UDL research as meeting the guideline of options for recruiting interest (Coyne et al., 2012). The review of previously taught material to activate prior knowledge and the provision of reading materials that aligned with students’ instructional levels are both representative of the UDL guideline to sustain student effort and persistence (CAST, 2011).

Hannah expressed some frustration that the short amount of time in which she was able to work with small groups did not allow her the freedom to plan lessons in ways that would engage students in ways she wanted (personal communication, September 27, 2017). She stated:

> I wish I had more time with each group so that I could plan really fun activities to go with the texts. But fifteen minutes doesn't give me time to do anything really except for quickly review, have them read through it maybe once, and then move on to the next group" (personal communication, September 27, 2017).

While Hannah seemed to attempt to incorporate elements in her lesson plans to promote engagement (e.g., partner talk and student choice), she made it clear that she felt limited by the brief amount of time she had with the reading groups. In her pre-teaching interview on November 20, 2017, Hannah stated, "I know it's important to engage students in learning. And when they're this young, it's important to hook them in any way you can. I just don't have the time to do it." This statement indicated that Hannah considered the need for student engagement as part of her literacy practices during the lesson-planning process. While her lesson plans indicated the incorporation of some elements that aligned with the UDL principle of engagement, Hannah appeared to conceptualize the concept of engagement as a whole, rather than the consideration of *multiple* means of engagement, as she designed her literacy lesson plans. Essentially, her lesson plans demonstrated some attempts to plan for engagement, but the planning for *multiple* means of engagement within the same lesson was not present.

UDL Principle of Expression. Similar to her inclusion of lesson elements to increase and sustain student engagement, Hannah's lesson plans and interview responses indicated that she struggled when it came to her incorporation of student expression in her lesson plans. In each of her collected and analyzed lesson plans, Hannah wrote, "I will assess student knowledge through the use of teacher observation and class discussion." She addressed the lack of focus on formative assessment during two of her post-teaching interviews.

> I'm never really able to meet all of my objectives because of the time constraints. I don't think all of my kids really understood questioning [strategy that was taught during her first observed lesson] today so I'll have to go back and review it tomorrow (personal communication, September 27, 2017).

During her October 25, 2017 post-teaching interview, Hannah stated:

> Time definitely has a big impact on my guided reading time because I'm only given 10 to 15 minutes with each group. So I have to make sure I base the instruction so kids get what they need for that short amount of time. When I see my kids know something I quickly move on so I can make the most of the time I have, but I really don't ever have time to do any kind of assessment. How could I do teaching *and* assessment when I only have 10 to 15 minutes?

Hannah regularly expressed concern about the lack of time in which she was given to work with her reading groups. During her final post-teaching interview on November 20, 2017, Hannah expressed relief that she had been able to achieve a little bit more during her small group guided reading times:

> I asked my CT a couple weeks ago if I could spend more time with my low group and less time with my higher groups because it really seemed like they needed more time. I now have 20 minutes with my lowest group and the rest I meet with for 15 minutes. It's still not ideal but I can get a lot more in with those extra 5 minutes.

Hannah's sense-making of the UDL principle of multiple means of expression in her planning of literacy lessons did not appear to be well-grounded. Though she wrote in each lesson plan that formative assessment would take place via teacher observation, this did not open the door for students to demonstrate understandings in *multiple* ways. While she attributed this to the lack of time allotted for guided reading groups, Hannah did not indicate that she had a deep understanding of the concept of multiple means of assessment in her lesson plans. Hannah stated that students' literacy needs drove her lesson planning (personal communication, September 27, 2017), referring to formal assessment data from running records.

Hannah exhibited understandings of planning literacy events that included modes of representation and incorporated those in her lesson plans through the use of leveled texts and

visual supports. Her integration of planned lesson elements that aligned with the UDL principle of was limited and her integration of student expression was not present. While Hannah expressed understandings of the importance of engaging students and allowing them to express their knowledge in various ways, she stated that she felt inhibited in addressing these in her literacy lesson plans due to the restriction of time allotted to work with each guided reading group. Data indicated that Hannah's literacy practices led her to plan lesson elements that aligned more strongly embedded varied modes of representation, but that lacked depth in terms of integrating means of engagement and expression.

Research Question 2: Maren. In Maren's literacy lesson plans, she integrated some lesson elements that aligned with the UDL principles of representation, engagement, and expression. Two factors came into play during her student teaching experience about which she expressed frustration due to feeling limited in her ability to plan and teach reading lessons that met all students' needs. These factors were the large pre-determined guided reading group sizes and the fact that all teachers and students in her placement school were required to utilize Google Classroom for reading, meaning that Maren had to upload all reading materials to their class Google site (personal communication, September 27, 2017). Because leveled texts were not readily available to her in electronic format, Maren was not able to offer Google Classroom access to texts and materials on students' instructional reading levels. However, Maren's lesson plans indicated a strong attempt to effectively incorporate her understandings of developmental literacy as well as some attempts to integrate lesson elements that were consistent with the UDL principles, in spite of limitations that she may have felt due to the factors of curricular resources and student group size.

UDL Principle of Representation. Each of Maren's lesson plans included the provision of content representation in multiple ways. In her September 27, 2017 lesson plan, focused on direct and indirect characterization in text, Maren wrote, "After a brief verbal review of direct and indirect characterization, I will create a T-chart on the whiteboard. I will ask students to provide examples from their text of both direct and indirect characterization and I will document those on the T-chart to serve as a visual support while discussing the examples." Visual supports were integrated into each of Maren's three lessons as a means of supporting her verbal reviews. In her October 25, 2017 lesson plan, Maren planned, "I will introduce the comprehension strategy of making connections. I will have a premade anchor chart that I will hang on the front board so that it is visual to all students." This approach offers options for comprehension (auditory and visual), a guideline that is supported through research on UDL's principle of representation (CAST, 2011; Duke & Pearson, 2002). In her November 20, 2017 lesson plan, Maren incorporated a visual support as a cumulative review at the end of a literacy-based science lesson on rock types. In her lesson plan, she wrote, "I will close the lesson by bringing the students back together. I will ask them to share out facts that they learned from their science reading about sedimentary and volcanic rocks. I will document these on the board for students to copy into their science notebooks." Research on UDL supports the use of anchor charts and other visual supports, as they have the potential for reducing barriers to learning and enhancing learning for all students through the provision of options for language, expression, and symbols (CAST, 2011; Coyne et al., 2012; Dalton & Proctor, 2007). Maren's inclusion of class discussion, text review, and the documentation of facts indicated that her lesson plan incorporated multiples means of representation.

During her October 25, 2017 pre-teaching interview, Maren stated, "I included the anchor chart on making connections because I learned at [site university] that anchor charts are good supports for students." She made a similar statement during her November 20, 2017 pre-teaching interview, in which she stated, "I wanted to make sure all of the kids understood the lesson so I made sure to include a lot of visuals and modeling." These responses indicated that, while Maren had students' needs in mind while planning her lesson, she was not necessarily considering lesson plan elements through the lens of UDL principles. In other words, Maren's literacy practices were informed by her recognition of students' needs. Though some of her planned elements aligned with the UDL principle of representation, the UDL framework was not a factor that informed her literacy practices during the planning of lessons.

UDL Principle of Engagement. Maren consistently planned literacy lesson components that promoted student engagement. Her lesson plans indicated that she made attempts to plan lesson elements that promoted student engagement through the inclusion of partner work and small group work. In her first lesson plan on September 27, 2017, she wrote, "After reviewing direct and indirect characterization, I will be moving them into partner groups. They enjoy working with each other and I think this will increase engagement." Allowing students to work with partners or in small groups promotes the fostering of collaboration and community, which is a provision of options for recruiting interest, supported by UDL research on the principle of engagement (CAST, 2011). Also in her first lesson plan, Maren wrote, "Students will be paired up and instructed to go onto Google classroom and choose a story from the given list." This demonstrates her plan to recruit student interest both through inclusion of partner work as well as offering individual choice (CAST, 2011; Rose & Meyer, 2006; Rose, Meyer, & Hitchcock, 2005).

In her third lesson plan, which was a literacy-based science lesson, Maren wrote, "To begin, I will show a musical video from the Flocabulary website about rocks. My students enjoy music and the way information is presented on Flocabulary may resonate with them because the music is current and fun" (lesson plan, November 20, 2017). Inclusion of material that is "current and fun" optimizes relevance of taught material to students' lives, thereby increasing engagement (CAST, 2011; Guthrie & Wigfield, 2000).

It was evident that Maren made efforts to plan lessons in which her students were engaged. Her inclusion of partner work, student choice, and use of current music to encourage learning were all lesson elements that promoted student engagement, though her plans did not indicate a full understanding of the UDL principle of engagement, as Maren did not plan for *multiple* means of engagements for each lesson. Additionally, her interview responses, which focused on her desire to make learning "fun" and to include instruction that was relevant to the students, indicated that her literacy practices were informed less by her understanding and inclusion of the UDL framework and more on her desire to engage students in their learning.

UDL Principle of Expression. Maren's lesson plans exhibited various opportunities for student expression. Each of her lesson plans concluded with a written assessment component; some formative, some formal. In her first lesson plan, which focused on direct and indirect characterization, Maren wrote, "Students will create a model of the character that they chose from their story. They will label it with direct and indirect character traits. Finally, they will present their characters and their traits to the class, providing rationales for their choices" (lesson plan, September 27, 2017). The inclusion of student-driven rationales along with verbal presentations demonstrates a plan to vary the methods for student response, which is a guideline for the UDL principle of expression (CAST, 2011; Rose, Meyer, & Hitchcock, 2006). Maren's second lesson

plan (October 25, 2017) built in student expression through the use of formative entrance and exit slips. “Students will complete an entrance quiz on chapters 11-13 of *Jimmy Spoon*. We will review the responses as a group to make sure all students are ready to move on to the next chapter. After reading the next chapter as a group, students will work with their ‘elbow partners’ to complete an exit slip.” In this lesson plan, the entrance slip served as a scaffold, due to the fact that it was not graded and that it was for review for students who needed it. While a means for student expression was integrated in this lesson plan through the graduated levels of support that Maren built in for text review (CAST, 2011; Dalton & Proctor, 2007), the UDL principle of expression was not integrated due to the lack of *additional* means of student expression. In her final lesson plan (November 20, 2017), a literacy-based science lesson on rock formation, Maren planned elements in her lesson that were consistent with the UDL principle of expression in multiple ways:

> Students will be assessed as they are completing their tree map through teacher observation. In addition, they will be assessed when they share out their facts, which will show their reading comprehension. Lastly, they will be assessed when they turn in their tree maps for a formative grade. This is a lesson that can be differentiated for special needs students who have verbal, auditory, or kinesthetic needs. For students who struggle with verbal needs they can write down their thoughts or draw pictures of them. For students that struggle with auditory skills, they will have a copy of their own to read or captions provided for the video that is watched. Lastly, students who struggle with motor skills can have the assistance of a teacher’s aide to help them write, or they may use a computer to type their responses.

It was evident through this excerpt from Maren’s lesson plan that she considered her students’ varied learning needs and wanted to ensure that all could demonstrate their understandings in ways that were fair and equitable. Guidelines for the UDL principle of expression encourage teachers to consider multiple tools for construction, such as technological assistance and the provision of access to tools and assistive devices (CAST, 2011; Rose, Meyer, & Hitchcock, 2006). In her pre-teaching interview on November 20, 2017, Maren stated, “I think it’s really important to give kids chances to show what they’re learning in lots of different ways.

I think we need to make sure that our assessments are fair to all students." While Maren did not specifically mention UDL in this statement, it was evident that her belief about multiple means of assessment aligned with the UDL principle of expression.

While Maren's understandings of UDL did not appear to be firmly grounded, it became apparent through analysis of lesson plan document data and pre-teaching interviews that she took student needs into consideration in terms of offering engaging ways to present content, consisting of providing teacher support and utilizing partner work for engagement, and building in opportunities for student to express their knowledge in different ways. Though she expressed that she felt inhibited due to the large guided reading group sizes as well as the non-negotiable use of Google Classroom, her plans demonstrated her desire to meet students' individual needs, even within those constraints, including some elements that aligned with UDL principles—visual supports, opportunities for partner work, engaging activities, and formative assessments. Of the three participants, Maren's lesson plans exhibited the strongest attempts to integrate *multiple* means of content representation, engagement, and expression within each lesson.

Research Question 2: Lori. Lori's collected and analyzed lesson plans each included some elements that were consistent with the UDL principles of representation, engagement, and expression. However, Lori stated during each interview that she felt very limited in her ability to plan and teach literacy lessons that were differentiated based on the fact that her district and school used a mandated reading textbook series, meaning that every child in her class was given the same texts for reading as well as other content areas (personal communication, September 20, 2017; October 27, 2017; November 17, 2017). In spite of this limitation, Lori's literacy lesson plans typically included elements in which content was presented in different ways, typically through the inclusion of multiple visual supports. Lori's integration of techniques for increasing

engagement in her lesson plans were primarily focused on student behaviors, including many opportunities for student self-regulation through the use of establishing clear behavior expectations and planning to utilize proximity with students. Lori's incorporation of means of student expression demonstrated her intention to assess students' understandings during and after each lesson. While she wrote in her plans that she would do "check-ins" or "thumbs-up, thumbs-down" comprehension checks, each of her three lessons also ended with student submission of a summative assessment, usually in the form of a graphic organizer that was completed by the students. While this indicated an attempt to provide a means of expression, the planning for *multiple* means of expression was not evident in Lori's lesson plans.

UDL Principle of Representation. Lori's lesson plans exhibited the integration of some lesson elements that aligned with the UDL principle of representation through the practice of explicit modeling and the provision of visual supports. In her September 20, 2017 pre-teaching interview, she explained that she made sure to "always include visuals" along with her verbal instructions in her lessons because the students were all provided with the same texts, which inhibited her from teaching them in texts that were on their developmental reading levels. "I model everything and I use a ton of anchor charts and visual examples because I know we have a lot of kids in here that need that in order to really understand what I'm teaching" (personal communication, September 20, 2017).

In Lori's September 20 2017 lesson plan, she integrated elements that were consistent with the UDL principle of representation through the use of modeling and provision of a visual aid. "I will show the visual that defines text features, graphic features, and bold-faced words. I will review the definitions and have the students read the definitions in unison. I will ask students to give examples of each type of feature from one of their books. I will then read their

weekly story out loud and will point out features as I'm reading" (lesson plan, September 20, 2017). She acknowledged during her September 20, 2017 post-teaching interview that she was aware that the practice of reading a story out loud to the students while they followed along was "not best practice," but she stated that she felt she had no other choice "because this is the story I have to use since all second-grade teachers have to use this book and most of the kids in my class really aren't able to read it on their own yet." Because the focus of the lesson was on the discernment between graphic and text features, her inclusion of the visual along with her modeling and oral reading of the text allowed for multiple means of representation. In Lori's second lesson plan, she also stated that she would be reading the story of the week, "Super Storms" aloud to the students while they followed along (lesson plan, October 27, 2017). She included modeling and visual supports in this lesson plan, stating, "After I read the story, we will create a group Venn Diagram about [Lori's CT] and [principal of Lori's site school]. This will show students how to create a Venn Diagram. After this, they will be provided with a Venn Diagram graphic organizer and they will work together to create one about hurricanes and thunderstorms [from the story]." Again, Lori's inclusion of modeling and provision of a visual support provided for multiple means of representation in her lesson. In Lori's final lesson plan (November 17, 2017), she included visual supports and a graphic organizer to provide multiple means of presenting the new content:

> I will begin by talking about the objectives of the lesson. Today we are going to start talking about different types of sentences. What kinds of punctuation do we already know? When do we use question marks? When do we use periods? Does anyone know when we use exclamation points? I will then show the students 4 different visuals that will have the different types of sentences on them: statement, demand, exclamatory, question. Next, I will give each student a foldable that they will use to write or glue sentences under the correct category.

During each pre- and post-teaching interview, Lori expressed frustration about feeling limited in her ability to plan appropriate developmental lessons because of the expectation that

each child would read the same grade-level stories from the same textbooks and that each child was expected to complete the same activity sheet or assessment sheet. However, she also stated that, by the end of her student teaching semester, she felt capable of presenting literacy content that met students' needs "even when I don't have the option of teaching them on their actual reading levels" (November 17, 2017). In other words, Lori's literacy practices were guided by her understandings of developmental literacy and her desire to meet students' needs. In Lori's case, she felt that there was a disconnect between her personal literacy practices and what she was able to plan and implement for literacy events, due to the constraint of the mandatory literacy textbook series. Because of this, her lesson plans included multiple means of literacy content representation, indicating that some of her lesson components aligned with the UDL principle of representation, though the use of the UDL framework was not something Lori considered when planning her lessons.

UDL Principle of Engagement. Lori's integration of lesson elements that promoted student engagement primarily took the form of the setting of behavior expectations in order to reduce the frequency of outbursts and to optimize motivation. In integrating these clear expectations into her plans, it was clear that Lori wanted to foster collaboration through clear student understanding of their goals and responsibilities. She also built small group and partner work into each of her planned lessons. In her September 20, 2017 lesson plan, Lori stated:

> The teacher will be using proximity throughout to ensure that students are working efficiently on their scavenger hunt and answering any questions that may arise from the search. The students in this class are used to learning in whole group settings, so I will use this to my advantage. When the students are working in pairs, the teacher will be monitoring behavior and reminding students to be following directions and checking their body for proper behavior.

In her pre-teaching interview (September 20, 2017), Lori stated:

> I need to make sure my students clearly understand what my expectations are. We have a lot of kids in here who get quickly distracted and then they distract everyone else. It's definitely the domino effect. So I start every lesson by going over how I expect them to behave and what they will be doing during the lesson.

According to CAST (2011) and Coyne et al. (2012), it is important that teachers promote engagement by establishing clear expectations and allowing students to sustain effort and persistence through self-regulation. Lori encouraged self-regulatory strategies by writing plans that included specific reviews of behavior expectations:

> Today we are going to do something really fun, but we need to remind ourselves how we can work hard and without distractions. What do we do if we have a question? What do we do with our bodies? Arms, hands, eyes, legs, etc. What does check your body mean? What should we do if someone else is talking? (observation, September 20, 2017)

Because learners differ in their ability to self-regulate (CAST, 2011), specific reviews of expectations such as this are important ways to proactively promote engagement through the clarity of expectations. Lori established clear expectations for her students in each of her lesson plans. "The teacher will set behavioral expectations: We are going to sit in our seats, facing forward, with our hands on our desks. We are going to raise our hands if we have something to say, a question that needs an answer, or an emergency. We will respect the speaker, be honest in our answers, and be responsible students" (observation, October, 27, 2017). In her third lesson plan, Lori wrote, "The students will be given the choice to write their sentences in their flip book or cut and paste them. The teacher will be using proximity throughout to ensure that students are observing and engaging appropriately" (lesson plan, November 17, 2017). In her post-teaching interview, she shared, "I always need to take time to establish my expectations. In this lesson, I gave them a choice about whether or not they wanted to cut and paste their sentences or if they wanted to write them. I needed to make sure they understood what my expectation were especially because they don't usually get a choice about what they do" (personal communication,

November 17, 2017). Overall, Lori's lesson plans exhibited consistent incorporation of methods of engagement through the setting of expectations, review of self-regulatory strategies, and allowance of choice and partner/small group collaboration. However, the UDL principle of engagement was not evident in her lesson plans due to the fact that the lessons did not include *multiple* means of engagement. While engagement was considered, her lesson plans did not incorporate more than one means of engagement during each planned and implemented lesson.

UDL Principle of Expression. Of the three participants, Lori's lesson plans exhibited the strongest integration of lesson components that incorporated student expression, not only because she consistently built a formative or summative assessment into each lesson, but also because she included many supports and scaffolds for students in anticipation of their needs. She also provided a couple of opportunities for students to demonstrate their understandings in a variety of ways. In her September 20 lesson plan, Lori wrote:

> The flipbook will serve as a formative assessment. Questions at the end of the lesson will serve as a summative assessment for the day. I will be asking questions throughout to ensure that the students are following along where necessary. The students will be showing what they know by doing the flipbook, working in partners to complete a sort, and doing an individual handout to show their knowledge. There are many opportunities for success during this lesson.

Her inclusion of the collaborative work on the flipbook, the final cumulative questions, and the sort offered multiple ways in which students could express their knowledge and skills (CAST, 2011; Rose, Meyer, & Hitchcock, 2006). In Lori's October 27, 2017 lesson plan, she demonstrated an understanding that her students may require additional review or assistance in order to be able to demonstrate their understandings:

> The teacher will give each student a Venn Diagram for them to fill out on hurricanes and thunderstorms. The teacher may need to write it on the board. The students will complete the Venn Diagram, then put it on the rug to be used a formative assessment. The students will work with partners, show understanding through participation in the model Venn Diagram, see a visual, use verbal responses, and will have ample opportunities to ask

> questions. If it is not clear whether or not the students understand, the teacher will have the students show them if they understand by putting a thumbs-up for yes, thumb in the middle for kind of, and thumbs-down for no.

The UDL framework serves to expand executive functioning through the scaffolding of skills (CAST, 2011). This scaffolding can take the form of tools that support student learning, such as visual supports, opportunities to ask questions, peer support, anchor charts, concepts maps, etc. In her pre-teaching interview on November 17, 2017, Lori stated, "I want to make sure I always include pieces in my lesson plans that give students different ways to show me how they're understanding everything." Lori's lesson plans exhibited the recognition of the need to promote executive functioning in order to allow all students be able to express their understandings. It was clear that Lori's literacy practices included the recognition that students need to be presented with options for demonstrating their understandings.

Overall, Hannah, Maren, and Lori demonstrated efforts to integrate elements into each of their lesson plans that were consistent the provision of means of representation, engagement, and expression. However, most of their collected lesson plans indicated the inclusion of each of these elements without the provision of *multiple* means of each. This finding indicates that, while participants understood that they needed to provide ways in which to present content, engage students, and assess understandings, there was not a deep understanding that UDL calls for *multiple* means of each of these elements in order to meet students' needs. Figure 4 (below) depicts the amount of times in which lesson elements were coded in participants' literacy lesson plans that indicated elements of representation, engagement, and expression. Figure 5 (below) depicts the amount of time in which participants' lesson plans demonstrated the planning for *multiple* means of representation, engagement, and expression. Though it was evident through their interview responses that student needs and understandings of developmental literacy, not

the proactive integration of UDL principles, were the primary driving force behind their literacy practices (Barton & Hamilton, 2000), some of the participants' lesson plan components were consistent with instructional suggestions made by UDL researchers as practices that support student learning (CAST, 2011; Coyne et al., 2012; Meo, 2008; Rose & Meyer, 2006; Rose, Meyer, & Hitchcock, 2005). A common theme across cases was that participants' understandings of developmental literacy and their students' literacy needs informed their literacy practices during the lesson planning stages. While the factors of the time allotment, the schools' curricula, and student groupings came into play, students' needs remained on the forefront of participants' pedagogical literacy practices as they planned their literacy events.

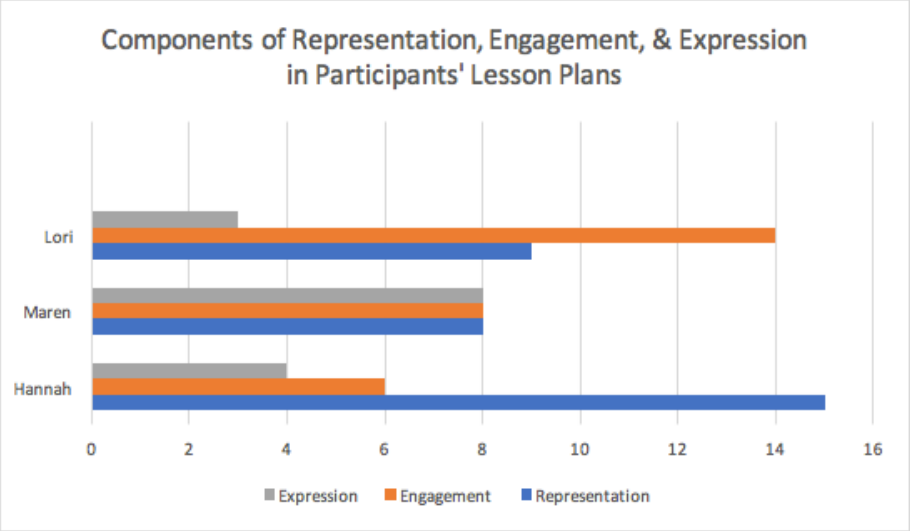

Figure 4. *This graph indicates the number of times participants included lesson elements into their plans that addressed representation, engagement, and expression.*

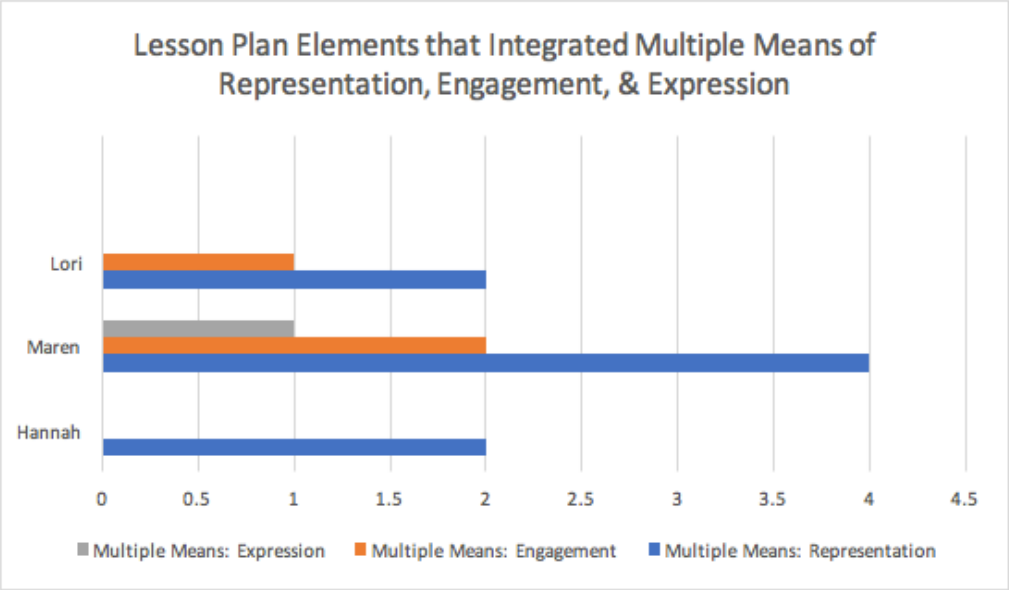

Figure 5. *This graph indicates the number of times participants included lesson elements that planned for multiple means of representation, engagement, and expression.*

In this section, I discussed my findings about participants' sense-making of the integration of UDL in their literacy lesson plans and the factors that drove their decision-making during the lesson planning process, which focused on participants' literacy practices, or the pedagogical beliefs that drove their lesson planning. In the next section, I present findings about participants' sense-making of the integration of UDL during the implementation of literacy lessons and the thought processes driving decisions made during the teaching process, which focuses on literacy events, or the observable literacy lessons taught by participants.

Research Question Three

My third research question was, "How do elementary pre-service teachers integrate literacy and UDL in the implementation of their planned literacy lessons? with the subquestion, "What guides their decisions during the implementation of literacy lessons?" Data collected and analyzed from lesson observations and interview responses indicated that, while students' literacy needs drove the participants' literacy practices in the planning of their lessons, their integration of lesson elements for purposes of representation, engagement, and expression during

lesson implementation and their decisions made during the teaching of the lessons were often affected by other factors. Data also indicated that while understandings of developmental literacy pedagogy and recognition of students' needs drove participants' literacy practices (Barton & Hamilton, 2000), their observed literacy events included participants' responses to the time allotment given to literacy lessons and/or to the mandatory curricular resources used in the classrooms.

As discussed in the findings below, Hannah's integration of lesson elements that addressed representation, engagement, and expression in her implementation of literacy events demonstrated that the role of the school's developmental levels-based literacy curricular resources allowed Hannah to integrate the UDL principle of representation more than the principles of engagement and expression. Hannah expressed that the role of limited time allotment with her small reading groups affected her incorporation of opportunities for student expression during her lessons. When reflecting on her implementation of lessons, Maren regularly stated that the factor of large guided reading group sizes affected her integration of the principle of engagement into her teaching, as her responses during literacy events were often reactive due to poor student behavior. Also, the necessity of using Google Classroom in all of her lessons led Maren to feel limited in her ability to fully assess each student on his/her developmental reading level. Finally, in Lori's implementation of literacy events, it became clear that she felt that the role of the school's textbook series inhibited her from incorporating the principle of representation in ways she would have preferred, due to the fact that all students were provided with the same literacy textbook. Findings concerning the participants' integration of UDL principles during lesson implementation are discussed case-by-case.

Research Question 3: Hannah. Observation and interview data revealed that the majority of the decisions made by Hannah during her implementation of literacy events was in response to her assessment of students' needs. Though the integration of UDL was not a guiding factor in her decision-making processes during implementation of literacy events, some of the instructional decisions made during her teaching addressed elements of representation, engagement, and expression.

***UDL Principle of Representation*.** During observations of Hannah's lessons, it was evident that she consistently provided visual supports for her students in order to increase access to information being taught (observations, September 27, 2017; October 25, 2017; November 20, 2017). During each observation of her teaching of small guided reading groups, she used an adjacent white board to document any information to which students needed access during her lessons. For example, during her September 27, 2017 lesson, Hannah wrote "sh-", "ch-", and "th-" on the white board. As she reviewed words that began with these digraphs, she pointed to them on the board, providing both auditory and visual support.

Also during each observation, before beginning her work with the small rotating reading groups, she utilized the SmartBoard to facilitate discussions on the editing of sentences (see Figure 5 below). In her post-teaching interview on October 25, 2017, Hannah stated:

> I use the SmartBoard for the editing review because it's better than just giving them each a sheet and expecting them all to be able to do it. I write the sentences up as morning work, and they make the corrections in their journals. Then when we review as a group, I make the changes as we talk about them. That way, students can correct any mistakes they may have made in their morning work.

During this portion of her lesson, a student asked why "hear" wasn't spelled "here." Hannah responded, "If you underline the 'ear' in 'hear', it spells 'ear' which means you can hear it.

That's how you know when to use 'hear' or 'here'" (observation, October 25, 2017), providing both an auditory as well as a visual clarification.

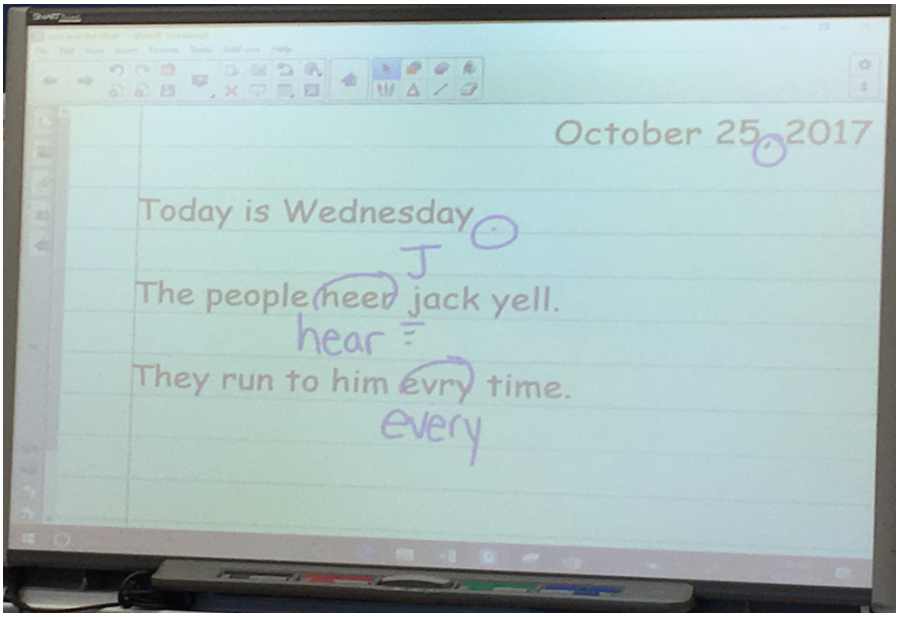

Figure 6. *Hannah used the interactive whiteboard as a visual support to review sentence editing.*

In each observed lesson, Hannah differed the texts for her rotating small groups based on the information she had gathered from ongoing assessments. During each 75-minute literacy block, she conducted four rotating guided reading groups, in which text levels varied from level A (pre-K to Kindergarten level) and level M (approximately second grade level). Hannah stated, "I'm lucky I'm student teaching in a school that uses literacy data to help form groups. We also have a leveled book room, so there are lots of resources we can use to help us teach the kids where they're at" (personal communication, September 27, 2017). This statement indicated her understanding that using literacy data to form groups for targeted instruction is beneficial for students (Cunningham & Allington, 2003, 2015; Duke & Pearson, 2002; Gambrell, Morrow, & Pressley, 2007; Gentry & Owen, 1999; Ivey & Broaddus, 2001; Reis et al., 2004, 2011; Robb, 2008). Hannah's work with students on phonics and sight words differed by group as well. When working with a group of students that she later told me were her "neediest group" (personal

communication, October 25, 2017), she reviewed short vowels, writing each vowel on a which board and drawing shapes around each (see Figure 6 below). During this part of her small group lesson, Hannah instructed:

> Why am I making an apple shape around the 'a'?" A student responded, "Because apple makes the /a/ sound." Hannah replied, "Yes! Now what do I draw around the 'e'?" The same student replied, "An egg." Hannah answered, "Yes because 'egg' makes the short /e sound, right? Now I'm drawing an igloo around the 'i'. Everyone say 'i-i-igloo'." Students all repeated "i-i-igloo." Hannah proceeded, "Short 'o' says /o/ so I'm drawing an octopus around it and what does short 'u' say?" Students answered, "uh." Hannah said, "Yes, short 'u' says /u/ so I'm going to draw an arrow going up-up-up.

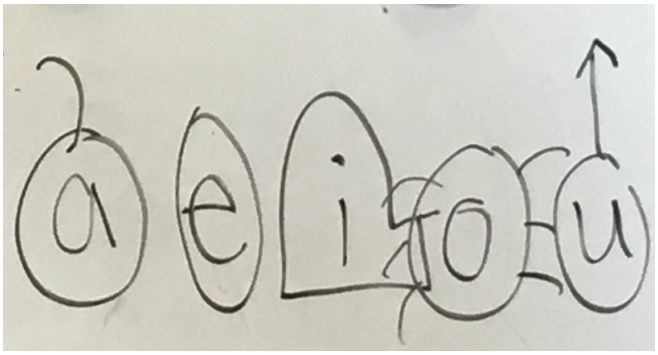

Figure 7. *Hannah reviewed short vowel sounds, providing both auditory and visual support*
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In reviewing short vowels in this way, Hannah integrated the UDL principle of representation through the use of varied options for perception (CAST, 2011) through the provision of visual and auditory supports. Each of Hannah's observed lessons exhibited that she was able to strongly integrate lesson elements that considered means representation through the provision of developmentally leveled texts, teacher support, and auditory and visual support. Though the allotment of time for her guiding reading lessons was short, Hannah managed to effectively integrate leveled texts and visual supports into each of her observed lessons. However, few of her observed lesson elements integrated multiple means of representation in the same lesson, indicating that, while she understood the need for visual supports, she fell short of fully understanding and integrating the UDL principle of representation in her lesson integration. Observation and interview data indicated that decisions made by Hannah during her literacy

lessons, or literacy events, were driven by her understanding of students' reading levels and literacy needs. During her post-teaching interview on October 25, 2017, Hannah stated, "I don't have a lot of time for my groups, so I incorporate all of the visuals I can in order to support the kids that need it." While many of her observed literacy lesson events consisted of components that incorporated a means of representation other than auditory, the consideration of the UDL framework was not a part of Hannah's decision making-process during her implementation of lessons.

UDL Principle of Engagement. When it came to including means of engagement into her implemented lessons, Hannah's integration often took the form of the provision of options for self-regulation. This was sometimes proactive in her teaching, such as reminding students on which page to begin reading and reviewing the purpose for reading before having students begin reading a text, and it was sometimes reactive, occurring after Hannah realized that students needed specific reminders. For example, in her observed lesson on September 27, 2017, while working with a small group of students, I observed that the students were each answering the questions provided on the comprehension sheet without reading the text. After she realized this, Hannah reminded them, "Ok, make sure you're reading first before answering the questions. Otherwise you won't know how to go about answering them."

This supported students' self-regulation, but was a reactive, rather than proactive, response to student behavior. During this same observation, Hannah began to review a book entitled *Volunteers* with her second reading group. She asked, "Who can tell me what they know about volunteers?" and "Who here has volunteered in some way before?" In asking these questions, she was optimizing relevance and authenticity (CAST, 2011), which is supported by a UDL guideline for supporting multiple means of engagement.

Hannah consistently heightened the salience of her expectations and objectives (CAST, 2011; Rose & Meyer, 2006) by assisting students in staying on task with statements such as "Open your books to page 4. That's where we're starting. Now put your finger on the first word on page 4. We'll begin when I see that we're all ready" (observation, October 25, 2017) and "We're going to choral read this book all together. That means you need to all be on the first word on page 2. We'll read each page all together at the same time" (observation, November 20, 2017). During her November 20, 2017 lesson, Hannah introduced a new activity entitled "Soup Pot." This activity, which appeared to serve as a formative review of beginning blends, was clearly enjoyed by the students, as was evidenced by their exclamations of "Yay!" and their eagerness to choose from the pot (observation, November 20, 2017). After placing a large plastic "soup pot" on the table, Hannah instructed students to take turns drawing a piece of paper out of it.

> You're gonna pick three blends out of the soup pot and you're gonna sort words under the blend headers where you think they belong." Students pulled the blend headers out of the soup pot, first pulling /sh/, /bl/, and /wh/. Hannah called out words for the students to write under the headers—"shop", "blow", and "when". After writing the words under the headers on their individual white boards, students drew three more headers out of soup pot-- /qu/, /gl/, and /gr/. Hannah called "quilt," "queen," "grass," and "glass" for students to write under the proper headers on their white boards. Once students wrote the words on their boards, Hannah said, "Now I want you to try to come up with your own words that begin with these blends." A student answered, "Quite." Hannah said, "Yes, very good! 'Quite' is a word that would go under our /qu/ header!

The novelty of this activity provided a means of increasing engagement through the provision of options for recruiting interest by the incorporation of engaging materials and tools (CAST, 2011; Coyne et al., 2012; Rose, Meyer, & Hitchcock, 2005).

Over the course of her three observed lessons, there were twenty-seven times in which Hannah was observed integrating an element into her teaching that incorporated engagement, in a variety of ways. While some of her self-regulatory reminders were reactive, she also tapped

into students' interests and attempted to make the content of the lessons relevant to students' lives. When asked about her integration of the principle of engagement in her lessons, Hannah stated:

> I want them to enjoy what I'm teaching but I really want to make sure they're getting it. I have to remind them a lot to stay on task, but they're only in first grade so it makes sense that I need to do that. They also don't get many opportunities to do things that are new and original, so I'm doing what I can to make activities fun and different. And I think it's working (personal communication, November 20, 2017).

Interview and observation data indicated that Hannah's inclusion of engagement and self-regulatory strategies in her literacy events were often reactionary to students' needs during the context of the lessons. While she made efforts to include means of student engagement into her lesson implementation, she rarely fully integrated the UDL principle of engagement, due to the fact that she did not incorporate more than one means of engagement at a time.

UDL Principle of Expression. Integrating student expression proved to be a challenge for Hannah during her observed lessons. She was aware of this, stating that the short amount of time blocks in which she was given to teach guided reading allowed little to no time for assessment, either formal or formative (personal communication, September 27, 2017). During her three observed lessons, there were six times in which Hannah was observed integrating an element of student expression. Four of these six times took place at the lesson's end, in which Hannah asked versions of a final review question. "We're going to go over this more tomorrow, but who can tell me one detail they remember from our reading today?" (observation, October 25, 2017).

During her post-teaching interview on October 25, 2017, Hannah also discussed the fact that she had recently conducted running records with her students in order to determine movement within the reading groups, which is supported by the UDL guideline that encourages

teachers to provide options for expression and communication based on graduated levels of support as needed (CAST, 2011; Rose, Meyer, & Hitchcock, 2006). During her third observed lesson (November 20, 2017), Hannah asked each student to read a small portion of text to her during the guided reading group times. After each student read, she asked them individual questions such as, "Who was making fun of Toad?" and "Based on what you just read, do you think the kite is gonna fly?" Her incorporation of individualized questions is supported by the research on UDL that has shown that when teachers ask specific questions to guide self-monitoring and reflection of learning, they are providing an effective means for student expression (Dalton & Proctor, 2007; Narkon & Wells, 2013). In her final interview, Hannah stated, "I know I didn't do a really good job of incorporating student expression [into my lessons]. I just didn't have enough time. In my future classroom, I definitely want to have more time to run reading groups so that I have time to assess what they know and what they're learning" (personal communication, December 4, 2017). Observation and interview data indicated that Hannah's literacy practices, or her beliefs in regards to pedagogy, were in conflict with what she felt she was able to teach during the implementation of literacy events, primarily due to the brief time allotment given to small group guided reading work. Additionally, while Hannah was aware of the need for student expression, she did not express the understanding of the UDL expectation that students be provided with multiple ways to express knowledge. This indicated a lack of full understanding of the UDL principle of expression.

Research Question 3: Maren. Maren's responses to the screening survey (see Appendix C) indicated that she did not enter her student teaching semester with deep levels of understanding of UDL. However, Maren's planned literacy events incorporated some components that aligned with the goals of the UDL principles. Likewise, her implementation of

literacy events incorporated elements that were consistent with the UDL principles of multiple means of representation, engagement, and expression, though she expressed that she felt limited in this incorporation due to large group sizes and the mandatory usage of Google Classroom.

UDL Principle of Representation. During observations of Maren's implemented lessons, she consistently integrated visual supports into her teaching. While she stated that she had a number of reasons for incorporating various visuals into her lessons, the primary reason was the fact that all students were provided with the same levels of text for reading lessons and Maren felt additional support was needed (personal communication, September 27, 2017).

> I think anchor charts are just a good idea anyway, because kids can go back and reference them when they need to. But in this class, I really need to use lots of visuals because not all of the kids are on the same reading level. Since we have to use Google Classroom, we basically just upload the same readings for each of the kids because it's way too hard to find leveled books and articles and stuff that we can upload. The things we upload are on a fifth-grade level, but honestly that's way too hard for some of them [students] and way too easy for some (personal communication, September 27, 2017).

In providing these visual supports, Maren was integrating components into her lessons that were consistent with the UDL principle of representation through the provision of options for perception through customization of the display of information (CAST, 2011; Rose, Meyer, & Hitchcock, 2006) while also offering auditory support through instruction.

During her first observed lesson, in which Maren introduced the comprehension strategy of visualization, and her second observed lesson, in which she introduced the strategy of making connections (observations, September 27, 2017; October 25, 2017), Maren created and utilized anchor charts (See Figure 7) and also promoted student understanding by activating students' prior knowledge (CAST, 2011), supporting student understanding through tapping into prior understandings and providing visual and auditory supports.

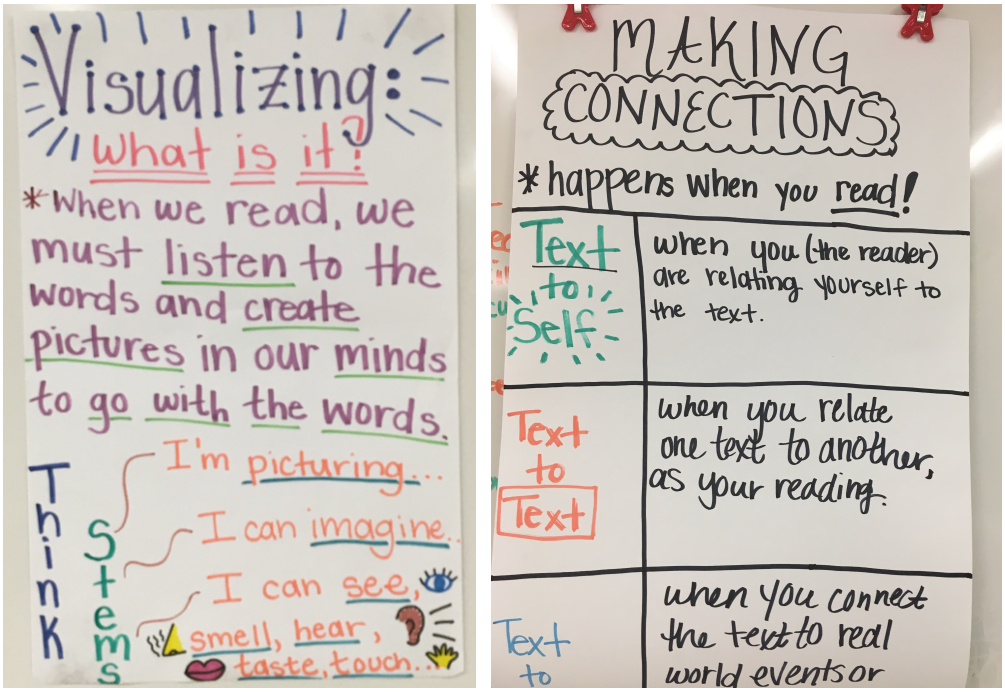


Figure 8. *Maren created these comprehension strategy anchor charts on visualization and making connections to support student understanding.*

On her anchor chart for visualization, Maren also included "think stems" as a scaffold to assist students who needed extra support in considering how and what to visualize. This provision of clarity through the use of simple terms supported the UDL principle of representation through the use of options for language and symbols (CAST, 2011). After introducing the visualization anchor chart to the students, Maren instructed:

> Close your eyes. We're going to practice visualizing. I want everyone to visualize their absolute favorite vacation spot. Don't say anything. Close your eyes." After approximately twenty seconds, Maren asked, "Does everyone have their picture in their head? Are you ready to tell someone all about it?" Students nodded. "Now turn to someone near you and tell them, in detail, what you visualized (observation, September 27, 2017).

After students shared answers with each other, Maren asked, "Does anyone have any questions about the strategy of visualization or how to use this anchor chart?" Students all said "no" or shook their heads to denote that they did not have questions. In giving students time to visualize

and share their visualizations with each other, Maren was offering alternatives for visual information by having students metacognitively use the strategy being presented (CAST, 2011). During her October 25, 2017 lesson, in which she introduced the comprehension strategy of making connections, Maren instructed:

> We are going to discuss something which may be new to you or it may be something that you've used before. Has anyone ever worked with making connections during reading?" A student answered, "You can make a connection with a character or with the author." Maren inquired, "What does that mean that you're making a connection with the character or author? Are you physically touching them?" The same student responded, "You're thinking about how they're feeling and then you're relating to it by thinking about how you feel." Maren then hung the premade anchor chart for making connections and stated," "There is more than one way to make a connection. Connections can be text to self, text to text, or text to world. What do you think those mean? What are the differences between them?" Students turned to partners and briefly discussed connection types. Maren then wrote students' responses onto the anchor chart (see Figure 7). She said, "It seems like you all really understand what a text to self connection is. An example of a text to text connection might be if I was reading *Because of Winn Dixie* and I was reminded of *Clifford the Big Red Dog* because both books have main characters that are a girl and a dog. For an example of a text to world connection, if I was reading a book about one of the wars, it might remind me of the violence going on in our world right now.

In both of these lessons, Maren made use of interactive anchor charts and guided students into their use of the strategy through modeling and providing clear explanations in simple language. The use of interactive anchor charts is deemed an effective way to offer options for comprehension through multiple means of content representation (CAST, 2011; Duke & Pearson, 2002; Duke, Pearson, Strachan, & Billman, 2011; Keene & Zimmerman, 2007). In providing clearer explanations, Maren provided clarity for concepts, which supports the UDL principle of representation through the provision of options for language and symbols (CAST, 2011). While Maren's observed literacy events incorporated an array of visual supports and explicit modeling, the UDL framework was not a factor that informed her decision-making during lesson implementation. Rather, as indicated through observation and interview data, these

decisions were primarily based on her recognition of students' needs and her desire to make the content information accessible to all of her students.

UDL Principle of Engagement. In Maren's three observed lessons, components that integrated opportunities for student engagement were present primarily through the support of student self-regulation and the recruitment of student interest through the use of novel approaches (CAST, 2011). After teaching her first observed lesson on direct and indirect characterization, Maren expressed frustration about the fact that her students had not been attentive when she reviewed the directions and expectations and therefore, they were confused for the majority of the lesson. "I had them partner up to create a life-size character because I thought it would be fun. It's new and different and I thought they'd enjoy it, but they really didn't handle it very well. I really wish I had written the instructions on the board beforehand" (personal communication, September 25, 2017). To begin this lesson, Maren had verbally reviewed the expectations and the directions. After several minutes of students' talking and lack of focus on the task at hand, Maren documented the instructions on the SmartBoard (see Figure 8).

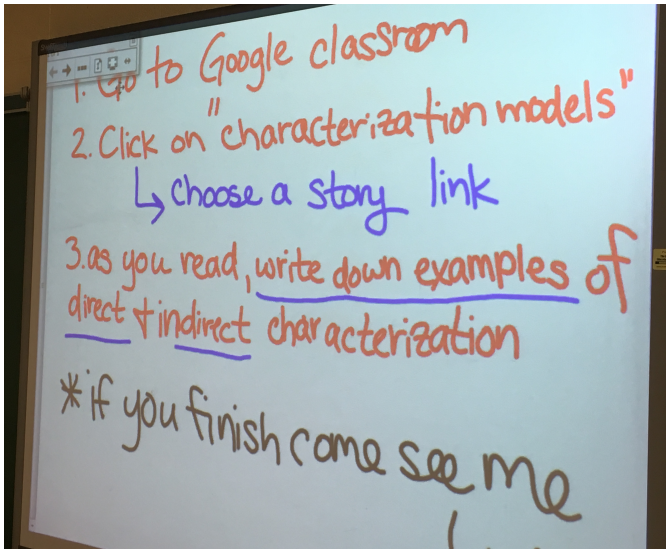


Figure 9. *Maren wrote numbered instructions on the SmartBoard to assist students in understanding and staying on task.*

During Maren's third observed lesson (November 20, 2017), a literacy-based lesson on rock types, she advised them that they would be whisper-reading a text on rocks before completing a graphic organizer. She asked, "Who can tell me what I mean by whisper reading?" No students responded. She asked, "What do you *think* I might mean by whisper reading?" As students began to volunteer answers, Maren wrote the student responses on the board (see Figure 9.) The provision of this visual served as a prompt for self-regulatory purposes in order to assist students in remembering what the task and expectations were.

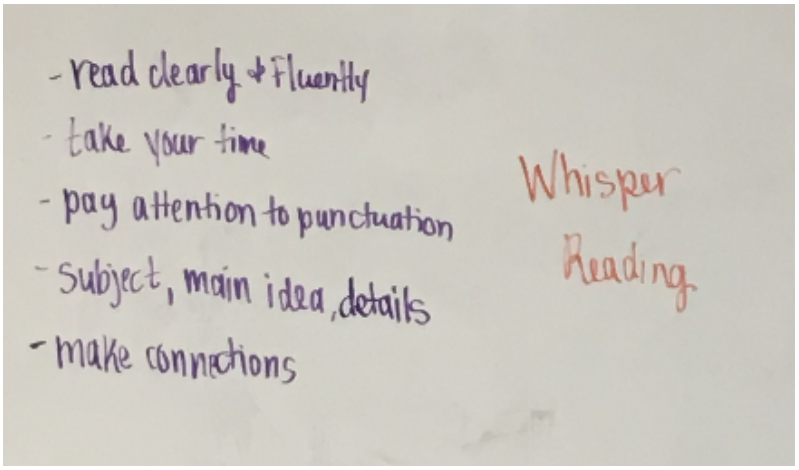


Figure 10. *Maren documented student responses after asking them to define "whisper reading."*

During this lesson, after reviewing whisper reading, Maren stated, "Ok, you have 30 seconds to clear off your desks. All you should have out are a pencil and this book [holding up a book entitled *Minerals, Rocks, & Fossils*]." Maren repeated these directions twice, clarifying and reminding, "All you need to have out are a pencil and your book. Let's see which teams are ready. Team 1 is ready. Team 3 is ready. Team 2 is not ready yet" (observation, November 20, 2017). Several elements of this brief part of the lesson were consistent with the UDL principle of engagement. First, her reminders about the time limit and the materials were stated to promote student self-regulation. Second, her discussion of how some "team" were ready fostered both collaboration and community as well as provided timely feedback (CAST, 2011). Finally, by

holding up the text so that students could reference it, she was minimizing distractions and ensuring the understanding that all students understood what text was to be out (CAST, 2011).

Maren also made use of novel ideas and unique instructional approaches in hopes of increasing student engagement. This was especially apparent in her third observed lesson (November 20, 2017), in which, after students had followed directions and were prepared with their texts and their pencils, she showed a video that she retrieved from the website "Flocabulary." This video, entitled, "So You Wanna Be a Rock Star" was a rap song about igneous, sedimentary, and volcanic rocks. Students all seemed fully engaged while watching the video, many of them dancing and singing along (observation, November 20, 2017). In using a music video to support student learning, Maren recruited interest through the utilization of a unique tool, thereby promoting student engagement (CAST, 2011; Coyne et al., 2012; Rose, Meyer, & Hitchcock, 2005). During her interview that followed this lesson, Maren reflected, "Well, I knew they'd love the video. They love music and it really reinforced what I wanted them to learn" (personal communication, November 20, 2017.)

Overall, Maren made efforts during her teaching of each observed lesson to engage her students in learning. Though this often took the form of reactionary responses, such as writing the directions on the SmartBoard upon realization that the students were not paying close attention, Maren also made use of proactive means of planning for engagement through inclusion of student talk and the novel idea of using the music video. In other words, Maren's decision-making during the implementation of her literacy events were primarily guided through students' reactions to instruction and incorporation of collaborative work. While her instructional methods were somewhat consistent with the UDL principle of engagement, interview data indicated that the consideration of this principle was not a driving force behind her decision-making during the

implementation of literacy events. In other words, Maren did not demonstrate a deep understanding of the UDL principle of engagement during her implementation of literacy lessons. Rather, her approaches to gain or maintain student engagement were based either her understanding of what she thought her students would enjoy, or in her reaction to negative student behavior.

UDL Principle of Expression. During each observation of Maren's implemented lessons, lesson elements that incorporated student expression were present in the form of student responses, either in whole group format, partner format, or one-on-one questioning. After her first observed lesson on direct and indirect characterization, Maren stated, "I tried to assess as I was walking around to make sure they [students] were on track. I sat with a couple of groups and asked them whether the character traits they were writing were direct or indirect. I was making sure I got their feedback. I was trying to go around, see what they had written down, and ask them why they had written it" (personal communication, September 27, 2017). Seeking student feedback is an option for student expression that prompts learners to demonstrate their progression of understanding while identifying the type of guidance needed (CAST, 2011; Dalton & Proctor, 2007).

In her lesson that was centered on the comprehension strategy of making connections, Maren first began by having students complete an "entrance ticket" on index cards that contained three comprehension questions regarding their current text, *Jimmy Spoon* (observation, October 25, 2017). Many students expressed frustration during this, making comments such as "I don't remember this," "I don't get this," and "Do we have to answer these if we don't know them?" Because several students were not able to complete the entrance ticket, Maren spent several minutes of her lesson reviewing the answers to the entrance ticket before introducing the strategy

of making connections that would be applied to the next portion of reading (observation, October 25, 2017). After this lesson, Maren stated, "I got kind of frustrated that so many of them couldn't answer the entrance ticket questions. But it could be because not all of them are really able to read *Jimmy Spoon* independently. I really wish we did small leveled groups here [at site school]" (personal communication, October 27, 2017). The roles of both the large guided reading group sizes and the expectation to utilize Google Classroom once again came into play, with Maren feeling limited in her ability to instruct or assess each of her students on their individual reading levels.

During her third observed lesson on rock types, which was based in the reading of a text on rocks, Maren asked each student to complete a graphic organizer (see Figure 10) while working in pair, advising them, "You can work with your partner to answer these questions. Just put both of your names on the sheet" (observation, November 20, 2017). After rock types had been introduced through the music video and students had completed the whisper reading of the text focused on rock types, they partnered in writing responses on the graphic organizer. The provision of graphic organizers for data collection and organization of information allows an option for student expression through the facilitation of information management (CAST, 2011; Narkon & Wells, 2013).

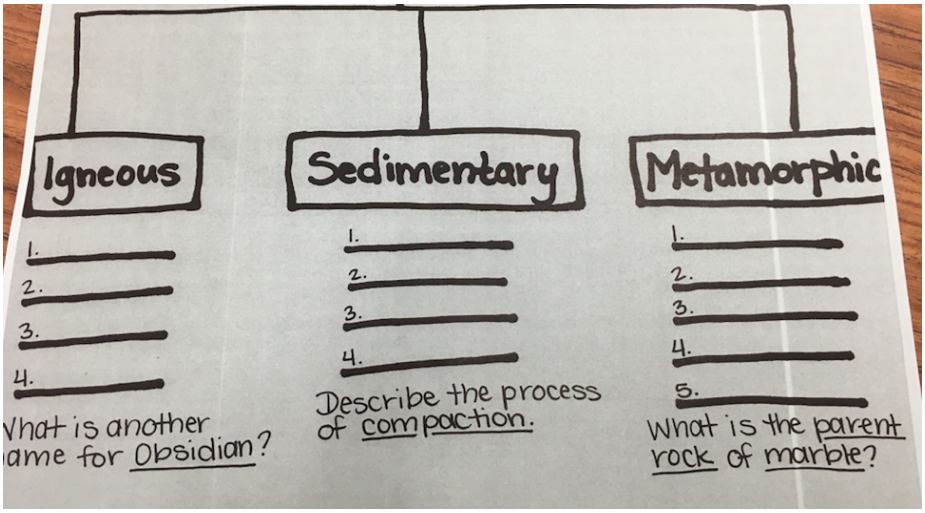


Figure 11. *Graphic organizer on which students wrote information about rock types taken from the text they were reading about rocks.*

Once students had completed the graphic organizers, Maren asked them to share out interesting information they had learned about rocks from their reading. As they shared out responses, she documented them on the board in a visual web (see Figure 11), providing both an option for student expression through allowing choice in what they shared as well as an option for representation through provision of a visual aid.

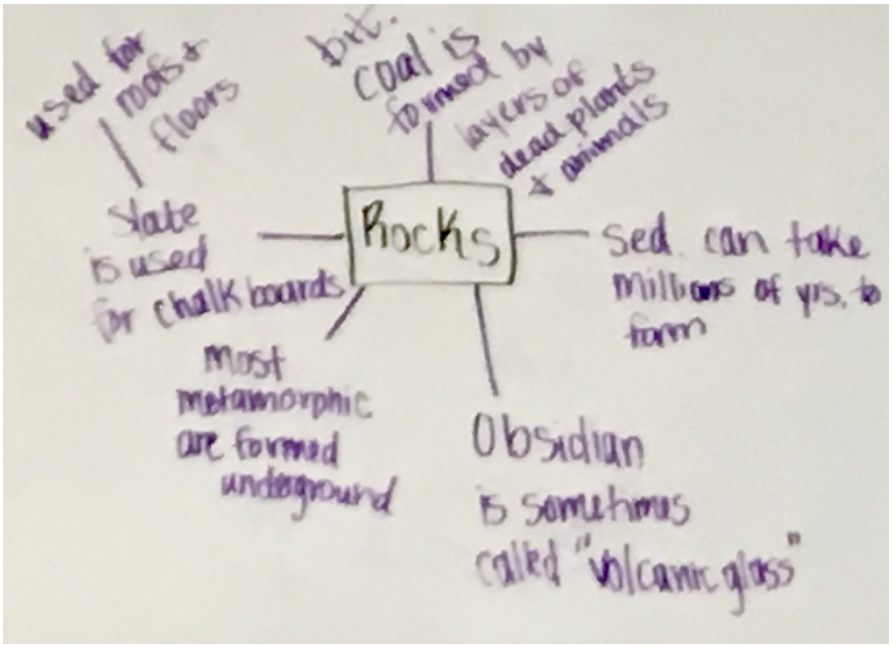


Figure 12. *Maren documented students' responses about rock facts in the form of a web.*

Overall, Maren incorporated lesson elements that were consistent with the UDL principle of expression into her implementation of lessons through the use of questioning and student responses and the use of graphic organizers. However, she stated that she found the use of Google Classroom to be a source of frustration when trying to plan, teach, and assess her students. During her final interview, she stated:

> Google classroom played a large role in my approach to reading instruction. It's a program that [site district] is pushing hard in their classrooms. Not only are the teachers getting instructed on how to use it and implement it, but the students are having to use this program as well. Normally, I prefer to not center my reading instruction around technology, but instead use it as a supplemental resource. But due to the county's policy, I had to make sure that students could complete my assignments on Google classroom, be assessed on Google classroom, and show their comprehension of texts through Google classroom. This was frustrating for me as a teacher because I wasn't really able to assess them all as fairly as I would have liked to (personal communication, December 4, 2017).

Data collected from observations and interviews indicated that, while Maren appeared to understand the need to allow students to express understandings in varied ways, the UDL framework was not a driving force in her decision-making during her implemented literacy events. Rather, much of her decision-making was in response to students' behaviors and the fact that she felt limited by the mandatory use of Google Classroom. In this instance, Maren's literacy practices were contradicted by factors that she felt inhibited her literacy event implementation and deep understanding of the UDL principles of expression was not evident.

Research Question 3: Lori. Observation and interview responses indicated that Lori embedded many instructional elements into her observed literacy lessons to address representation, engagement, and expression. However, as discussed in the findings below, Lori felt limited in her ability to present content, engage students, and allow for student expression in ways that she would have liked due to the textbook series she was given to use with the students. In other words, her literacy practices, which were based on her understandings of developmental

literacy and students' learning needs, did not align with her implemented literacy events due to the factor of the standardized textbook series.

UDL Principle of Representation. Lori's integration of elements that were consistent with the UDL principle of representation in her implementation of literacy lessons varied across her observed lessons. During her first observed lesson on September 20, 2017, Lori attempted to review text features found in non-fiction texts. She began the lesson by drawing students' attention to a chart that she had displayed at the front of the room (observation, September 20, 2017). The chart, entitled "Text Features" contained a vertical list of words and phrases: "bold words," "italicized words," "bullet points," "maps," "charts," and "tables". Lori read each text feature aloud, asking students to repeat the words after her. She then instructed them to take out their science textbooks. During her post-teaching interview, she explained:

> I wanted to make sure they had their books out in front of them even though I was reading it verbally because I wanted them to be able to see it and touch the book and turn the pages themselves. I wanted them to see it. I had the visual and tried to refer them to it. I wanted to use their science textbook because they've never actually opened it and I wanted them to have a chance to use it. It was some sort of concrete manipulative for them to use, for lack of a better term (personal communication, September 20, 2017).

Lori read a story aloud from their science textbook, asking students to follow along with their fingers. As she read, she asked, "Who sees a bold word? Put your finger on it. Why do you think it's bold?" and "If you see the word that's italicized, but your finger on it. Why do you think the author italicized the word?" Students all appeared to be tracking the text with their fingers, though only two answered her posed questions about the text features (observation, September 20, 2017). After reading the story, Lori handed each student a graphic organizer, divided with boxes, each labeled with one type of text feature. She instructed them to "go through the text and find examples of each text feature" and to write those words and page numbers on the graphic organizer. Several students raised their hands, asking, "What do we do again?" and stating, "I

don't understand this." At this point, Lori appeared flustered (observation, September 20, 2017). She tried to quickly review text features once more, then stated, "OK, since we're running out of time, let's try this again tomorrow. Just hand the papers back to me," and she took the blank graphic organizers back from the students. Lori later reflected:

> "I had the visual but it really didn't work. I think I needed to make it more visually accessible so the students really could use it, like having "bold" written in bold and "italics" written in italics. I could have had a picture of a chart or a picture of a table or map. I wish I had provided a visual that was more like that. I definitely assumed they knew more than they did which was a mistake on my part. Having examples that were actually visuals of the different kinds of features would have helped I think. I think that would have helped them with the handout later on. I also should have really looked more closely at the handout because it had "subheading" on it and we hadn't gone over subheadings" (personal communication, September 20, 2017).

In this lesson, Lori attempted to use a chart as a visual support for representation, but was later able to reflect and understand why it wasn't as effective as she had planned for it to be.

During Lori's second observed lesson, she created and used both an anchor chart (see Figure 12) and an interactive visual for modeling purposes (see Figure 13). To support student understanding of a textbook story on hurricanes and thunderstorms, Lori introduced Venn Diagrams so that students could compare and contrast these two storm types on a graphic organizer (observation, October 27, 2017). She introduced Venn Diagrams with an anchor chart (see Figure 12) on which she denoted the proper way to complete this type of graphic organizer.

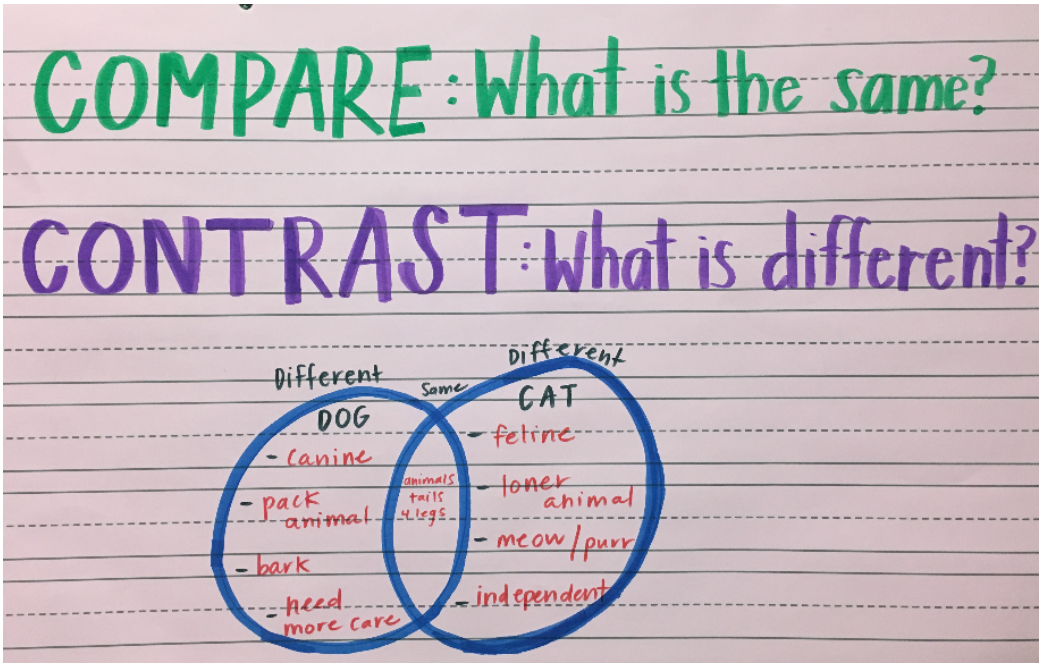


Figure 13. *Lori created this chart and completed it with the students to serve as an anchor chart for Venn Diagrams.*

Having the students supply the answers, Lori wrote their responses on the model Venn diagram, which compared and contrasted dogs and cats (observation, October 27, 2017). She later stated, "I think it really helped that we did a Venn diagram together. I could tell they needed some support with it and I'm glad I took the time to create one together, especially since it was on easy topics [dogs and cats]" (personal communication, October 27, 2017). In doing this activity with the students, Lori provided options for comprehension by activating and supplying background knowledge (CAST, 2011). After creating the model Venn diagram with the students, Lori had students compare and contrast herself with the principal of the school, documenting that in a Venn diagram visual as well.

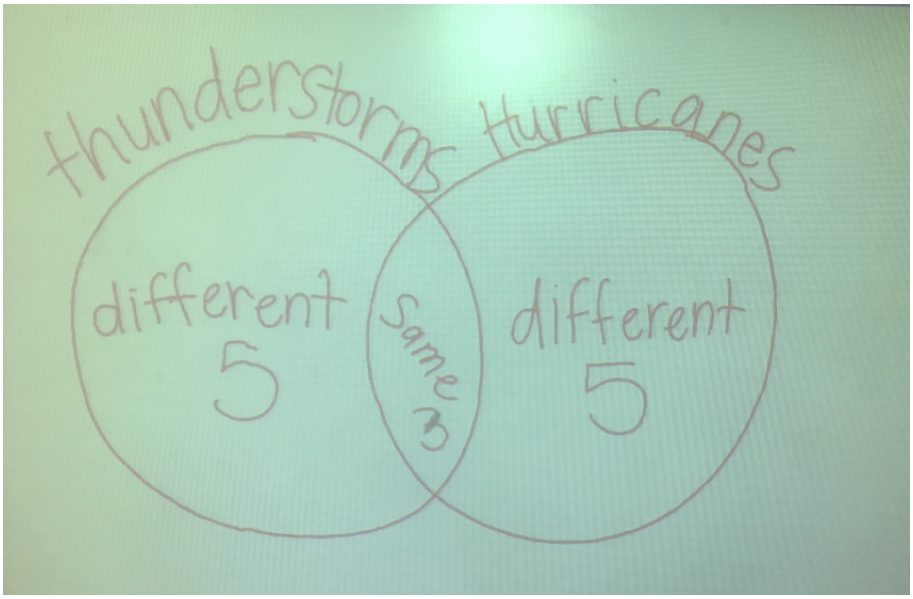


Figure 14. *Lori created this visual on the SmartBoard to help students understand the expectations of the Venn Diagrams they were to complete based on a reading.*

During her post-teaching interview, Lori stated, "I added in a few more modeling examples than I had planned because I wanted to make sure they [students] were confident with their abilities before I sent them off to work on the Venn Diagrams without me. It worked to my advantage and to theirs as well" (personal communication, October 27, 2017). The provision of options for comprehension as well as alternatives for auditory information in the form of charts or graphics is an effective way to provide multiple means of representation to enhance student understanding (CAST, 2011; Coyne et al., 2012; Meo, 2008; Rose & Meyer, 2006; Rose, Meyer, & Hitchcock, 2005).

In her November 27, 2017 lesson, which was planned as a final review of sentence types, Lori began by holding up the following words, one at a time: command, statement, exclamation, question. As she held up each paper, she had students say the word aloud in chorus. She asked, "Who can give me an example of a command?" "Who can give me an example of a statement?" Students all seemed to be able to provide examples of each type of sentence. Lori later stated, "This lesson was just a quick review of sentence types. We've been going over them for a few

days now and I'm glad they seem to understand them." The review lasted only fifteen minutes, as the class was called out to go to the school's book fair. While Lori had planned for students to go on a "book hunt" to search for and document sentence types, the trip to the book fair inhibited them from being able to complete this (observation, November 17, 2017).

Overall, Lori seemed to understand the importance of representing content in multiple ways. However, she expressed that the school's textbook series played a large role in her planning and flexibility in her instruction. During her final interview, she stated,

> Every lesson I wrote had to follow the Journeys textbook series. Each week, the entire second grade was on the same story, the same vocabulary, and the same spelling words. This left very little room for differentiation which was really frustrating. I struggled with finding ways to make sure that no one was left behind or bored. I spent countless hours planning lessons that incorporated everyone's learning styles while still meeting expectations from the other grade level teachers. Not having leveled reading groups or ways to meet with students one-on-one or in small groups made this very difficult (personal communication, December 4, 2017).

In other words, while Lori's personal literacy practices included the understanding that visual supports aid many students, her implementation of literacy events and her decision-making during implementation were primarily in response to the mandated use of the textbook series. This led to a disconnect between Lori's literacy practices and her implementation of literacy events and indicated a lack of deep understanding of the UDL principle of representation.

UDL Principle of Engagement. During observations of Lori's lessons, it was clear that she was able to integrate means of engagement in various ways. She achieved this through modeling and encouraging student self-regulation, making content relevant to students' lives, and creating a flexible learning space, in which students could choose to sit at desks, stand and work, or sit or lay on the floor. When introducing her lesson on text features, Lori announced, "Today we are going to be detectives! We're going to use our detective skills and use some clues to solve a mystery. We're going to search through a book and find text features and we're going

to work with partners" (observation, September 20, 2017). Students all yelled "Yay!" This approach to her lesson not only made it relevant to students' lives and schema by referring to them as "detectives," but it promoted student engagement through the optimization of motivation (CAST, 2011). Lori later reflected:

> I tried to engage them by telling them we were going to do something really fun. I called them 'detectives' which I think they liked. I called them 'inventors' at one point about invented spelling and they really liked that because they were coming up to me asking me how to spell lots of words and I encouraged them to try on their own by calling them spelling inventors. They like having "titles" (personal communication, September 20, 2017).

Approximately ten minutes into lesson, after Lori had asked each student to complete a graphic organizer on text features, students began telling her they did not understand what they were supposed to be doing (observation, September 20, 2017). Lori announced, "OK, I can see this is getting a little sticky so let's go back and review text features." She pointed to her chart, on which she had listed the types of text features, and reviewed each. Though the students were not ultimately able to complete the graphic organizer due to lack of time, Lori saw the need for review and took time to do so, promoting sustainment of student engagement through provision of appropriate levels of scaffolding and encouraging persistence (CAST, 2011; Rose, Meyer, & Hitchcock, 2006). Twice during the lesson, Lori stopped to remind the students of behavior expectations. "Everyone stop and put your eyes on me" and "Time for a body check. Make sure you're doing what you need to do in order to do your best work" were commands that were given that encouraged student self-regulation, thereby promoting engagement (CAST, 2011).

During each of Lori's observed lessons, students were allowed to sit, stand, or lay anywhere in the room as long as they were focused on the task at hand. During each lesson, Lori's students were engaged in partner work. Students often navigated between laying on the floor, standing by desks, or pulling chairs up to tables to work. During her final observed lesson,

Lori reminded students, "I don't care *where* you go as long as it's a place where you and your partner can work well together" (observation, November 16, 2017). In a post-teaching interview, Lori addressed this.

> I don't care *where* they work, as long as they're focused. It took some practice for them to understand how to move around without creating distractions. Plus [cooperating teacher] doesn't typically do that, so it took her some time to get used to it. But I think she sees how much it's working now that the kids know how to find where they work best (personal communication, October 27, 2017).

Allowance for student movement not only encourages self-regulation, but it also promotes engagement through facilitation of personal coping skills and strategies as students learn to determine their optimal learning style (CAST, 2011; Narkon & Wells, 2013). Overall, Lori exhibited deep understandings of how to best integrate the principle of engagement into her lesson implementation. Over the course of her three observed lessons, she was observed integrating various methods of engagement twenty-four times. Observation and interview data indicated that Lori's literacy practices included the incorporation of elements of engagement. However, as most of her methods of engaging students were integrated in isolation, not accompanied by additional approaches, observations of Lori's lessons indicated that she understood the importance of student engagement but lacked the integration of multiple means of engagement, indicating a lack of understanding of the UDL principle of engagement.

UDL Principle of Expression. Lori's implementation of lessons yielded few observations of lesson elements that were consistent with the UDL principle of expression, though her lesson plans exhibited a strong approach to integrate modes for student expression. She reflected honestly on this during her final interview:

> It was really hard to assess my kids fairly because every student was expected to read on grade level and they were all assessed that way plus every teacher was expected to give the same exact assessment on the same exact days. So I felt like lots of them were left behind and some of them were bored because I couldn't teach them based on their levels

> which means I couldn't assess them that way. That made it really hard on me, to be honest (personal communication, December 4, 2017).

In each lesson, Lori had her students work with partners that she assigned. "I assigned partners very carefully, not only based on behavior but also based on who I knew would need the help of someone who'd understand it" (personal communication, October 27, 2017). While students worked with partners, Lori circulated, doing quick check-ins with each set of students. This served as a method of formative assessment and also created a comfortable atmosphere in which students felt safe asking questions.

During her review of sentence types (November 17, 2017), Lori conducted a whole-group question and answer session.

> She asked, "Who wants to share a statement?" A student replied, "The class is so quiet." Lori answered, "Great statement! What punctuation did you use at the end?" The student answered, "A period." Lori said, "Yes, very good. Now who can give me a question?" Another student replied, "Is Ms. [Lori's last name] awesome?" Many students giggled and Lori jokingly answered, "Yes, that's a great question and the answer, of course, is yes." Students giggled again. Lori said, "Ok, last one. Who can give me a command?" A student replied, "Go to sleep!" Lori said, "Yes, and that sentence can be both a command and an exclamation. Who can tell me the difference?"

Because this was her final day of teaching sentence types, she later shared that this whole-group review was her way of assessing students' understandings (personal communication, November 17, 2017). While Lori was able to integrate components into each of her lessons in which content was presented in various ways and in which engagement was addressed, she expressed that she felt unable to assess the students in ways that seemed fair, given that all students were expected to complete the same assessments and activity sheets (personal communication, December 4, 2017). Once again, this indicated that her personal approach to literacy practices was in conflict with some of her literacy events due to the necessity of adhering to the mandatory textbook series.

Overall, Hannah, Maren, and Lori exhibited few examples of integration of lesson components that were consistent with the UDL principles of multiple means of representation, engagement, and expression during their implementation of observed literacy lessons. Their decision-making concerning lesson elements during their implementation of literacy events was primarily rooted in their desire to meet students' needs, their understandings of developmental literacy, and their responses to the factors of time allotment for lessons, student groupings, and mandatory literacy curricula. Figure 15 (below) depicts the frequency in which each participant incorporated elements into her lessons during implementation that integrated singular elements of representation, engagement, and expression. Figure 16 (below) depicts the number of times in which each participant was observed integrating *multiple* means of representation, engagement, and/or expression into their lessons. While the roles of time allotment, student groupings, and/or mandatory literacy curricular materials left each participant feeling inhibited in her implementation of lessons, the analyzed data also revealed an overall lack of deep understanding that the UDL principles call educators to provide *multiple* means of representation, engagement, and expression in lessons.

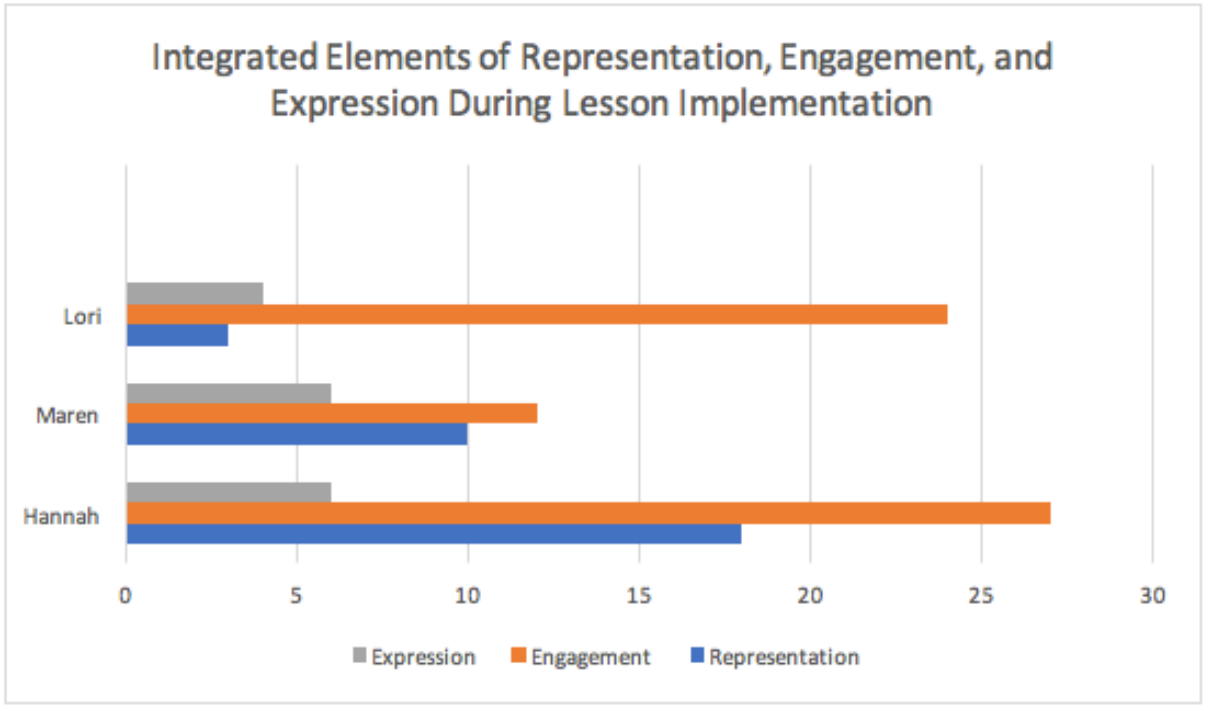


Figure 15. *This graph depicts the number of times in which participants were observed integrating a singular element of representation, engagement, and/or expression into their lessons.*

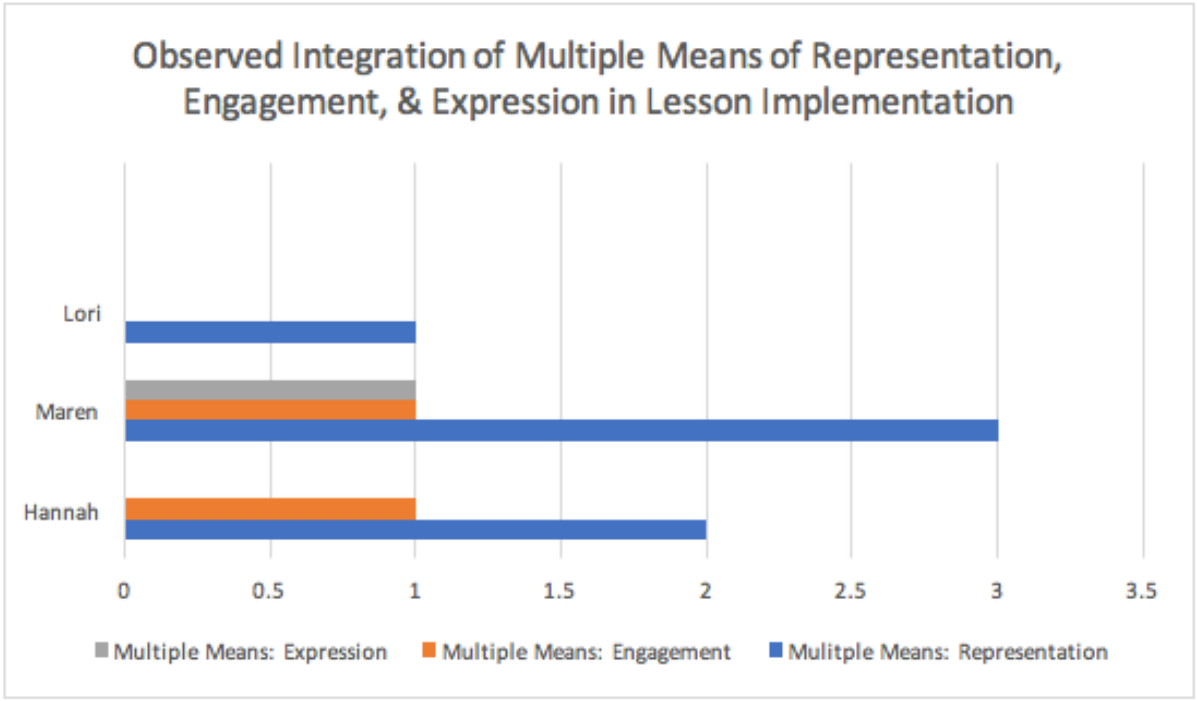


Figure 16. *This graph depicts the number of times in which participants were observed integrating multiple means of representation, engagement, and/or expression into their lessons.*

Findings and Collective Themes Across Cases

Overall, from my analysis of the collected data, there were three findings: 1) there was evidence that participants exhibited understandings of developmental literacy but a lack of understanding of UDL; 2) participants felt limited in their ability to incorporate means of representation, engagement, and/or expression into their literacy lesson plans due to the factors of time and/or curricular resources in each participant's placement classroom, and 3) decisions made during the implementation of lessons were informed by student responses to instruction and by the factors of time and curricular resources, indicating a lack of understanding of UDL during lesson implementation, and also leading to feelings of dissonance between participants' personal literacy practices and the literacy events that they planned and taught.

Table 4 provides a summary of these findings as they align with Barton and Hamilton's (2000) framework, in which literacy practices, or pedagogical decision-making, are shaped by the success, or lack thereof, of literacy events, or the lessons that take place in the classroom. Likewise, according to Barton and Hamilton, teachers' literacy planned literacy events, or observable lessons that are taught, are typically shaped by their beliefs in literacy practices. The findings in this study revealed that the district/school/classroom contextual factors of mandatory curricular resources and time allotment often created dissonance between the participants' beliefs in literacy practices and their execution of literacy events.

Table 4

Findings

Finding 1	Participants exhibited well-developed understandings of developmental literacy practices, but a lack of understanding of UDL as a framework for designing and implementing literacy lessons.
Finding 2	Participants felt limited in their ability to incorporate means of representation, engagement, and expression into their literacy lesson plans

	due to the factors of time and/or literacy curricular resources in their placement classrooms, indicating a lack of deep understanding of how to integrate UDL into their lesson plans.
Finding 3	Decisions made during the implementation of lessons were informed by student responses to instruction and by the factors of time and curricular resources, indicating a lack of understanding in how to integrate the UDL principles during lesson implementation, and also leading to feelings of dissonance between participants' personal literacy practices and the implemented literacy events.

In addition to these findings that answer the research questions, there were four collective themes that consistently presented themselves across and between cases. These themes were: participants' understandings of developmental literacy, the role of the literacy curricular resources, the role of time allotment, and the feeling that "good teaching is good teaching, regardless of the framework used," stated in varied ways by each participant throughout the duration of the study.

This study was designed to describe pre-service teacher participants' sense-making of UDL in the planning and implementation of literacy lessons. While the goal was to describe the individual cases and collect relevant information to address each research question, the data also revealed common cross-cutting themes across cases. The themes across cases may not thoroughly address each participant's sense-making of the integration of UDL and literacy, but the details that arose helped provide context for the findings. In order to make sense of the data collectively, I evaluated my data by sorting through my coding of the screening surveys, lesson plan documents, transcribed interviews, and observational data in MaxQDA. The themes discussed below are ones that appeared multiple times across all three cases.

The conceptual map below demonstrates the connections between the common themes that arose and their relation to the research questions that focused on participants' sense-making of multiple means of representation, engagement, and expression during literacy lesson planning

and implementation (see Figure 15). Analysis of the collected and coded observational, interview, and document data indicated that participant's understandings of developmental literacy played a large role in their sense-making during lesson planning. Their recognition of their students' needs, the time allotment provided for literacy lessons, and the literacy curricular resources used in the classrooms were common factors in participants' sense-making during lesson implementation. The iterative practice of planning and implementing literacy lessons led the participants to each verbalize that, while they often realized *after* the teaching of the lessons that they had integrated elements of representation, engagement, and expression, the planned and implemented literacy events were based on their understandings of what their students needed in order to learn the content being presented, surmising that "good teaching is good teaching." However, while each participant was able to identify elements of representation, engagement, and/or expression in her lesson plans, each also indicated a lack of understanding of UDL, which calls for the planning for and integration of *multiple* means of each principle in order to best meet the needs of all students. Participants' notion that "good teaching is good teaching" indicated their recognition that the inclusion of some elements of representation, engagement, and expression are mirrored in common effective teaching practices. However, this common theme further lends credence to the finding that participants did not have a deep understanding of UDL over the course of their student teaching experience.

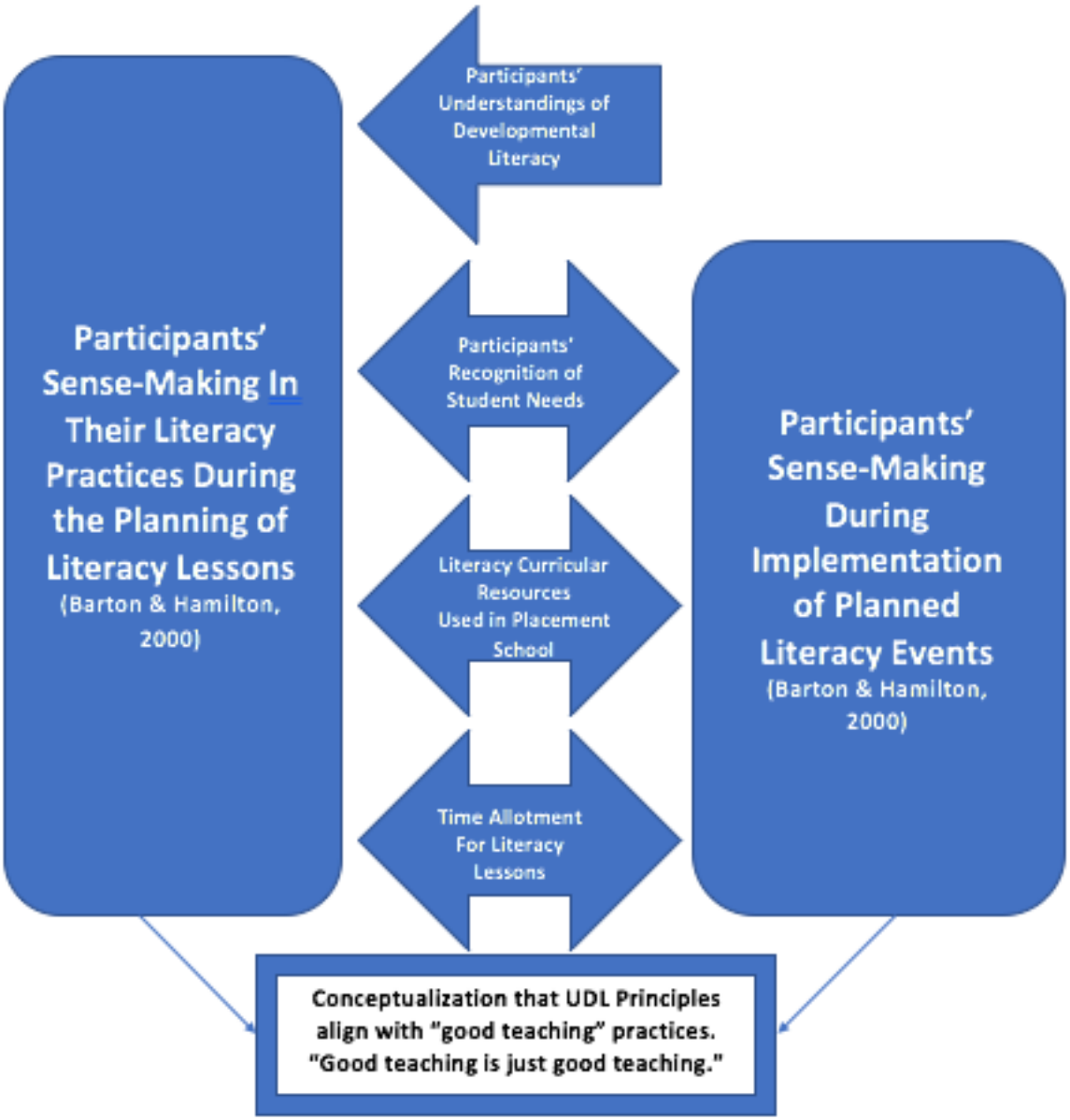


Figure 17. *This conceptual map depicts the roles played by participants' understandings of literacy in their personal literacy practices, as well as the roles played by the roles of recognition of student needs, literacy curricular resources, and time allotment for lessons in participants' literacy practices as well as their planned literacy events. Ultimately, participants each felt that "good teaching is good teaching." This theme indicates the recognition of common effective teaching practices, but indicates that participants lacked an understanding of the intricate nature of UDL.*

Prior Understandings of Developmental Literacy

At the onset of this study, responses to the sampling screening surveys (see Appendix C) indicated that selected each pre-service teacher participant demonstrated strong understandings

of developmental literacy, with each participant citing the belief that a teacher needs to understand students' current levels and abilities in literacy in order to provide data-driven, targeted instruction (personal communication, September 1, 2017). Additionally, in both the screening surveys as well as in the observations of each participant, each focused on the explicit instruction of comprehension strategies, which has been proven to provide strong student support in their comprehension of text (Duke & Pearson, 2002; Duke, Pearson, Strachan, & Billman, 2011; Keene & Zimmerman, 2007; NRP, 2000). In analyzing the responses on the screening surveys as well as the final interviews, each participant stated that her literacy methods coursework from the site university was a factor that informed her beliefs and understandings concerning developmental literacy. Teacher preparatory coursework has been found to have a direct influence on pre-service teachers' approaches to literacy practices (Flint, Maloch, & Leland, 2010; Griffith et al., 2010; Grisham, 2000, Grossman et al., 2001; IRA, 2010; Kent, Giles, & Hibberts, 2013; Risko, 2009; Scales et al., 2014), and findings from this qualitative multi-case study corroborated those findings.

Both Maren and Lori expressed frustration at the fact that they felt they were not in a context that allowed them to teach leveled guided reading based on students' instructional levels. Both felt as though they were not allowed to use their professional judgment to implement practices that they felt would best serve students in literacy instruction. The common understanding of developmental literacy was salient across cases, allowing Hannah to continue practicing what she had learned through her university coursework, and frustrating Maren and Lori, both of whom felt limited in their allowance to teach literacy in ways they wanted.

In her final interview, Hannah stated, "My approach to teaching reading to meet students' needs has stayed the same from the beginning to the end of student teaching, but it was intriguing

to see everything I learned put into action by seeing student's excitement for reading and their reading levels increasing when doing running records" (personal communication, December 4, 2017). In their final interviews, both Maren and Lori stated that their student teaching experience had no impact on their views about how to teach reading, with Lori surmising, "I can't wait to get into my own classroom and teach reading the way I know it can be taught" (personal communication, December 4, 2017). This finding indicates that participants' personal pedagogical literacy practices were not impacted by the limitations that came into play during their student teaching experiences.

Role of Curricular Resources

As discussed in the research question findings through vignettes and interview responses, the mandated curricular resources in each participant's placement school for student teaching was a strong factor in their ability to integrate elements of representation, engagement, and expression into their literacy lessons. In Hannah's classroom, she was given access to the leveled book room, in which she was able to use sets of books for instruction that aligned with levels, as determined through literacy assessments. In Maren's classroom, the mandate of using Google Classroom created a limitation in that she was not able to access reading materials that were on varied levels that could be uploaded to Google Classroom. "Google Classroom proved to be really frustrating to me. I understand how it can be a good thing in terms of integrating technology into learning, but it really made it so I couldn't provide leveled texts to my students. It created a 'one size fits all' kind of thing" (personal communication, December 4, 2017).

Of the three participants, Lori seemed to feel the most limited in what she could do to integrate components of representation, engagement, and expression, as she was required to teach whole-group reading with only second-grade level textbooks. Due to the fact that many of

the students in her class were not able to yet read grade-level text, Lori's observed lessons all included her reading the text aloud while students followed along. "Not having leveled groups and not being given chances to meet with student individually really impacted my approach to teaching reading. I really don't know if I made a difference in reading or not because I wasn't allowed to use books that the kids could actually read" (personal communication, December 4, 2017). Research on effective literacy instruction has emphasized the use of literacy assessment data to facilitate small-group targeted reading instruction based on developmental needs (Duke & Pearson, 2002; Firmender, Reis, & Sweeny, 2013; Gentry, 1999; Moon, 2005; Robb, 2008; Walpole, McKenna, & Philippakos, 2011). The role of developmentally leveled texts (or lack thereof) was a consistent theme across cases in this study. This finding indicates that Lori and Maren each experienced dissonance in their literacy practices as they planned and implemented literacy events during their student teaching experiences as a result of the factor of mandated district or school literacy curricular resources.

Role of Time

Across the three cases, the role of time allotment for teaching consistently arose, primarily in Hannah's case, but also with Maren and Lori. As discussed in the findings for Research Questions Two and Three, Hannah routinely expressed frustration at the brief fifteen-minute time blocks that she was given to conduct rotating guided reading groups. This seemed to strongly affect her integration of representation, engagement, and expression into her lessons. She was able to somewhat present content in different ways through the use of visual supports and modeling, but her integration of engagement was primarily reactionary and she had very little integration of the principle of expression, which she attributed to a lack of time. "I don't have as much time as I'd like to have so I really can't do everything I learned at [site university].

It's hard finding activities that fit into the time I have with the kids" (personal communication, September 27, 2017).

In Maren's case, while she was given 45-minute blocks of time in which to teach her literacy lessons, her instructional time was limited by the various levels of students in her large reading group. In each of her lesson plans, she documented in detail how she planned to assess student learning, often writing in elements that included student choice. However, in her lesson implementation, she found that time was impacted due to needed to address lack of student understanding. After her first observed lesson, Maren stated:

> My intro was longer than I intended it to be. They didn't get to complete the guided practice because they didn't have enough time. They didn't get to do the closure because they didn't have time. They had way more questions that I had anticipated. I was planning on assessing during the closure but since I didn't have time to I wasn't able to assess (personal communication, September 27, 2017).

Findings were different in Lori's student teaching context. Though time played a role, it played the opposite role than in Hannah's and Maren's classroom. Lori stated several times that her CT gave her "all the time I want" to teach reading. However, due to the fact that she was not able to teach small leveled groups, and instead found that she needed to read a text aloud to the entire group, she often was left with time unused, harkening back to the role played by the class curricular resources. During her final interview, Lori stated:

> Time was very flexible in my class. I never used the whole hour that we had for teaching reading, but we had other resources to work with during that time. I used about 45 minutes to complete lessons, and that was plenty. The time thing ended up backfiring on me because I ended up spending too much time on some lessons. It was hard to find the happy medium. Now that I'm done [with student teaching], I can look back and see that time played a large role in my teaching (personal communication, December 4, 2017).

The role of time created a feeling of dissonance in participants, as their personal literacy practices did not align with the expectations of the completion of a literacy event within a given

amount of time. This theme was evident in Hannah's case, but the allotment of instructional time also created dissonance for Maren and Lori.

"Good Teaching is Just Good Teaching"

A noteworthy common theme that arose throughout the course of this study was finding that much of what the participants planned for and implemented in literacy lessons were elements they included based primarily on their understandings of literacy and of children, without UDL principles in mind. During post-teaching interviews with each participant, at different times, they reflected on lesson elements and made statements that demonstrated that they were teaching in ways that were responsive to their students, not necessarily considering UDL while doing so. After her first observed lesson, Hannah stated, "I didn't even think about that [using a whiteboard as a visual support] being a UDL approach for representation when I wrote my lesson plan. It just seemed like the right way to teach it" (personal communication, September 27, 2017). When reflecting on one of her lessons, Maren said, "I honestly didn't think about the fact that helping students try to pay attention and be good listeners had anything to do with the principle of engagement. I just needed to help them learn to be able to focus" (personal communication, November 20, 2017). During her final interview, Lori reflected on this as well, stating that many of the instructional approaches that she believes are effective "just happen to mirror UDL" (personal communication, December 4, 2017).

This common theme is especially interesting because, while many elements were integrated into participants' lesson plans that addressed representation, engagement, and expression, each participant chalked it up to "good teaching." This further demonstrates a lack of full, deep understanding of UDL, which is meant to be used as a thoughtful, proactive framework for the inclusion of multiple means of representation, engagement, and expression. Participants'

harkening UDL to simple "good teaching" indicated naivety, and perhaps a lack of readiness to use UDL as a framework for designing and implementing differentiated instruction.

Summary

Each of the respective cases demonstrated sense-making of integration of literacy lesson elements that indicated that their prior understandings of developmental literacy and students' needs were the driving forces behind their instructional plans and decisions. Data also indicated that the classroom contexts of time and curricular resources impacted participants' ability to plan and implement instruction that aligned with their literacy practices. While evidence indicated that all participants had strong foundational understandings of developmental literacy prior to their student teaching experience, it also indicated that participants' conceptualizations of UDL were surface-level. Thematically across cases, each pre-service teacher participant discussed the role played by the literacy curricular resources used in the district/school/classroom, either allowing them freedom to teach in developmental ways, in Hannah's case, or leaving them feeling limited in the ability to teach in ways that met students' needs, in Maren's and Lori's cases. Each participant also referenced the time allotment provided for literacy instruction as playing a role in their ability to effectively implement literacy lessons which integrated representation, engagement, and expression. Finally, each participant individually surmised that "good teaching is good teaching," indicating an understanding of common effective teaching methods, such as the provision of visuals and the inclusion of student choice, but also indicating a lack of conceptual understanding of UDL.

Chapter Five: Implications and Recommendations

The findings of this capstone were written to provide information to the site university's elementary education program coordinator and faculty members about pre-service teacher participants' sense-making of Universal Design for Learning as a framework for planning and implementing literacy instruction during their student teaching semester. These findings have implications for the site university's education department faculty in terms of teacher preparatory coursework and placements made for pre-service teachers' field experiences. During pre-service teachers' student teaching experience, they are partially evaluated, via a rubric, on their inclusion of multiple means of representation, engagement, and expression in their lessons (see Appendix A). Therefore, this capstone project was designed to meet an organizational need of collecting evidence about pre-service teachers' sense-making of these UDL principles while planning and teaching literacy lessons. I sought to provide thick description of pre-service teachers' understandings and integration of the UDL principles into their literacy lesson planning and implementation during their student teaching experience. It is my hope that this Capstone project will add to the research about teacher education and how pre-service teachers approach instruction for students who have demonstrated varied learning needs.

The conceptual framework for this study began with the problem of practice: pre-service teachers at the site university have demonstrated varied levels of understanding of how to incorporate UDL principles as a way of designing and implementing instruction for students with diverse academic needs. Current research indicates that university coursework and field experiences play an integral role in pre-service teachers' instructional understandings and approaches, which inform teachers' literacy practices (Barton & Hamilton, 2000; Flint, Maloch, & Leland, 2010; Griffith, Swaggerty, Hu, Thompson, & Cannon, 2010; IRA, 2010; Scales et al.,

2014). There was strong evidence of this in the data collected as well. As discussed in the collective themes in Chapter Four, the context of the field placement for student teaching was also found to play a vital role in pre-service teachers' planning and teaching of literacy that integrated elements of representation, engagement, and expression. School- or district-based factors that consistently arose in the analysis of observational and interview data included the amount of time provided for the teaching of literacy and the curricula used for the instruction, which had great influence over the literacy events planned by the pre-service teacher participants (Barton & Hamilton, 2000). Therefore, I revised the conceptual framework to be more specific and to include field placements as a factor *during* the student teaching experience, not only before the experience begins (see Figure 16).

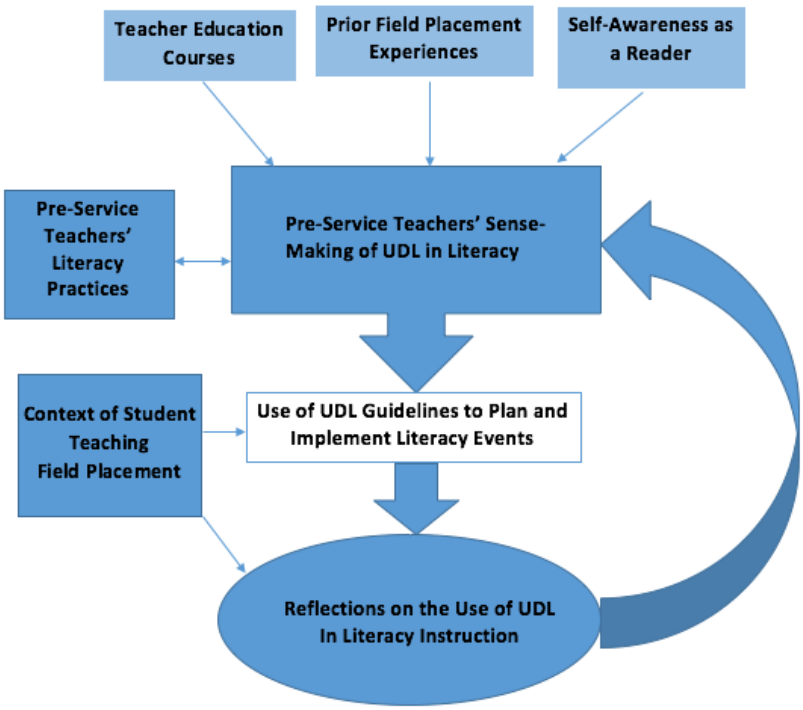


Figure 18. *The revised conceptual framework for this study indicates the finding that the context of the student teaching placement played a role in participants' literacy practices and planned literacy events, ultimately playing a role in their sense-making of UDL, as participants regularly felt inhibited in their ability to design and teach differentiated literacy instruction due to the factors of time and literacy curricular resources.*

My original conceptual framework recognized the role played by prior field experiences in pre-service teachers' practices and teaching events, as supported in current teacher education research. The revised framework includes the role played by the field placement context during student teaching, as evidence collected indicated that the placement district/school/classroom played a large role in pre-service teachers' conceptualizations and integration of representation, engagement, and expression into their planning and teaching of literacy lessons. In other words, the field placement factors of time allotment and literacy curricular resources influenced the pre-service teacher participants as they planned literacy events. These factors also regularly created dissonance in the participants' literacy pedagogical beliefs, or literacy practices (Barton & Hamilton, 2000).

Finally, as stated in the problem of practice, it is necessary that teachers enter the workforce prepared to design and teach literacy in ways that address diverse academic needs of students. In this study, collected data indicated that pre-service teacher participants' university coursework played an integral role in their understandings of literacy teaching. However, their conceptualizations of UDL prior to student teaching indicated basic recognition of it to surface-level understandings.

In this study, I was not focusing on contextual factors in the student teaching placements. Rather, my focus was on the participants' sense-making of UDL when planning and teaching literacy during student teaching. However, due to the large role that was played by the field placement factors of time and curricular resources, I believe further longitudinal research on the impact of field placements on teachers' personal literacy practices would provide beneficial information.

Implications

The findings of this study have implications for future students, the stakeholders (site university elementary education program coordinator and faculty members), and those researching pre-service teachers' sense-making of UDL and literacy. Each implication is listed based on the findings from my collection and analysis of data.

Implication of Finding One

Finding one indicated that the pre-service teacher participants all began their student teaching experience with strong foundational understandings of developmental literacy, as well as recognition of the importance to address students' literacy needs in planning and teaching. However, they indicated a lack of understanding of UDL as a framework for designing and implementing literacy lessons. This finding implies that the participants did not indicate readiness for the integration of UDL in literacy lesson planning or the implementation of literacy lessons. While university coursework on literacy instruction seems to be resonating with the students, it would be beneficial for the site university to offer a course on differentiation to its pre-service teachers, not only to instruct them on the philosophy of differentiation, but to provide them with multiple opportunities to use frameworks for differentiation to design and implement lessons. Because the current student teaching lesson plan template and rubric indicate the use of the UDL framework as a required component, the inclusion of targeted instruction about the utilization of UDL framework would benefit students (see Appendix A for the student teaching lesson plan evaluation rubric).

Implication of Finding Two

Finding two indicated that the contextual factors of time allotment for literacy lessons and mandated curricular materials in the field placement classrooms did not allow participants to

consistently feel able to design and teach lessons that included elements for the purpose of differentiation. Participants each stated that the school- or district-based factors of time allotment for literacy instruction and/or instructional literacy materials left them feeling inhibited or limited their ability to fully integrate modes of representation, engagement, and expression into their teaching. There are two implications of this finding. First, it implies participants' lack of deep understanding of how to use the UDL framework to design and implement lessons, as the UDL framework is designed to assist teachers in planning differentiated lessons even when there are contextual factors at play, such as brevity of time or mandated textbook usage. Second, it implies the need for an assessment to be conducted of possible field placements for the site university's pre-service teachers, to ensure flexibility in time and curricular resources.

Implication of Finding Three

Finding three indicated that participants' decisions made during the implementation of lessons were informed by student responses to instruction and by the factors of time and curricular resources, indicating a lack of understanding in how to integrate the UDL principles during lesson implementation, and also leading to feelings of dissonance between participants' personal literacy practices and the implemented literacy events. This finding implies that though the participants rarely integrated the UDL principles into their lesson plans and during lesson implementation, they were unaware of this, implying a lack of readiness as well as a lack of experience with designing lessons that integrated the UDL principles. This indicates the need for pre-service teachers at the site university to have multiple opportunities to design and teach lessons that consist of modes of differentiation.

Limitations

There were several limitations of this study. One is objectivity on the part of the researcher. While I used a set of codes when analyzing interviews, observations, and lesson plans, there is room for subjectivity due to the fact that I am an educator at the site university and that each participant was a former student of mine. Additionally, my presence as a researcher could have affected participants' responses. Though I made it clear that I was not in a supervisory or evaluative role, my role as their former professor could have had an effect on their responses. This was also the first qualitative research project I had conducted on my own, except for briefer studies that I conducted for my qualitative research courses. My status as a novice researcher could have been a limiting factor.

In addition, I did not collect longitudinal data about participants' conceptualizations and integration of UDL in literacy lessons. Data was collected over a three-month period of time, which was the duration of student teaching (see Appendix K for data collection log). Also, after my first round of data collection, I decided to modify the observation protocols so that I could document as much as possible for later analysis (see Appendix L for revised observation protocol sheet). I also modified the interview questions after the first round of data collection in order to gather more information about the contexts of the field placements due to the fact that each participant spoke about the impact of the context on her planning and teaching (see Appendix M for revised interview questions).

Because there were only three participants, it is possible that the findings would have differed with different participants or with more participants. I also believe it would have been beneficial to interview each field placement classroom's cooperating teacher, as that could have provided greater context about their classrooms and their expectations of the student teachers.

However, because interviewing the cooperating teachers was not on my application for IRB approval, I was not able to interview them.

Lastly, the data did not always relate directly to understandings of UDL or integration of UDL principles. There were several times in which the participants spoke of the fact that they had not considered the UDL principles during the planning or teaching of literacy lessons, but had considered student needs and later discovered that their lessons happened to align with UDL principles. While this data is helpful in terms of understanding what participants were considering during the planning and teaching of lessons, it does not necessarily lead to understandings of their conceptualizations of UDL when teaching literacy.

Recommendations

The following recommendations are specific to the site university's elementary education program coordinator and faculty as the stakeholders in this study. These recommendations are based on the findings and implications of my study and my expertise in the fields of elementary literacy and teacher education.

Table 5

Recommendations for Elementary Education Program Faculty Stakeholders

Recommendations	
Recommendation 1	Because the participants did not indicate readiness to integrate the UDL principles into lesson plans or during lesson implementation, it would be beneficial for the site university education program to offer a pre-service teacher course that is focused on the philosophy of differentiation and that includes instruction on the frameworks that can be used to assist them in the design and teaching of differentiated lessons.
Recommendation 2	It would be beneficial for the site university's teacher education program coordinator and faculty members to conduct as an assessment of all potential field placements for pre-service teachers to ensure flexibility in time and curricular resources. Additionally, it would be beneficial to provide training for pre-service teachers

	that enables them to differentiate lessons in spite of any contextual circumstances that may be present in their placement classrooms.
Recommendation 3	Prior to student teaching, it would benefit the site university's pre-service teachers to have authentic opportunities to design and implement differentiated lessons, using targeted frameworks for differentiation on which they have received instruction.

Recommendation One

Finding one states that, while the pre-service teacher participants exhibited strong foundational understandings of developmental literacy through inclusion of targeted phonics work, vocabulary, fluency, and comprehension (Adams, 2011; Cunningham & Allington, 2015; Kuhn, Groff, & Morrow, 2011; Paratore & McCormack, 2011), they did not demonstrate understandings of UDL as they planned and implemented literacy lessons. They were able to define UDL and name its components, but they did not indicate understandings about the need to plan for and implement *multiple* means of representation, engagement, and expression in lessons. This implies that, while participants each demonstrated foundational understandings of developmental literacy, it would be beneficial to offer a course for pre-service teachers that delves deeply into the philosophy of differentiation and includes instruction on frameworks that can be used to plan and implemented differentiated lessons. Therefore, my first recommendation is that the university education faculty continue embedding instruction on developmental literacy in its pre-service teacher methods courses, but also offer a course on differentiation that instructs on it as a philosophy as well as on frameworks that can be used to design and teach differentiated lessons.

The increasing diversity in schools drives the need for teachers to be well-versed in pedagogy that is proactively designed to meet students' varied needs (CAST, 2007; Gargiulo & Metcalf, 2010; King, Williams, & Warren, 2010; Meyer, Rose, & Gordon, 2014; Williams, Evans, & King, 2012). Analysis of data for this study revealed a disconnect between

participants' understandings of developmental literacy and their understandings of the UDL principles, both in theory and in practice. Because the incorporation of UDL principles is currently an expectation of student teachers at the site university (see Appendix B for the student teaching lesson plan template and Appendix A for the scoring rubric), it is important that pre-service teachers enter the student teaching experience both with theoretical understandings of differentiation as well as practical understandings of how to incorporate the UDL framework in the planning and teaching of lessons.

Recommendation Two

Finding two indicates that participants felt limited in their ability to incorporate means of representation, engagement, and expression due to the contextual factors of time allotment for literacy instruction and/or the mandatory literacy curricular resources that participants were expected to use. Throughout the duration of the student teaching experience, participants expressed frustration about feeling limited in their ability to differentiate literacy instruction due to these factors. As my first recommendation, I believe it would be beneficial for the site university's teacher education program coordinator and faculty members to conduct as an assessment of all potential field placements for pre-service teachers to ensure flexibility in time and curricular resources. Within the UDL framework, materials and instructional time are meant to be flexible and variable based on the needs and strengths of the students (CAST, 2011). In literacy, this means that reading materials should be leveled based on students' needs and that time should be allotted in ways that allow the most instructional time for students who need it. Because the university strives to place pre-service teachers in classrooms where they are enabled to teach in the same or similar ways in which they were instructed in their preparatory coursework, utilizing developmentally leveled texts and allotting time as needed, the assessment

of viable student teaching placements may have the potential to help education faculty place pre-service teachers in flexible, supportive student teaching environments.

As a second recommendation for this finding, it would benefit pre-service teacher candidates to be trained in ways in which they can differentiate instruction in spite of any contextual circumstances that may arise. For this purpose, I recommend utilizing case studies and scenarios in university preparatory coursework in which instructional challenges are presented in order for pre-service teachers to be able to work and talk through solutions that allow for effective modes of differentiation.

Recommendation Three

Finding three indicates that the pre-service teacher participants each experienced dissonance between their personal literacy beliefs, or literacy practices, and their implementation of literacy events, due to the contextual factors of time allotment for literacy instruction and mandatory literacy curricula. This also indicated that participants had a lack of understanding of how to incorporate UDL principles, as the UDL framework can be utilized to design instruction regardless of the factors of time or curricular materials. While the original conceptual framework recognized the impact made by field placements on pre-service teachers' approach to literacy instruction prior to the student teaching experience (Flint, Maloch, & Leland, 2010; Griffith et al., 2010; Grisham, 2000, Grossman et al., 2001; IRA, 2010; Kent, Giles, & Hibberts, 2013; Risko, 2009; Scales et al. 2014), it did not take into consideration that the context of the student teaching classroom could make the pre-service teacher participants feel limited in their approach to planning and teaching literacy lessons during the student teaching experience.

Throughout the duration of the study, participants regularly expressed frustration about the disconnect they felt between their personal beliefs about literacy instruction and the

limitations felt by the factors of time and curricular resources. Because of this, my recommendation for this finding is that, prior to student teaching, it would benefit the site university's pre-service teachers to have authentic opportunities to design and implement differentiated lessons, using targeted frameworks for differentiation on which they have received instruction. In order for per-service teachers to be able to adequately understand and use UDL or other frameworks for the design and teaching of lessons, it is vital that they are offered multiple opportunities to practice.

Currently, pre-service teachers at the site university are not presented with assignments or opportunities to thoroughly apply the UDL principles to lesson plan design. As it is an expectation for pre-service teachers to use UDL as a framework for designing and teaching lessons during the student teaching experience, it is vital that they have an opportunity to practice it multiple times. This in the only way in which they will be able to enter the student teaching experiences with well-grounded understandings of UDL.

Chapter Six: Action Memo

The elementary education program coordinator at the site university will be provided the findings and the recommendations. Recommendations reflect the body of literature on effective literacy instruction, UDL and literacy lessons, and teacher education, as well as the analysis of collected data for the qualitative multi-case study. The recommendations also align with my conceptual framework, in which I propose that a pre-service teachers' sense-making of differentiation and UDL during student teaching will be impacted by the design and implementation of lessons as well as by the context of the field placement. The action memo that will be sent to the site university's elementary education program coordinator states the following:

To: Elementary Education Program Coordinator

From: Courtneay Kelly
Doctoral Candidate, University of Virginia

Dear Elementary Education Program Coordinator:

Thank you for the opportunity to work with three of your student teachers for my study. I am grateful for this opportunity to learn from and with your students and I hope that my findings and subsequent recommendations will prove helpful for your program. Below are the findings and recommendations from my study on pre-service teachers' sense-making of Universal Design for Learning in the planning and implementation of literacy lessons. I collected several sources of data, including: screening surveys, pre-teaching and post-teaching interviews, lesson observations, and lesson plans. I would be happy to meet with you to provide any additional information.

For this study, I selected three participants with whom to work based on their responses to the original screening survey, which indicated that each had some level of working knowledge of both developmental literacy and Universal Design for Learning. These levels of understanding varied from solid foundational understandings to shallow understandings. Below are the four findings of my study of these three cases:

Finding One
As you had previously shared with me, and as I read in the student teaching lesson plan template

and scoring rubric, your program maintains the expectation that student teachers will integrate the three UDL principles of multiple means of representation, engagement, and expression into their literacy lessons during the student teaching experience. Each participant displayed deep levels of understanding in regards to developmental literacy and the necessity of designing literacy lessons based on student needs. However, they did not indicate understandings of how to effectively use the UDL framework to plan and implement literacy lessons.

Finding Two

One of the goals of this study was to determine the factors that informed pre-service teacher participants' approaches to literacy lesson planning. Each participant in this study included instructional elements in their plans that allowed opportunities for representation, engagement, and expression. However, their lesson plans rarely included *multiple* means of representation, engagement, and expression. Though the factors of time allotment for literacy lessons and mandated literacy curricular materials led to dissonance for the participants, this finding indicated a lack of understanding of how to plan lessons through the use of the UDL framework.

Finding Three

Another goal of this study was to investigate participants' incorporation of UDL principles in the implementation of literacy lessons. During the observed literacy lessons, participants indicated a lack of understanding in how to integrate the UDL principles during literacy lesson implementation. Additionally, the factors of time allotment for lessons and mandated curricular materials led to feelings of dissonance for each participant, as they felt their personal literacy practices were often at odds with what they were able to plan and implement due to the constraints they felt by the factors of time and curricular materials.

Based on these findings, I have developed three recommendations for the elementary education program's consideration:

Recommendation One

Because participants' understandings of developmental literacy were strong, I recommend the continuation of explicit instruction of developmental literacy concepts in the program's instructional methods courses. Because the participants did not indicate readiness to integrate the UDL principles into lesson plans or during lesson implementation, it would be beneficial for the site university education program to offer a pre-service teacher course that is focused on the philosophy of differentiation and that includes instruction on the frameworks that can be used to assist them in the design and teaching of differentiated lessons.

Recommendation Two

Because the participants regularly indicated frustration due to feeling limited in their ability to plans effective lessons because of the factors of time restraints and mandatory curricular materials, I believe it would be beneficial for the site university's teacher education program coordinator and faculty members to conduct as an assessment of all potential field placements for pre-service teachers to ensure flexibility in time and curricular resources. Additionally, it would be beneficial to provide training for pre-service teachers that enables them to differentiate lessons in spite of any contextual circumstances that may be present in their placement classrooms. I recommend that this training take place in university coursework in the form of

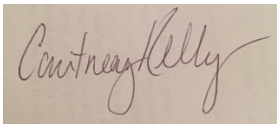
case studies and scenarios.

Recommendation Three

Because the participants felt limited in their ability to teach literacy in ways that were developmental and/or differentiated, I recommend that, prior to student teaching, it would benefit the site university's pre-service teachers to have authentic opportunities to design and implement differentiated lessons, using targeted frameworks for differentiation on which they have received instruction. This practice would allow them to transfer prior knowledge into current lesson planning and implementation approaches during their student teaching experiences.

Thank you again for the opportunity to work with three of your students in this research. Please contact me with any questions and/or concerns. It has been a pleasure to work with you and I hope this information is helpful to you and your faculty members.

Sincerely,



Courtneay Kelly

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Appendix A: Site University's Student Teaching Lesson Plan Scoring Rubric

Elements	Exemplary (3)	Proficient (2)	Unsatisfactory (1)	
Academic Standards	Relevant Standards are listed by number and letter and have a direct correlation to objectives	Relevant Standards are listed by number and letter and most have a direct correlation to objectives	Standards are not included or not relevant	_____x .5
Instructional Objectives	Lesson-specific; performance-based; written with four parts (audience, behavior, condition, and degree).	Lesson-specific; performance-based; on some objectives the condition or degree may be inappropriate or missing.	Not specific; not performance-based; many elements are missing.	_____x 1
Introduction	Motivation and behavioral expectations are specifically described; appropriate for the purpose of the lesson; links to students' needs.	Motivational device and behavioral expectations are indicated, but not thoroughly described.	Motivational device is missing.	_____x 1
Lesson Elements	Complete with all elements on Lesson Plan Outline; usable by substitute teacher; learning activities support objectives and progress in a logical order.	One or two elements missing on Lesson Plan Outline; usable by substitute teacher; learning activities support objectives and progress in a logical order.	A list of topics only (does not follow the Lesson Plan Outline); unusable by substitute teacher; learning activities do not support objectives and/or lack logical progression.	_____x 2
Differentiated Activities	Based on context of the learners (characteristics and diversity is clear); strategies are specific, appropriate for diverse learners, and based on current research (representation, engagement, and expression).	Generalized statements of the learners (characteristics and diversity are alluded to); strategies identified are appropriate for diverse learners and based on current research.	Minimal to no statements of the learners; strategies may only support one type of diverse learner.	_____x 1
Integration of Resources and Technology	Resources and technology are integrated into the lesson; appropriate for the learners and the school resources.	Use of resources and technology is evident, but is not lesson-specific; technology use appropriate for lesson presented.	Minimal use of resources and technology, weak explanation of how they fit the lesson.	_____x .5
Formative Assessment	Method of formative assessment provided; described in detail and aligned with specific objectives.	Summative assessment only is present or formative assessment is not aligned with objectives.	No evidence of assessment.	_____x 1
Debriefing/ Reflection	Accurately explains effectiveness of lesson activities to achieve objectives and impact learners; describes relevant modifications.	A general explanation of effectiveness of lesson activities and impact on learners; modifications identified.	No reflection or rationale for why some learning activities were more successful than others; modifications missing.	_____x 1
Total:_____/25				Plus 1 for overall flow

Appendix B: Site University's Student Teaching Lesson Plan Template

Student Teaching

1. Academic Standards- *list the SOL and/or Common Core Standards that align with the lesson*

2. Instructional Objectives- *state what you want the students to be able to do as a result of the instruction (include the audience, behavior, criteria, and degree)*

3. Instructional Design- *explain how you will guide the learning event, including the following components:*
    - Introduction/Motivational Device (how you will engage students and set the behavioral expectations)
    - Subject Content/Topics (explanation of lesson goals and what students will learn)
    - Learning Activities/Procedures (explanation of teaching strategies and outline of implementation; i.e., direct instruction, guided and/or independent practice)
    - Key Discussion Questions (various questions that foster subject content and/or assess student learning)
    - Closure (how will you wrap-up the lesson)

4. Differentiated Learning Activities- *discuss the context of the learners as a rationale for differentiation:*
    - Describe important characteristics and diversity of learners in your classroom: number of learners and gender, race/ethnicity, school socio-economic status, special needs, and language proficiency.
    - Explain the strategies utilized to maximize success for diverse learners, including the different ways you will represent the content, engage students in the learning, and allow students to express what they know.

5. Instructional Resources and Technology- *list the resources you will need (i.e., multimedia, technology, lab equipment, outside expert)*

6. Formative Assessment- *how will you give students targeted feedback on their learning and measure what you have taught them during the lesson*

7. Reflection- *reflect on the teaching experience by responding to the following after implementation of the lesson plan:*
    - Analyze assessment data and explain to what degree instructional decisions made an impact on student learning and achievement of lesson objectives.
    - Describe modifications for redesigning your lesson plan that would improve student learning outcomes.

○

Appendix C: Sampling Screening Survey

1. What do you know about literacy instruction?
2. What do you know about UDL?
    a. What can you tell me about UDL's principles of representation?
    b. Principle of engagement?
    c. Principle of action/expression?
3. In your student teaching experience, how do you plan to approach the planning of literacy lessons?
4. How do you plan to get to know and understand your students' strengths and needs?
5. When I come into your classroom to observe a literacy lesson, what am I likely to see?
6. What would a literacy lesson look like when integrated with the three UDL principles?

7.

Appendix D: UDL Principles and Guidelines (CAST, 2008)

Universal Design for Learning Guidelines

I. Provide Multiple Means of Representation	II. Provide Multiple Means of Action and Expression	III. Provide Multiple Means of Engagement
1. Provide options for perception • Options that customize the display of information • Options that provide alternatives for auditory information • Options that provide alternatives for visual information	**4. Provide options for physical action** • Options in the mode of physical response • Options in the means of navigation • Options for accessing tools and assistive technologies	**7. Provide options for recruiting interest** • Options that increase individual choice and autonomy • Options that enhance relevance, value, and authenticity • Options that reduce threats and distractions
2. Provide options for language and symbols • Options that define vocabulary and symbols • Options that clarify syntax and structure • Options for decoding text or mathematical notation • Options that promote cross-linguistic understanding • Options that illustrate key concepts non-linguistically	**5. Provide options for expressive skills and fluency** • Options in the media for communication • Options in the tools for composition and problem solving • Options in the scaffolds for practice and performance	**8. Provide options for sustaining effort and persistence** • Options that heighten salience of goals and objectives • Options that vary levels of challenge and support • Options that foster collaboration and communication • Options that increase mastery-oriented feedback
3. Provide options for comprehension • Options that provide or activate background knowledge • Options that highlight critical features, big ideas, and relationships • Options that guide information processing • Options that support memory and transfer	**6. Provide options for executive functions** • Options that guide effective goal-setting • Options that support planning and strategy development • Options that facilitate managing information and resources • Options that enhance capacity for monitoring progress	**9. Provide options for self-regulation** • Options that guide personal goal-setting and expectations • Options that scaffold coping skills and strategies • Options that develop self-assessment and reflection

CAST

APA Citation: CAST (2008). *Universal design for learning guidelines version 1.0.* Wakefield, MA: Author.

Appendix E: Original Interview Protocol

Pre-Lesson Implementation Questions

1. Walk me through your lesson-planning process.
    a. What considerations did you make during planning?
    b. What guided these considerations?
2. Describe your students.
    a. What specific student strengths in literacy do you see?
    b. What specific student needs in literacy do you see?
    c. What led you to understanding your students' literacy strengths and needs?
3. What are your lesson objectives?
    a. What considerations did you make when determining these objectives?
    b. What factors guided these considerations?
4. As you were thinking through your plan and writing it, what did you incorporate to help you address these strengths and needs?
5. How do you plan to present this new content?
6. How do you plan to "hook" the students and keep them engaged throughout the lesson?
7. How do you plan to assess their levels of understanding during and after the lesson?
8. To what degree were you able to integrate the UDL principles of representation, engagement, and expression with literacy in this lesson plan? Describe.

Possible Probe Questions for Pre-Lesson Implementation

1. What role, if any, did your coursework play in your lesson planning process? Describe.
2. What role, if any, did your prior field experiences play in your lesson planning process? Describe.
3. What role, if any, did your CT plan in your lesson planning process? Describe.
4. What role, if any, did the school's literacy curriculum play in your planning process? Describe.
5. What role, if any, do you believe classroom management may play during your lesson?
    a. How did you consider and plan for this?

Post-Lesson Implementation Questions

1. Discuss your takeaways from the lesson.
    a. What went well?
    b. What would you change if you could?
    c. What makes you feel this way?
2. To what degree do you feel your lesson objectives were met.
    a. Describe what makes you feel this way.
3. Discuss anything that you did during the lesson that differed from your written plan.
    a. What led to this change?
4. During your lesson, describe what you did to try to make the content accessible to each student.
5. During your lesson, describe how you tried to engage the students in what was being learned.
6. To what degree do you believe students understood what was being taught?
    a. What leads you to feel this way?

    b. How did you assess their understandings?
7. To what degree were you able to integrate the UDL principles of representation, engagement, and expression with literacy in this lesson? Describe.

Possible Probe Question for Post-Lesson Implementation

1. What role, if any, did your coursework play in the teaching of your lesson? Describe.
2. What role, if any, did your prior field experiences play in the teaching of your lesson? Describe.
3. What role, if any, did your CT plan in your lesson implementation? Describe.
4. What role, if any, did the school's literacy curriculum play in your lesson implementation? Describe.
5. What role, if any, did classroom management play during your lesson?
    a. Describe any instances and how you worked through them.

Appendix F: Original Observation Protocol

Participant:

Time of day:

Description of the context:

Lesson Implementation	Codes	Anecdotal Notes
Overall Literacy Understandings:		
Overall UDL Understandings:		
Representation:		
Action & Expression:		
Engagement:		
Factors that Aided in Lesson Implementation:		
Factors that Disrupted Lesson Implementation:		

Appendix G: Start Codes Sheet

Knowledge of Literacy, Student Needs, & UDL
LIT-1: Shows understanding of developmental literacy
LIT-2: Incorporates literacy knowledge into lesson plan
LIT-3: Incorporates literacy knowledge into lesson implementation
SN-1: Understands students' literacy needs
SN-2: Addresses students' needs in lesson plans
SN-3: Addresses students' needs during implementation
UDL-1: Shows understanding of UDL principles
UDL-2: Attempts to integrate UDL and literacy in lesson plan
UDL-3: Attempts to integrate UDL and literacy in lesson implementation

Universal Design for Learning Principle of Representation: Lesson Plan
UDL-R1: Plans to present content in multiple ways
UDL-R2: Plans to incorporate visual or audio options
UDL-R3: Plans to clarify vocabulary and/or use nonlinguistic ways to share content
UDL-R4: Plans to activate background knowledge and highlight big ideas of lesson

Universal Design for Learning Principle of Representation: Lesson Implementation
UDL-R5: Presents content in multiple ways
UDL-R6: Incorporates visual or audio options
UDL-R7: Clarifies vocabulary and/or uses nonlinguistic ways to share content
UDL-R8: Activates background knowledge and highlights big ideas of lesson

Universal Design for Learning Principle of Expression: Lesson Plan UDL-Ex1: Plans to allow students to show understandings in different ways UDL-Ex2: Plans for student movement and/or use of assistive technologies UDL-Ex3: Plans for scaffolding as needed UDL-Ex4: Plans to facilitate goal-setting	**Universal Design for Learning Principle of Engagement: Lesson Plan** UDL-E1: Plans ways in which to engage students UDL-E2: Plans opportunities for student choice and autonomy UDL-E3: Plans to make content relevant to students UDL-E4: Plans to vary challenge and supports UDL-E5: Plans for collaboration and communication UDL-E6: Plans for self-regulation strategies
Universal Design for Learning Principle of Expression: Lesson Implementation UDL-Ex5: Allows students to show understandings in different ways UDL-Ex6: Allows for student movement and/or use of assistive technologies UDL-Ex7: Provides scaffolding as needed UDL-Ex8: Facilitates goal-setting	**Universal Design for Learning Principle of Engagement: Lesson Implementation** UDL-E1: Engages students when teaching UDL-E2: Allows for student choice and autonomy UDL-E3: Makes content relevant to students UDL-E4: Varies levels of challenge and supports UDL-E5: Fosters collaboration and communication UDL-E6: Encourages self-regulation strategies

Appendix H: Pre-Lesson Implementation Interview Protocol

Pre-Lesson Implementation Questions

1. Walk me through your lesson-planning process.
    a. What is your instructional focus?
    b. Why did you plan this lesson in the ways that you did?
    c. What factors guided your considerations when creating this plan?
2. Describe what you plan to do in your teaching to meet the various student needs in your classroom. Please be as specific as possible.
3. Describe how your understandings of developmental literacy played a role in this lesson planning.
4. To what degree were you able to integrate the UDL principles into your lesson? Please be as detailed as possible.
    a. Representation
    b. Engagement
    c. Expression
5. Do you believe your understanding of differentiation in literacy has been impacted by your student teaching experience thus far? Explain.
6. Do you believe your understanding of UDL has been impacted by your student teaching experience thus far? Explain.

Appendix I: Post-Implementation Interview Protocol

1. Discuss anything that you did during the lesson that differed from your written plan.
    a. What led to this change?

2. During your lesson, describe what you did to try to make the content accessible to each student.

3. During your lesson, describe how you tried to engage the students in what was being learned.

4. To what degree do you believe students understood what was being taught?
    a. What leads you to feel this way?
    b. How did you assess their understandings?

5. Were there any factors that limited your ability to meet students' needs in this lesson?

6. Were there any factors that assisted you in your ability to meet students' needs during this lesson?

Appendix J: Informed Consent Form

Informed Consent Agreement

Please read this consent agreement carefully before you decide to participate in the study.

Purpose of the research study: The purpose of the study is to investigate elementary pre-service teachers' sense-making of the UDL framework as a tool for the planning and implementation of differentiated reading instruction, with a focus on the considerations made during the processes of lesson- planning and implementation.

What you will do in the study: Data will be collected through a series of literacy lesson observations and interviews with participants. Analysis of participants' literacy lesson plans will be ongoing throughout the semester as well. The researcher will spend approximately six hours observing each selected participant in their field placement setting for student teaching. The researcher will interview each participant before and after each observed lesson, using a pre-determined set of interview protocols. Interviews will be recorded and immediately transcribed after each interview. Recordings will be deleted upon transcription completion. Participants may skip questions during the interviews that may make them uncomfortable and they reserve the right to end the interview at any time.

Time required: The study will require approximately 3.5 hours of your time over the course of the fall 2017 semester. A preliminary interview will be conducted in August, which will take approximately 20 minutes. You will be observed three times over the course of the student teaching semester, once at the beginning, once midway, and once toward the end of your student teaching experience. Observation times will be determined by participants, based on schedules and preferences, and will vary based on length of lessons taught. You will be interviewed briefly before each observed lesson (approximately 15 minutes) and after each observed less has been taught (approximately 30 minutes).

Risks: There are no anticipated risks in this study.

Benefits: There are no direct benefits to you for participating in this research study. The study may help us gain a deeper understanding of participants' meaning-making of the UDL principles to design and teach literacy lessons to students who have various academic needs. The findings will hopefully benefit the Longwood University teacher education faculty as they look to better understand how to prepare pre-service teachers to design and teach lessons to meet a variety of literacy needs.

Confidentiality:
The information that you give in the study will be handled confidentially. Your information will be assigned a code that will be the same as your pseudonym. The list connecting your name to this information will be kept in a locked file. When the study is completed and the data have been analyzed, this list will be destroyed. Your name will not be used in any report. Interviews will be recorded via a recording phone app, and will be permanently deleted upon completion of transcription.

Voluntary participation: Your participation in the study is completely voluntary.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty. If you should decide to withdraw from the study, all data and recordings related to your participation will be destroyed.

How to withdraw from the study:
If you want to withdraw from the study, you may tell the researcher. There is no penalty for withdrawing.
Payment: You will receive no payment for participating in the study.

If you have questions about the study, contact:

Courtneay Kelly
Department of Curriculum and Instruction
University of Virginia, Charlottesville, VA 22903.
Telephone: (434) 825-2779
chk3p@virginia.edu
kellych@longwood.edu

Faculty Advisor: Dr. Catherine Brighton
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University of Virginia, Charlottesville, VA 22903.
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cmb3s@virginia.edu

If you have questions about your rights in the study, contact:
Tonya R. Moon, Ph.D.
Chair, Institutional Review Board for the Social and Behavioral Sciences
One Morton Dr Suite 500
University of Virginia, P.O. Box 800392
Charlottesville, VA 22908-0392
Telephone: (434) 924-5999
Email: irbsbshelp@virginia.edu
Website: www.virginia.edu/vpr/irb/sbs

Agreement:
I agree to participate in the research study described above.

Signature: _____ **Date:** _____
You will receive a copy of this form for your records.

Appendix K: Data Collection Log

Date	Data Collected
August 6, 2017	Sampling Screening Surveys
September 1, 2017	Participant Background Surveys
September 19, 2017	Lori's First Lesson Plan
September 20, 2017	Lori's First Observation Pre- & Post- Implementation Interviews
September 26, 2017	Hannah's and Maren's First Lesson Plans
September 20, 2017	Hannah's and Maren's First Observations Pre- & Post- Implementation Interviews
October 24, 2017	Hannah's and Maren's Second Lesson Plans
October 25, 2017	Hannah's and Maren's Second Observations Pre- & Post- Implementation Interviews
October 26, 2017	Lori's Second Lesson Plan
October 27, 2017	Lori's Second Observation Pre- & Post- Implementation Interviews
November 16, 2017	Lori's Third Lesson Plan
November 17, 2017	Lori's Third Observation Pre- & Post- Implementation Interviews
November 19, 2017	Hannah's and Maren's Third Lesson Plans
November 20, 2017	Hannah's and Maren's Third Observations Pre- & Post- Implementation Interviews
December 4, 2017	Final Interviews with Lori, Hannah, & Maren

Appendix L: Revised Observation Protocol

Participant's Name:
Date:
Location/Grade Level:
Lesson Topic:

Classroom Context:

Pre-Teaching (activating prior knowledge or introducing new content)
During Teaching (student interaction with content being presented)
After Teaching (assessment, formal or informal, of content presented)

Appendix M: Revised Interview Protocol

Pre-Lesson Implementation Questions

1. Walk me through your lesson-planning process.
    a. Why did you plan this lesson in the ways that you did?
    b. What factors guided your considerations when creating this plan?
2. Describe what you plan to do in your teaching to meet the various student needs in your classroom. Please be as **specific** as possible and refer to specific student needs.
3. To what degree were you able to integrate the UDL principles into your lesson? Please be as detailed as possible.
    a. Representation (how content is presented)
    b. Engagement (student behavior and how they engage with the content)
    c. Expression (how students demonstrate what they are learning/have learned)

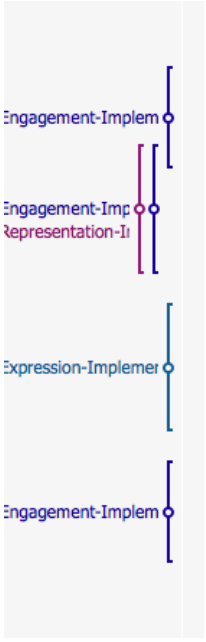
Post-Lesson Implementation Questions

8. To what degree do you feel your lesson objectives were met.
    a. Describe what makes you feel this way.
9. Discuss anything that you did during the lesson that differed from your written plan.
    a. What led to this change?
10. During your lesson, describe what you did to try to make the content accessible to each student.
11. During your lesson, describe how you tried to engage the students in what was being learned.
12. To what degree do you believe students understood what was being taught?
    a. What leads you to feel this way?
    b. How did you assess their understandings?
13. To what degree were you able to integrate the UDL principles into this lesson?
    a. Representation?
    b. Expression?
    c. Engagement?

Possible Probe Questions for Post-Lesson Implementation

6. What role, if any, did your coursework play in the teaching of your lesson? Describe.
7. What role, if any, did your prior field experiences play in the teaching of your lesson? Describe.
8. What role, if any, did your CT play in your lesson implementation? Describe.
9. What role, if any, did the school's literacy curriculum play in your lesson implementation? Describe.
10. What role, if any, did time allotment play in your lesson implementation?

Appendix N: Coding Examples

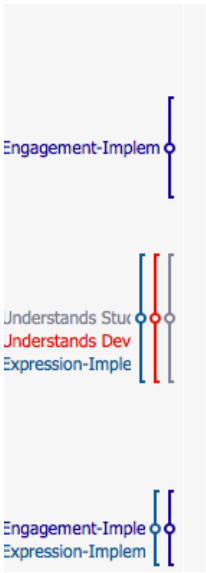


Pre-Teaching (activating prior knowledge or introducing new content)

"Ok you have 30 seconds to clear off your desks. All you should have out are a pencil and this book." (holds up a science book-"Minerals, Rocks, & Fossils") Repeats this a couple of times, "All you need to have out are a pencil and your book." "Let's see which teams are ready. Team 1 is ready. Team 3 is ready. Team 2 is not ready yet." Turned off classroom lights and turned on Smartboard, with video queued up. Video is from Flocabulary and is about types of rocks. St were completely engaged in the video "so you wanna be a rock star"… video (rap song) all about igneous, sedimentary, metamorphic rocks. By the end of the song, several students were singing along with the rap. "Team 1, you get 2 points."

"That was a quick review of rocks. Who can tell me one thing they learned from that video." St: "Igneous, metamorphic, sedimentary are the types of rocks." "Igneous rocks can be formed above ground when lava cools. When they are formed underground, they are formed by magma. Lava is above ground and magma is below." "Sedimentary rocks have layers that get dropped, or deposited like money in the bank." (students laugh)

MH: Ok we are getting ready to read about rocks. What does it mean to be a good reader? You are reading fluently, sounding out words, paying attention to punctuation. If I have a comma, do I make a long pause or a short pause? That's right, a short pause. (As students volunteered answers, MH wrote answers on board.) St: "Why are we reading? This is science time." MH: "Yes, good scientists need to be good readers. Why?" St: "Because we need to read about science to understand it." MH: "Yes we also use math in science and we use science in math and we use reading in math."



During Teaching (student interaction with content being presented)

Group 1: Moved into the book "Days with Frog and Toad". HP: "What have we been reading about with Frog and Toad?" St discussed what has happened in the Frog and Toad books to this point. HP: "What do you think we might read about today? We read a little bit about a kite last time. Do you think we'll learn more about the kite today?" HP: "In the book, Frog 'scrubbed' his windows. How can we figure out what 'scrub' means?" St: "Scrub means to clean." HP: "What did you read that told you that scrub means clean? HP: "Ok let's look at our list of questions?" "Let's read the questions to figure out what we need to look for when we're reading." Students began whisper reading, monitored by HP. Whisper reading went on for a few minutes, with HP monitoring students, nodding, affirming, and helping them to correct words if needed. HP: "Based on what you just read, do you think the kite is gonna fly?" St: "Yes because the book says that the wind is really blowing strong." Student struggled on word "short". HP: "sh…sh..or…or" St: "short". HP: "After what you just read, what do you think a meadow is?" St: "Like in nature or something?" HP: "Yes! In nature, like a field." Students went to their question sheets and answered the question "What is a meadow?" with "A meadow is a field in nature." HP: "Can we answer our first comprehension question? What were Frog and Toad doing on this day?" St: "They were flying a kite." HP: "Yes they were flying a kite." Students wrote answer on their sheet. HP: "Let's look at the next question." St: "Who was making fun of Toad?" HP: "Do we know that yet?" St: "No." HP: "Right you haven't read that yet. We will have to read more in order to answer that question."

Appendix O: Descriptive Code Sheet with Example Excerpts

Codes in MaxQDA	***Excerpt***	***Source***
Understandings of UDL	The principle of representation simply means that a teacher should allow a student to practice a specific topic by working with a variety of tools. For example, if I were teaching a guided reading lesson, I would try to incorporate hands on activities, visuals, and some audio tools so that my students can learn in many ways.	*Hannah* *Screening Survey*
Understandings of Student Needs	There is one student who needs special attention at times because of behavior. He will be monitored to ensure that he is participating and actively involved with the group This student will be assigned a partner to ensure a good working environment for him and the rest of the students.	*Lori* *Lesson Plan 2*
Understandings of Developmental Literacy	Guided reading, reading aloud, shared reading, and Fountas and Pinnell reading levels are all ways to ensure that students are receiving the correct literacy instruction based on their needs. Supplying students with resources that they can use at their leisure, giving multiple means of representation, and conferencing with the students to make sure that they are comfortable are all ways to ensure that the literacy instruction is effective and appropriate.	*Lori* *Screening Survey*
Role of Classroom Management	I had one student who had moderate behavior problems. This student had a hard time working in pairs or groups, and wasn't confident in asking questions. I worked to make sure that he was comfortable and learning appropriately through proximity and selecting groups or pairs that were comfortable for him, without making the other students uncomfortable**.**	*Lori* *Final Interview*
Role of Coursework	My [site university] coursework played an important role in my teaching of reading because it provided me with methods of how to reach struggling readers, where to start with them, and how to create goals for them, as well. It also gave me insight to being able to work with students on a high or low reading level and what type of instruction to use in order to be most effective.	*Maren* *Final Interview*
Role of Time	My objective was to identify at least 4-5 details by answering questions. Since the time was constrained we will go back to it tomorrow. We weren't able to meet the entire objective today.	*Hannah* *Post-teaching interview for lesson 1*
Understandings of Differentiation	I think that it is crucial to start planning a lesson by thinking about the students. How do they learn? What ways have they learned before? Was it effective? Is there something missing from their previous knowledge? What do they need to know by the end? Answering these	*Lori* *Screening Survey*

	questions, among others, will guide the lesson planning and allow me to know where to begin.	
Role of Curriculum	I also follow a pacing guide that is tied to a textbook series. We have a specific strategy that we teach, and for language we follow a pacing guide that corresponds with the story of the week.	*Lori* *Pre-teaching observation for lesson 3*
Role of CT	My cooperating teacher expected a lot out of me, which is great, but I felt as if I did not receive the information I would have liked to in order to help become a better educator. She did have a great outlook on reading though as in she leveled her groups and used great texts so that her students were engaged and eager to read.	*Hannah* *Final Interview*
Representation-Lesson Plan	Visual learners have the connection anchor chart that they are going to have as a resource.	*Maren* *Lesson Plan 2*
Representation-Implementation	Had visuals of "command", "question", "command", "statement" visuals on magnetic board. She pointed to each visual as she reviewed them. As she reviewed each, she gave an example of each type of sentence. "Stop doing that!" "Do you want to eat lunch?"	*Lori* *Observations of Lesson 3*
Engagement-Lesson Plan	I called the students "detectives" and allowing them to perform a scavenger hunt. I think that the students are going to respond very well by being called "detectives". I have called them "inventors" before and they felt pride in their names.	*Lori* *Pre-teaching interview for lesson 2*
Engagement-Implementation	"Ok you have 30 seconds to clear off your desks. All you should have out are a pencil and this book." (holds up a science book-"Minerals, Rocks, & Fossils") Repeats this a couple of times, "All you need to have out are a pencil and your book." "Let's see which teams are ready. Team 1 is ready. Team 3 is ready. Team 2 is not ready yet."	*Maren* *Observations of Lesson 3*
Expression-Lesson Plan	Questions at the end of the lesson will serve as a summative assessment for the day I will be asking questions throughout to ensure that the students are following along where necessary.	*Hannah* *Lesson Plan 1*
Expression-Implementation	She showed another picture, this time of a young girl who looks frustrated/angry. MH: "When you're ready, raise your hand. When you have decided what you think is going on here, raise your hand.	*Maren* *Observations of Lesson 2*

Appendix P: Email Notifications of IRB Exemption Status from Site University and UVA

RE: Revised/Updated Kelly IRB Protocol #2017-0245

DELETE REPLY REPLY ALL FORWARD

Monroe, Jeffrey (Jeff) (mjm6ny) <mjm6ny@virginia.edu>
Wed 6/7/2017 9:45 AM

Mark as unread

To: Kelly, Corrie;

Bing Maps + Get more apps

Hi Corrie – I have heard from the board regarding your research proposal. The board would like you to use a notification letter instead of a signed consent. (Good news for you – you don't need people to sign on the dotted line to participate.) Said letter needs to emphasize that there are no repercussions for not participating in the study. You can find a template for a notification letter on the SBS website. Although it is directed at parents of younger students, you can adapt if for your purposes.

Upon receipt of this letter, I am authorized to issue an approval letter.

Note that I will be out of the office from tomorrow until next Thursday. -Jeff

Laws, Eric
Thu 5/18/2017 12:20 PM

Mark as unread

To: Kelly, Corrie;

You forwarded this message on 5/23/2017 2:38 PM.

Action Items + Get more apps

Yes, this is exempt from full committee review as the data collected is a routine part of the student teaching experience. Please forward a copy of the exemption/approval notification from UVA when you receive it for our records.

Feel free to proceed upon approval from UVA.