A disciplined application of Universal Design for Learning (UDL): Supporting teachers to apply UDL in ways that promote disciplinary thinking in English Language Arts (ELA) among diverse learners

The Harvard community has made this article openly available. Please share how this access benefits you. Your story matters

<table>
<thead>
<tr>
<th>Citation</th>
<th>Gravel, Jenna W. 2017. A disciplined application of Universal Design for Learning (UDL): Supporting teachers to apply UDL in ways that promote disciplinary thinking in English Language Arts (ELA) among diverse learners. Doctoral dissertation, Harvard Graduate School of Education.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citable link</td>
<td><a href="http://nrs.harvard.edu/urn-3:HUL.InstRepos:33051610">http://nrs.harvard.edu/urn-3:HUL.InstRepos:33051610</a></td>
</tr>
<tr>
<td>Terms of Use</td>
<td>This article was downloaded from Harvard University’s DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at <a href="http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA">http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA</a></td>
</tr>
</tbody>
</table>
A *disciplined* application of Universal Design for Learning (UDL): Supporting teachers to apply UDL in ways that promote disciplinary thinking in English Language Arts (ELA) among diverse learners

Jenna W. Gravel

Thomas Hehir
Meira Levinson
Jal Mehta
David Rose

A Thesis Presented to the Faculty of the Graduate School of Education of Harvard University in Partial Fulfillment of the Requirements for the Degree of Doctor of Education

2017
Dedication

To my parents, my role models and my inspiration

To Brian, my best friend, my partner, my love

To Owen, Celia, and Molly, my beautiful little researchers
Acknowledgements

I would not be finishing this doctoral journey without the support of a remarkable group of mentors, family, and friends. I would like to thank my advisor Tom Hehir. I met Tom as a master’s student, and he has been fostering my commitment to inclusive education and supporting me to develop as a researcher ever since. I would also like to thank the other members of my dissertation committee—Meira Levinson, Jal Mehta, and David Rose. Meira’s articulate feedback and thoughtful encouragement have been invaluable; the high expectations that she sets for her students served to motivate me throughout this process. Jal’s research design course supported me to craft the proposal for this study, and I am thankful for his continued guidance, enthusiasm for my research, and willingness to challenge my thinking. Finally, David’s belief in the potential of all learners, his humility, and his genuine care of others have shaped me both academically and personally. He first sparked my interest in Universal Design for Learning twelve years ago, and I am deeply grateful for his support and mentorship.

I am indebted to the school community in which I conducted this study, especially to the three teachers and their students who embarked on this journey with me. Over the eleven months of our collaborations, these teachers sacrificed numerous lunches, prep periods, and before/after school time to engage in our work. I am profoundly grateful for their time, their honesty, and their trust. I will forever remember these teachers and students who have taught me so much, and I am honored to share their stories.

I am thankful to the many members of our HGSE community who have encouraged me and pushed my thinking throughout my program. The members
of my writing groups—Chris Buttimer, Eddie Contreras, Sarah Fine, James Noonan, Lynne Sacks, and Tori Theisen-Homer—provided me with camaraderie, humor, and wise feedback throughout the highs and lows of this journey. And I am thankful for the feedback that I received from my fellow “LevLabbers” as well as the support and friendship from my colleagues at the Harvard Educational Review.

I am also deeply grateful for my incredible family. This doctoral journey would not have been possible without you, and I love you all. Thank you to my parents, Linda and Brian, who have always provided me with unwavering support and love. Your extraordinary careers dedicated to working with individuals with disabilities and advocating for inclusion are an inspiration to me. I am so lucky to be your daughter, and I am honored to attempt to follow in your footsteps. Thank you to my sister Eliza and brother-in-law Mike. Your words of encouragement, your ability to make me laugh, and your invitations to go out for study breaks were always so perfectly timed! Thank you to my Nan. Your loving reassurance has always been a source of comfort and inspiration. Thank you to my dad Jack, Lisa, Fletcher, and MacKenzie. Your support and your visits—complete with home-cooked meals!—were wonderful motivation. Thank you to my parents-in-law, Greg and Susie. Your embrace of my goals and your thoughtful notes and treats kept me going until the end. Thank you to my sister-in-law Katie and brother-in-law Nick. Your enthusiasm for my research and your surprise gifts of relaxation were so appreciated! And thank you to our dear family friend Patty for her generous offer to copyedit this dissertation. Your meticulous attention to my work and your engagement with my ideas were invaluable.
I would never have predicted that I would be finishing my doctoral program as a proud mother of three! Thank you to my beautiful children—Owen, Celia, and Molly—for teaching me to keep everything in perspective and for filling me with so much love. Owie, thank you for your excitement for my research “at the kids’ school” and for inspiring me with your boundless curiosity and imagination. Cece and Molly, thank you for patiently waiting until your due date so that I could finish my last classroom observation; you both have been with me every step of the way—quite literally! I feel so fortunate to have been surrounded by so many family and friends who were willing to help with childcare throughout my program. Thank you to the Ayala family, the Gordon family, and the teachers at the Franklin Early Childcare Center for taking such good care of my little ones, and thank you to the staff at the Melrose Public Library for providing a quiet, nursing-mom-friendly space to write! Most importantly, thank you to my mom and Susie for the countless hours of work time that you gave to me; it was such a comfort to know that my babies were being spoiled by their grandmothers while I was away from them. I would not have finished this dissertation without you.

And, finally, thank you to my husband Brian, my unofficial “fifth dissertation committee member”! How do I ever begin to express how grateful I am for your steadfast support throughout this journey? Over the past six and a half years, you have engaged with my ideas, challenged me to explore new perspectives, cheered me on through rough patches, cooked me delicious meals, assumed the role of “Super Daddy,” and never stopped believing in me. The influence of your love, patience, and dedication to my success flows throughout the pages of this dissertation, and I would never have made it to this point
without you. How I wish that HGSE could offer you an honorary degree! I love you with all of my heart.
# Table of Contents

Abstract .......................................................................................................................... ix

**Chapter 1: Introduction** .......................................................................................... 1
- Universal Design for Learning .................................................................................. 8
- Disciplinary Thinking in ELA .................................................................................. 11
- Supporting Teacher Learning .................................................................................. 16
- Drawing from Pilot Data ......................................................................................... 22
- Research Questions ................................................................................................. 24

**Chapter 2: Methods and Analytic Strategy** ............................................................... 26
- The School ................................................................................................................ 26
- The Participants ........................................................................................................ 28
- Data Collection ......................................................................................................... 33
- Analytical Framework ............................................................................................... 39
- Analytic Strategy ....................................................................................................... 39
- Validity ....................................................................................................................... 42

**Chapter 3: Ms. Edwards’s Journey—Developing a Commitment to UDL and Disciplinary Thinking** ........................................................................................................ 44
- Our Starting Point .................................................................................................... 46
- Overarching Goals of Our Collaborative Intervention .......................................... 55
- The Collaborative Intervention .............................................................................. 60
  - Diving Right In ...................................................................................................... 61
  - Making Refinements ............................................................................................. 72
- Digital Narratives with UDL BookBuilder ............................................................... 85
- Concluding Thoughts .............................................................................................. 101

**Chapter 4: Ms. Oliver’s Journey—“Seeing” Students’ Disciplinary Thinking and Their Potential** ........................................................................................................ 105
- Our Starting Point .................................................................................................... 107
- Overarching Goals of Our Collaborative Intervention .......................................... 115
- The Collaborative Intervention .............................................................................. 119
  - “What I Notice/What I Want to Try” .................................................................... 121
  - The “Figurative Language Column” .................................................................... 128
- Digital Poetry Books with UDL BookBuilder .......................................................... 136
- Concluding Thoughts .............................................................................................. 154

**Chapter 5: Ms. Ayala’s Journey—“Opening Doors” for Students through UDL** ......................................................................................................................... 157
- Our Starting Point .................................................................................................... 158
- Overarching Goals of Our Collaborative Intervention .......................................... 169
- The Collaborative Intervention .............................................................................. 173
  - Addressing a Critical Need, Part I ........................................................................ 174
  - Addressing a Critical Need, Part II ....................................................................... 180
- Digital Poetry Books with UDL BookBuilder .......................................................... 192
- Concluding Thoughts .............................................................................................. 207

**Chapter 6: Looking Across the Teachers’ Stories** .................................................. 210
- Exploring the Evolution of Teachers’ Practice and Beliefs ..................................... 211
The Usefulness of the Interventions with Regard to Developing Teachers’ Practice and Beliefs ................................................................. 233
Concluding Thoughts ........................................................................ 258

Chapter 7: Implications and Conclusions ........................................... 260
Theoretical Contributions ................................................................... 260
Methodological Contributions ............................................................. 263
Practice-based Implications ................................................................. 264
Areas for Future Research .................................................................. 266

Appendices ......................................................................................... 273
Appendix A. CAST’s UDL Guidelines .................................................. 273
Appendix B: Assessment of Baseline Assignments in Action Research Project .......... 274
Appendix C: Summary of UDL Strategies/Other Strategies Used to Promote Disciplinary Thinking in ELA that were Uncovered in My Qualifying Paper .......... 275
Appendix D: Windsor School Data ....................................................... 276
Appendix E: Summary and Timeline of Three Phases ......................... 277
Appendix F: Teacher Interview Protocol for Phase 1 Initial Interview ........ 278
Appendix G: Teacher Interview Protocol for Phase 2 Initial Interview ........ 280
Appendix H: Examples of Supports Used in the Co-Developed Intervention .......... 281
Appendix I: Sample Conversation Topics during Planning/Debriefing Sessions .... 283
Appendix J: Teacher Interview Protocol for Phase 3 Final Interview ........... 284
Appendix K: Data Collection Matrix .................................................... 285
Appendix L: Ms. Edwards’s Introduction to Her Model Nonfiction Report .......... 286
Appendix M: The Quotations/Notes that Ms. Edwards Used to Write Her Introduction .............................................................................. 287
Appendix N. “Transitional Words and Phrases” handout (p. 1) ..................... 288
Appendix O: Design of the Revised Nonfiction Introduction Lesson: Leveraging UDL to Encourage Students’ Disciplinary Thinking ......................................................... 289
Appendix P. “What did you notice?/What ideas does this give you?” Draft Graphic Organizer ........................................................................... 290
Appendix Q: Design of the “What I Notice/What I Want to Try” Conclusion Lesson: Leveraging UDL to Encourage Students’ Disciplinary Thinking ......................................................... 291
Appendix R: BookBuilder Narrative Planning Template ............................ 292
Appendix S: Design of the BookBuilder Intervention: Leveraging UDL to Encourage Students’ Disciplinary Thinking ......................................................... 293
Appendix T: The “Take a Closer Look” Worksheet ................................ 295
Appendix U: Disciplinary Thinking in ELA Handout .............................. 296
Appendix V: What I Notice/What I Want to Try T-Chart ........................... 297
Appendix W: Design of the “What I Notice/What I Want to Try” T-Chart: Leveraging UDL to Encourage Students’ Disciplinary Thinking ......................................................... 298
Appendix X: Design of the “Figurative Language Column”: Leveraging UDL to Encourage Students’ Disciplinary Thinking ......................................................... 299
Appendix Y: BookBuilder Poetry Book Planning Template ........................ 300
Appendix Z: Design of the BookBuilder Project: Leveraging UDL to Encourage Students’ Disciplinary Thinking ......................................................... 302
Appendix AA. Ms. Ayala’s Concept Card poster ...................................... 304
Appendix BB. Thinking Reader Environment ......................................... 305
Appendix CC: Design of the “Thinking Reader” Version of The Giver Experiment: Applying UDL to Increase Access ......................................................... 306
Appendix DD. “Good Reader” Poster................................................................. 307
Appendix EE: Design of the Gifted Hands Experiment: Applying UDL to Increase Access ................................................................. 308
Appendix FF: “Book Review Template” Organizer ............................................. 309
Appendix GG: BookBuilder Book Review Planning Template ............................. 310
Appendix HH: Design of the BookBuilder Assignment: Leveraging UDL to Encourage Students’ Disciplinary Thinking ......................................................... 313
Appendix II. UDL Options and Supports Embedded into the Collaborative Interventions ........................................................................ 315

References .......................................................................................................... 318
Abstract

This qualitative study used design-based research to explore how teachers can be supported to apply Universal Design for Learning (UDL) in ways that promote disciplinary thinking in English Language Arts (ELA) among diverse learners. Using a purposive sampling strategy, I recruited three upper-elementary teachers who were interested in exploring the intersection of UDL and disciplinary thinking in ELA. This study occurred over eleven months and included three phases: 1) establishing a baseline for each teacher in terms of current practice and current understandings of UDL and disciplinary thinking; 2) collaboratively designing, implementing, and refining an individualized intervention with each teacher; and 3) reflecting on our collaboration. Data were collected throughout these phases via classroom observation, collection of instructional materials and student work, teacher interviews, and regular meetings. The analytical framework for this study joins CAST’s UDL Guidelines and common themes of disciplinary thinking in ELA distilled from the literature and piloted in my qualifying paper. Data were analyzed to determine how teachers’ practice, understandings, and beliefs evolved; how students’ disciplinary thinking evolved; and which aspects of the interventions were useful in developing teachers’ practice, understandings, and beliefs. A case study approach was used to dive deeply into each teacher’s journey, and a cross-case analytic approach was used to uncover common and divergent themes. The findings underscore the potential synergy between UDL and disciplinary thinking and reveal the rich student thinking that is possible when UDL is leveraged for disciplinary aims. Further, the findings contribute to existing conversations on teacher change by exploring the influence of teachers’
preexisting practices and beliefs on their learning trajectories and by identifying the factors and conditions of the interventions that facilitated teacher growth: developing the lenses to “see” evidence of student thinking, leveraging tools for specific aims, and attending to the affective nature of the learning process. Together, these findings have potential to inform leaders in schools, districts, and organizations who seek to support teachers to apply UDL to encourage all learners to engage in disciplinary thinking in ELA—and who seek to support teacher learning at a broader level as well.

*Keywords*: Universal Design for Learning (UDL), disciplinary thinking, English Language Arts (ELA), diverse learners, inclusive education, teacher learning
Chapter 1: Introduction

A small group of students huddles around a laptop and listens intently to an audio recording of the poem “Camel” by Lillian Fischer. The students instantly recognize the familiar voice reciting the poem—the voice of their teacher. Ms. Nichols reads the lines with emotion and musicality: “A camel is a mammal,/A most extraordinary animal/Whose appearance is a wee bit odd . . .” Gradually, each student begins to move his or her body to the rhythm. Jasmine and Haley clap their hands, and Kevin places his hands under his desk in an effort to covertly clap along. Sam and Darron snap their fingers, while Nick lightly taps two pencils on his pencil case as if playing a drum. Tyler remains still, and Ms. Nichols gently places her hands over his in order to pat out the rhythm on his desk. As Ms. Nichols circles around to other students, Haley reaches her hand over to Tyler’s desk to offer support. Soon, the students’ bodies begin to synchronize, and the plodding rhythm of the poem is now seen, heard, and felt.

Yet, the ending of the poem disrupts the students’ collective movements; the recording ends amongst asynchronous claps, snaps, taps, and pats. Experiencing this disruption sparks Ms. Nichols and the students to question why the poet breaks the rhythm so abruptly. “The camel is stopping” declare Sam and Kevin in unison. “He [the camel] is at the end of the poem, so it’s like a goodbye,” suggests Nick. After more discussion, the students return to the final lines, “Is found at the zoo/Where he’s happy, it’s true./But—/Deep inside—desert is best.” When asked where he thinks the camel is most content, Tyler asserts, “Desert.” Kevin then offers, “The animal, it does its natural, like, thing—it’s walking and being. And then in the zoo, it can’t walk that fast so the beat

1 Pseudonyms for all teachers and students are used throughout this dissertation.
was just stopped there.” Ms. Nichols beams with satisfaction. “Whoa. See, you guys are going deep. You are going deep” (Gravel, in press).

In this moment, a diversity of fifth-graders with varying strengths and weaknesses are engaging in the disciplinary practices of English Language Arts (ELA)—they are uncovering the relationship between meaning, rhythm, and their own bodies, and they are examining the poet’s use of specific strategies and the effects those strategies have on the reader. I observed this moment, and many more like it, while collecting data for a pilot study that explored how teachers apply a framework for teaching and learning called Universal Design for Learning (UDL) to encourage disciplinary thinking in ELA among diverse learners. I spent ten weeks observing in the 5th grade inclusive classroom of Ms. Nichols and her co-teacher Ms. Reynolds, paying close attention to the ways in which the co-teachers applied UDL during their ELA block and to the kinds of thinking in which students engaged. During this time, I was able to witness the co-teachers’ use of specific instructional moves as well as the sophisticated, discipline-specific thinking that emerged among all of their students, including students labeled with significant intellectual disabilities.

These findings inspired me both as researcher and as a former special educator. Ms. Nichols and Ms. Reynolds were seasoned teachers who possessed a deep knowledge of UDL and who had years of experience in applying this framework to practice. Furthermore, they were teachers who believed in the potential of all learners and who sought to create meaningful learning

---

2 This vignette and other sections of this introductory chapter, particularly the sections on UDL and Disciplinary Thinking in ELA, are taken from content that I have generated for an article being published by Teachers College Record.
opportunities for students with varying strengths and weaknesses. As I sat in their classroom and later analyzed the wealth of video footage and student work, a burning question surfaced in my mind. I had the opportunity to observe an exemplary case; yet, how might we support other teachers to apply UDL in these same powerful ways? How do educators arrive at this point where they can use UDL and disciplinary thinking in harmony to foster students’ rich disciplinary engagement?

The emphasis on supporting students to engage in the kinds of disciplinary thinking that I observed in Ms. Nichols and Ms. Reynolds’s classroom is not new. Educators and researchers have long underscored the need to support students to move beyond basic understanding and rote memorization and to acquire the unique ways of thinking specific to a discipline (Buchmann, 1984; Moje, 2008; Schwab, 1964; Shanahan & Shanahan, 2008). By delving into disciplinary thinking, students have opportunities to gain the “knowledge and abilities possessed by those who create, communicate, and use knowledge within the disciplines” and to explore “the unique tools that the experts in a discipline use to engage in the work of that discipline” (Shanahan & Shanahan, 2012, p. 8).

Thus, engaging in the practices of a particular discipline is the means by which students can actually learn and make sense of that discipline. The release of the Common Core State Standards (CCSS) in English Language Arts/Literacy and Mathematics, the College, Career & Civic Life (C3) Framework for Social Studies State Standards, and the Next Generation Science Standards (NGSS) signal a renewed focus on developing robust disciplinary thinking among students. Yet, supporting students to develop rich, discipline-specific practices and epistemological commitments is often undernurtured in today’s classrooms: for
many students, the opportunities to learn about a discipline far overshadow the opportunities for them to actually do the discipline themselves (Gardner, 2000; Langer, 1992; Moje, 2008; Rainey & Moje, 2012). Unfortunately, the kinds of disciplinary engagement in ELA that I observed taking place among Ms. Nichols and Ms. Reynolds’s students are atypical in today’s classrooms (Gardner, 2000; Langer, 1992; Rainey & Moje, 2012). Furthermore, the opportunities for deep disciplinary thinking among students with disabilities are especially limited (Jorgensen, 1998; Koppenhaver, Pierce-Coleman, Kalman, & Yoder, 1991). Thus, the general emphasis on promoting disciplinary thinking does not reach far enough; we must consider how to support the development of these rich practices and habits of mind among all students.

As observed in Ms. Nichols and Ms. Reynolds’s classroom, Universal Design for Learning (UDL) is one promising avenue for supporting a diversity of students to engage in disciplinary thinking. The UDL framework suggests embedding options into curricula in order to expand learning opportunities not only for students with disabilities but for all learners (Rose & Meyer, 2002). This framework has recently gained attention at the district, state, and federal levels: schools throughout the country are embarking on UDL initiatives in order to reach the needs of students in both general and special education (Rose & Gravel, 2013), and the 2008 Higher Education Opportunity Act provided the first statutory definition of UDL. Most recently, UDL is now defined and endorsed in the Every Student Succeeds Act (ESSA) of 2015, marking the first time that UDL has been incorporated into legislation that governs general K-12 education (CAST, 2016). Further, UDL is now emphasized in the 2016 National Education Technology Plan, a plan that articulates the role of technology in all students’
learning (CAST, 2016). These latest endorsements have contributed to the bourgeoning interest in UDL among general and special educators alike. Despite this momentum, however, research on UDL implementation in classrooms is only beginning to emerge.

Although Ms. Nichols and Ms. Reynolds have begun to leverage the synergy between UDL and disciplinary thinking, their classroom is unfortunately not representative of the teaching and learning that is taking place in other classrooms in U.S. public schools. In general, the growing attention to UDL and to disciplinary thinking is taking place largely in parallel; the field has yet to conduct research on supporting teachers to leverage this potential synergy and to develop disciplinary thinking among all learners. The CCSS and the NGSS briefly reference UDL as a way to support diverse students in reaching various disciplinary goals (CCSSI, 2012; NGSS, 2014); however, no further guidance is provided to support educators in actually applying UDL for discipline-specific aims. Furthermore, recent studies and my own pilot work suggest that many educators often equate UDL with providing students with disabilities the technologies that they need to access content (Ralabate, Dodd, et al., 2012; Rose, Hasselbring, Stahl, & Zabala, 2005). While reducing barriers and increasing access is an essential and critical step forward, the potential intersection between UDL and disciplinary thinking remains underexplored. Researchers have yet to investigate how to assist teachers in using UDL in the same kinds of powerful ways observed in Ms. Nichols and Ms. Reynolds’s classroom.

This dissertation explores the burning question that emerged as I learned from Ms. Nichols, Ms. Reynolds, and their students. After being an observer of such sophisticated practices and student thinking, I set out to assume a more
active and collaborative role as a researcher and to explore how teachers can be supported to apply UDL in ways that encourage robust, disciplinary thinking among a diversity of learners. Research reveals that traditional, “one-shot” professional development is unlikely to change teachers’ practice; supporting teachers to apply UDL in ways that encourage deep disciplinary thinking requires sustained, contextualized, “teacher-driven” support (Ball & Cohen, 1999; Darling-Hammond & McLaughlin, 2011; Guskey, 2000; Loucks-Horsley, Stiles, Mundry, Love, & Hewson, 2010). Therefore, this study employs design-based research (DBR), a methodological approach developed by Brown (1992) and Collins (1992) where participants and researchers design interventions intended to explore theory in situ through cycles of enactment, analysis, and revision. DBR has gained recognition over the past decade as a way to “bridge the chasm between research and practice” (Anderson & Shattuck, 2012, p. 1). More and more researchers are employing DBR (e.g., Ketelhut, Nelson, Clarke, & Dede, 2010; Perkins & Grotzer, 2005;), and many established scholarly journals such as Educational Researcher (2003) and Journal of the Learning Sciences (2004) have dedicated special issues to the topic (Anderson & Shattuck, 2012). Cobb, Confrey, diSessa, Lehrer, and Schauble (2003) explain that DBR seeks “to develop a class of theories about both the process of learning and the means that are designed to support that learning” (p. 10). Thus, this approach is well suited to the goals of this study. By leveraging the collaborative, cyclical nature of DBR, I was able to work with three upper elementary/middle school teachers who had begun applying UDL to their practice and who were interested in exploring the intersection of UDL and disciplinary thinking. The teachers and I designed, implemented, refined, and reflected on individualized interventions intended to
support each of them to more fully leverage UDL for discipline-specific aims and to present opportunities to learn more about these two frameworks. This dissertation shares our journeys—journeys of teacher learning, student learning, and my own learning as a researcher.

This chapter concludes by offering a review of the literature on UDL and disciplinary thinking; a summary of the pilot work that led to this dissertation, including my study in Ms. Nichols and Ms. Reynolds's classroom; and a description of my specific research questions. In Chapter 2, I offer a detailed depiction of the methodology, describing the data collected in the three phases of this study as well as my analytical process. The next three chapters offer case studies to describe the stories of my collaboration with each of the three teachers involved in this study: Ms. Edwards, a fourth grade inclusion teacher; Ms. Oliver, a fifth grade inclusion teacher; and Ms. Ayala, a seventh grade ELA special education teacher. Each case study opens and concludes with a vignette to highlight the central theme and explores the teacher’s starting point; our collaborative intervention; the kinds of teacher learning and student disciplinary thinking that did, and did not, emerge; and the successes and challenges that we faced along the way. In Chapter 6, I look across my collaborations with the three teachers. Using a cross-case analytical approach, I uncover the common and divergent themes with regard to the ways in which teachers’ practice and beliefs evolved throughout the study and with regard to the aspects of the collaborative interventions that were useful in supporting these changes. When exploring the usefulness of the strategies, I draw from the teachers’ reflections as well as my own reflections as a collaborator and a researcher. This dissertation concludes with an exploration of the implications associated with the findings and then
looks ahead to areas of future work as we continue to explore the intersection of UDL and disciplinary thinking and how we might support all learners to engage in the rich practices and habits of mind of the disciplines.

**Universal Design for Learning**

Traditional, “one-size-fits-all” curricula present unintentional barriers, and UDL offers a framework for designing curricula that provide all students opportunities to gain the knowledge, skills, and motivation necessary for learning (CAST, 2011). The ultimate goal of UDL is to develop “expert learners” (Rose & Gravel, 2009, p. 5), students who “are, each in their own way, resourceful and knowledgeable, strategic and goal-directed, purposeful and motivated” (Rose & Gravel, 2013, pp. 82-84).

UDL is situated among several pedagogical approaches that seek to enhance learning opportunities for diverse learners. For example, there are overlaps among UDL and approaches such as differentiated instruction—an approach where educators seek to customize learning according to students’ individual “readiness, interest, and learning profile” (Tomlinson, 1999, p. 11)—and adaptive teaching—an approach where educators stay closely attuned to individual learner differences and the social subtleties of the classroom in order to continuously assess student needs and respond with real-time adjustments (Corno, 2008; Randi & Corno, 2005). Yet, what sets UDL apart, is the emphasis on the need to design instruction with a range of embedded options and supports from the very beginning of the lesson planning process. Thus, UDL lessons are “designed from the outset to meet the needs of all learners, making costly, time-consuming, and after-the-fact changes unnecessary” (National Center on UDL,
Applying UDL to the initial design phase can support the creation of flexible, responsive learning opportunities that do not require the on-going, individual-level adjustments that are needed with approaches like differentiated instruction and adaptive teaching. By designing for difference from the start, teachers can focus their real-time adjustments on responding to student thinking without having to focus simultaneously on responding to unintentional barriers in the design of the curriculum.

Further, UDL is unique in that its theoretical basis stitches together three distinct areas of research that have historically been disconnected. Similar to approaches such as differentiated instruction and adaptive teaching, the UDL framework is influenced by seminal work in the learning sciences and in cognitive psychology that highlights variability among learners (Piaget, 1952; Vygotsky, 1978; Wood, Bruner, & Ross, 1976). Yet, UDL also draws heavily from neuroscience research that reveals individual differences among the three brain networks: the recognition network—the network responsible for perceptual functioning and how individuals categorize information; the strategic network—the network responsible for motor functioning and how individuals organize and execute tasks; and the affective network—the network responsible for emotional functioning (Meyer, Rose, & Gordon, 2014).

Drawing from the emerging science of these three brain networks, the UDL framework is built on three principles: (1) multiple means of representation to ensure that learners can access information; (2) multiple means of action and expression to allow students to act on and express what they know; and (3) multiple means of engagement to motivate students (Rose & Meyer, 2002). CAST’s UDL Guidelines were developed to more fully support instructional
designers and educators in applying these principles to practice. The Guidelines consist of 9 guidelines and 31 checkpoints that offer concrete strategies for increasing learning opportunities for diverse learners (CAST, 2011). The top row of the Guidelines represents the “access guidelines,” the strategies to ensure that students have physical access to the learning goal. The arrows pointing downward from the top row represent the subsequent guidelines leading to the ultimate goal of developing “expert learners” (Appendix A). The Guidelines emphasize the importance of applying UDL according to specific learning goals—offering options and supports “with a keen focus on the goal, as distinct from the means” (CAST, 2011, p. 8). This emphasis is linked to the notion of construct relevance: scaffolding those “construct irrelevant” barriers so that students can access and engage with the “construct relevant” learning goals (Mislevy, et al., 2013).

These Guidelines were intentionally designed to support learning among students across content areas (CAST, 2011). Yet, in this effort to make the Guidelines applicable to any domain, specificity in terms of how to apply the Guidelines to achieve particular disciplinary ways of thinking is lost. As described above, the Guidelines emphasize the importance of applying UDL according to particular learning goals; however support in defining meaningful, discipline-specific goals is not captured. Thus, many educators often equate UDL with the top level of the guidelines—with providing students access to content. Rose, Hasselbring, Stahl, and Zabala (2005) reveal that it is common for educators to associate UDL with assistive technology and to conceive of UDL as a framework for providing students with disabilities the technologies that they need to access and participate in the classroom. This attention to applying UDL
to increase access marks a necessary and valuable start in terms of more fully meeting the needs of diverse learners. Yet, Rose et al. assert that the goals of UDL reach beyond accessibility; the authors argue for a “shift from a focus on access to a focus on learning” (pp. 516-517). Thus, research is needed to understand how to support educators to apply UDL in ways that reduce barriers and promote sophisticated disciplinary thinking among all learners.

**Disciplinary Thinking in ELA**

Beginning in the mid-1960s, researchers began to emphasize the disciplined nature of learning. Bruner (1960) and Schwab (1964) underscored the unique ways in which disciplines are organized and how practices of those disciplines reflect these commitments. Schwab stressed that each discipline has its own “syntactical structure” for gathering evidence, measuring quality, forming interpretations, and drawing conclusions (p. 14). He asserted that supporting students to develop these varying “modes of enquiry” were “almost universally overlooked” in the classroom and encouraged educators to engage students in disciplinary practices (p. 24).

The call for disciplinary thinking grew louder in the 1980s. Researchers emphasized the need to not only build students’ basic skills but to develop students’ understanding of discipline-specific practices and epistemological commitments (Buchmann, 1984; Shulman; 1987). To accomplish this aim, researchers underscored the importance of supporting teachers’ disciplinary knowledge (Anderson, 1988; Ball, 1988; Buchmann, 1984). Shulman (1987) asserted that teachers must “understand the structures of subject matter, the principles of conceptual organization, and the principles of inquiry” unique to
their discipline and support students in developing these disciplinary understandings as well (p. 9).

As described above, researchers continue to advocate for disciplinary thinking today and underscore its important role in student learning (Gardner, 2000; Langer, 1992, 2011; Lee & Spratley, 2010; Moje, 2008; Shanahan & Shanahan, 2008). Supporting students to engage in the practices of a particular discipline—to engage with “the unique tools that the experts in a discipline use”—is the way in which students can learn that discipline (Shanahan & Shanahan, 2012, p. 8). It is through this exposure that students can understand the specialized ways of knowing and doing within a specific discipline and ultimately advance the knowledge construction within that particular domain. Shanahan and Shanahan (2012) emphasize the need “to transform students into disciplinary insiders” and to provide them “with some sense of agency and with a set of responses and moves that are appropriate to the specialized purposes, demands, and mores of the disciplines” (p. 11). Yet, it is important to note that along with this increased attention to disciplinary thinking, some researchers and scholars are critical of the singular focus on a particular discipline and call for a interdisciplinary approach that seeks to integrate the curriculum in order to pose authentic, meaningful problems to students (Barton & Smith, 2000; Beane, 1997; Jacobs, 1989; Perkins, 2014). Others call for a transdisciplinary approach that considers the disciplines as “inexorably bound together” (Moss, Osborn, & Kaufman, 2003, p. 7) and “releases students and teachers from the boundary limitations of specific subject areas” (Richards & Kroeger, 2012, p. 9). Interestingly, however, both interdisciplinary and transdisciplinary advocates underscore the importance of disciplinary knowledge as foundational to these
approaches (Beane, 1997; Moss, Osborn, & Kaufman, 2003). For example, Beane (1997) asserts, “In the thoughtful pursuit of authentic curriculum integration, the disciplines of knowledge are not the enemy. Instead they are a useful and necessary ally” (p. 616).

Despite this strong emphasis on disciplinary thinking and its relationship to student learning, coherence around identifying the particular practices specific to each discipline varies across domains. The hard sciences have traditionally offered the strongest consensus as this field upholds clear structural and methodological aims (Donald, 2002). The recent release of the NGSS with their focus on disciplinary practices is reflective of the domain’s shared epistemological commitment (NGSS, 2014). The field of history has also progressed in defining what it means for students to engage in “historical thinking” (Boix-Mansilla, 2000; C3 Framework, 2014; VanSledright, 2004; Wineburg, 2001). Yet, consensus unravels when looking to ELA. The CCSS and the National Council of Teachers of English (NCTE) offer a start at distinguishing specific disciplinary practices but fall short in collectively articulating the art of thinking within the discipline. Donald (2002) refers to a “dearth of collective coherence” within ELA (p. 237) and contends that “diversity is a hallmark of the field” (p. 236).

Given this variability, I conducted a review of the literature in order to begin conceptualizing what it means to actually do ELA beyond the basic competencies of reading and writing as well as to begin characterizing disciplinary thinking in ELA in ways that can be applied to the classroom. Although considerable diversity exists, five common themes nonetheless emerged. These five themes are intentionally broad so as to embody a range of
disciplinary practices in ELA. They are not meant to suggest that they are the only practices, habits of mind, or epistemological commitments in ELA; instead, it is intended that the themes offer a starting point to the field for ways one might begin to codify how students engage in the discipline of ELA.

First, many ELA scholars underscore the importance of developing an identity as a reader (Alvermann, 2001; Buehl, 2011; Gee, 2007; Moje & Luke, 2009). Students who see themselves as capable readers are more motivated to undertake challenging texts and to gain enjoyment from reading (McRae & Guthrie, 2009). Yet, scholars warn against set definitions of what it means to be a “good reader” (Alvermann, 2001; Moje & Luke, 2009). Hall (2012) emphasizes the need to support students “to shed the typical labels we typically use to understand each other and ourselves as readers” and to develop an identity that is personally meaningful (p. 370).

Second, the literature emphasizes the value of developing an identity as a writer and supporting students to feel like confident, capable writers (Gee, 2007; Smith, 1983; Wearmouth, Berryman, & Whittle, 2011). Smith (1983) encourages educators to support students in understanding that they can gain “membership in the club of writers” (p. 564).

Third, the notion of supporting students to “read for meaning” resonates across the literature (Axelrod & Cooper, 1999; Herber, 1978; Rainey & Moje, 2012). When students “read for meaning,” they move beyond basic comprehension; they “actively construct meaning from a text” (Axelrod & Cooper, 1999, p. 3) by engaging in practices such as tapping background knowledge, assimilating new knowledge, formulating opinions, and considering connections (Axelrod & Cooper, 1999; Rainey, 2016; Rainey & Moje, 2012).
Fourth, supporting students to “read like a writer” appears throughout the ELA literature (Axelrod & Cooper, 1999; Rainey & Moje, 2012; Smith, 1983; Story & Sneddon, 2008). With this type of discipline-specific reading, students explore the “author’s craft” and uncover techniques that authors use to evoke meaning and to guide readers (Axelrod & Cooper, 1999; Rainey & Moje, 2012; Story & Sneddon, 2008).

Finally, the literature calls attention to the relationship between “reading like a writer” and ultimately developing the skills of “writing like a writer” (Browning & McClintic, 1995; Smith, 1983; Story & Sneddon, 2008). By closely attending to the author’s craft, students can begin to weave these strategies into their own work (Story & Sneddon, 2008).

Unfortunately, researchers’ and disciplinary experts’ emphasis on the value of disciplinary thinking has not successfully translated to practice. Today’s classrooms offer minimal opportunities for students to develop discipline-specific practices and epistemological commitments (Gardner, 2000; Langer, 1992; Moje, 2008; Rainey & Moje, 2012). With the current emphasis on high-stakes assessments, many students are tasked with basic comprehension and rote memorization activities with little opportunity to strengthen their “disciplinary muscles” (Gardner, 2000, p. 125). Students may be developing academic competencies, but they are not developing deep, disciplinary knowledge within specific subjects.

Additionally, opportunities for students with disabilities to develop disciplinary thinking are especially limited. Too often, educators focus on functional skills without challenging students with disabilities to engage in meaningful learning within a content area (Causton-Theoharis, Theoharis, Orsati,
& Cosier, 2011; Jorgensen, 1998; Koppenhaver, Pierce-Coleman, Kalman, & Yoder, 1991). For students with significant disabilities, even instruction in reading and in other academic content areas is generally minimized (Browder et. al, 2007; Kliewer, Biklen, Kasa-Hendrickson, 2006). For example, in their study of self-contained special education classrooms, Causton-Theoharis, Theoharis, Orsati, and Cosier (2011) found that “significant portions of the school day were spent on tasks that were not instructional or academic in nature” (p. 69). They described how “students engaged in extended periods of noninstructional games, choice or play time, movie time, or other time that was not related to state or local standards” (p. 69). Thus, the need to support educators to leverage UDL in ways that create opportunities for all learners to engage in deep disciplinary thinking is clear.

**Supporting Teacher Learning**

As described above, this study seeks to fill a gap in the current literature by exploring how to support educators to apply UDL in ways that promote disciplinary thinking among diverse learners. While this perspective on teacher learning offers a unique contribution to the field, it nonetheless builds on a robust body of existing research on teacher change that documents the disappointing impact of traditional modes of teacher development, emphasizes the need for more innovative approaches, and articulates features that facilitate teacher growth.

Researchers, policy makers, curriculum developers, and educators are continually seeking ways to improve teaching and learning in today’s schools, and with these new ideas and approaches comes a need to support teachers to
carry out these reforms (Ball & Cohen, 1999; Darling-Hammond & McLaughlin, 2011; Stein, Smith, & Silver, 1999). While teachers encounter numerous professional development opportunities, these opportunities are all too often poorly conceptualized and do not support teachers to create meaningful change in the classroom (Ball & Cohen, 1999; Darling-Hammond & McLaughlin, 2011; Garet, Porter, Desimone, Birman, & Yoon, 2001; Helsing, Howell, Kegan, & Lahey, 2008). Ball and Cohen (1999) reveal that teachers are generally “thought to need updating rather than opportunities for serious and sustained learning of curriculum, students, and teaching” (p. 4). The authors characterize traditional professional development as “often intellectually superficial, disconnected from deep issues of curriculum and learning, fragmented, and noncumulative” (pp. 3-4). Fullan (2007) further emphasizes the discouraging state of traditional professional development; he contends that “professional development as a term and as a strategy has run its course” and calls for a “radical shift” in the design of teacher learning (p. 35).

To work toward this “radical shift,” researchers and educators have begun to reimagine the nature of professional development and to articulate key features that promote teacher growth. As opposed to traditional “one-shot” (Ball & Cohen, 1999, p. 4), “flavor of the month” (Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009, p. 6) approaches, the literature underscores the value of sustained, contextualized support (Ball & Cohen, 1999; Cohen & Hill, 2001; Darling-Hammond & McLaughlin, 2011; Elmore, 2004; Fullan, 2007; Garet et al., 2001). Applying new practices and orientations toward student learning is a process, and Knapp (2003) emphasizes the need to provide “rigorous and cumulative opportunities for professional learning over time” (p. 120). Further,
the literature highlights the need to embed these sustained learning opportunities into the everyday context of the classroom (Ball & Cohen, 1999; Darling-Hammond & McLaughlin, 2011; Elmore, 2004; Fullan, 2007; Garet et al., 2001; Little, 1993). Fullan (2009) asserts the need for classroom-based support and claims that “professional learning ‘in context’ is the only learning that changes classroom instruction” (p. 83). Gallimore, Ermeling, Saunders, and Goldenberg (2009) also stress the critical role that relevance plays in teacher learning. In their study of school-based inquiry teams, the authors emphasize the value of exploring “a common task immediately relevant to each teacher’s own classroom” (p. 548).

The literature also underscores the collaborative nature of successful professional learning opportunities—the need for teachers to wrestle together with the tensions, confusions, and successes that come with new learning (Ball & Cohen, 1999; Darling-Hammond & McLaughlin, 2011; Grossman, Wineburg, & Woolworth, 2001; Little, 2002; Stein, Smith, & Silver, 1999). Ball and Cohen (1999) characterize a collaborative approach as “an essential element of any serious education, because it is the chief vehicle for analysis, criticism, and communication of ideas, practices, and values” (p. 13). Yet, in order to nurture this collaboration, researchers underscore the importance of developing trusting relationships (Bryk & Schneider, 2002; Stein, Smith, & Silver, 1999; Zech, Gause-Vega, Bray, Secules, & Goldman, 2010). Wei, Darling-Hammond, Andree, Richardson, and Orphanos (2009) reveal that a strong foundation of trust “provides a basis for inquiry and reflection into teachers’ own practice, allowing teachers to take risks, solve problems and attend to dilemmas in their practice” (p. 6). Further, Stein, Smith, and Silver (1999) emphasize that the development of
trust is especially important when collaborating with outside experts; the expertise of the collaborators as well as the teachers must be valued.

The notion of an “active learning” approach to professional development also resonates across the literature (Ball & Cohen, 1999; Desimone, Porter, Garet, Yoon, & Birman, 2002; Garet et al, 2001; Stein, Smith, & Silver, 1999). In order to promote teacher learning, teachers need space to experiment, problem-solve, and construct their own understandings. Ball and Cohen (1999) contend that teacher learning should not be grounded in the “rhetoric of conclusions” but in the “narrative of inquiry” (pp. 16-17). Garet et al. (2001) also emphasize the need for teachers to play a role in their own learning and contend that teachers must be “engaged in meaningful discussion, planning, and practice” (p. 925). Features of this kind of active learning include but are not limited to exploring student work (Ball & Cohen, 1999; Lampert & Ball, 1998; Stein, Smith, & Silver, 1999), experimenting with flexible educational tools (Putnam & Borko, 2000; Sherer & Spillane, 2011; Spillane, 2015), and analyzing video footage of teachers’ own practice (Ball & Cohen, 1999; Lampert & Ball, 1998; McCullagh, 2012; Roth, 2007; Sherin & Han, 2004).

Finally, researchers emphasize the critical nature of grounding professional learning opportunities in specific subject areas, thus providing opportunities for teachers to deepen their own disciplinary knowledge and to gain the tools and practices to support their students to do the same (Garet et al, 2001; Grossman, Wineburg, & Woolworth, 2001; Little, 1993; Stein, Smith, & Silver, 1999; Wei et al., 2009). Grossman, Wineburg, and Woolworth (2001) view “teachers’ continuing intellectual development in the subject matters of the school curriculum” (p. 15, italics in the original) as a key feature of successful
professional learning. They believe “teachers are lifelong students of their subjects who must continue to grow in knowledge and keep up with changes in their disciplines” (p. 15). Further, Stein, Smith, and Silver (1999) underscore the importance of supporting teachers to apply this disciplinary knowledge to their practice. They assert that professional learning opportunities must “help teachers learn how to orchestrate learning experiences that develop students’ understanding of important disciplinary concepts” (Stein, Smith, & Silver, 1999, p. 240).

Along with these features of successful professional development, the literature also emphasizes the critical role that teachers’ preexisting practices and beliefs play in these learning opportunities (Coburn, 2004; Cohen, 1990; Cohen & Ball, 1990; Spillane, 1999). In her study of teachers’ responses to a novel approach to reading instruction in California, Coburn (2004) found that “teachers drew on their tacit worldviews and assumptions to construct their understanding of the content and implications of messages” (p. 224). She outlines five responses to instructional pressures, all of which are influenced by teachers’ preexisting practices and beliefs: 1) rejection, when teachers reject a pressure; 2) decoupling/symbolic response, when teachers respond symbolically as opposed to making fundamental changes to practice; 3) parallel structures, when teachers respond by creating a “parallel approach” that corresponds with the pressure while still maintaining the existing approach; 4) assimilation, when teachers alter the message to align with preexisting beliefs; and 5) accommodation, when teachers respond by fundamentally shifting their practice and beliefs (pp. 223-225). Viewing teachers’ reactions to learning opportunities through these lenses underscores the ways in which preexisting “worldviews and assumptions” can
shape teachers’ learning trajectories.

Guskey’s (2002) “Model of Teacher Change” underscores the challenge of supporting teachers to shift these entrenched preexisting beliefs and practices. He asserts that traditional professional development models often seek to change teachers’ practice and beliefs through the event itself and “presume that such changes in teachers’ attitudes and beliefs will lead to specific changes in their classroom behaviors and practices, which in turn will result in improved student learning” (p. 382). Yet, Guskey contends that this “assumption that change in attitudes and beliefs comes first” is flawed (p. 383). His model offers an alternative sequence of events: he stresses that “significant change in teachers’ attitude and beliefs occurs primarily after they gain evidence of improvement in student learning” (p. 383).

Building on these new conceptualizations of teacher learning, many researchers are reframing the design of professional learning experiences as iterative cycles of learning (Boudett, City, & Murnane, 2013; Bryk, 2009; Bryk, Gomez, & Grunow, 2011; City, Elmore, Fiarman, & Teitel, 2009; Loucks-Horsley, Stiles, Mundry, Love, & Hewson, 2010). For example, Loucks-Horsley, Stiles, Mundry, Love, and Hewson (2010) assert that it is necessary to conceive of professional development as a “dynamic-decision making process rather than as a static set of models” (p. 12). They offer a “Professional Development Design Framework” that underscores “the cyclical and continuous process of designing, implementing, evaluating, and refining professional learning programs” (p. 20).

In sum, while this study is poised to fill a gap in the field with respect to supporting teachers to leverage the potential synergy between UDL and disciplinary thinking, it is informed by a substantial body of knowledge that
describes successful ways to support teacher learning. As described in the following chapter, the design of this study draws from the notions of effective professional development as sustained, contextualized, teacher-centered, discipline-specific, and cyclical in order to explore the ways in which teachers can be supported to apply UDL to promote disciplinary thinking among all learners.³

**Drawing from Pilot Data**

Along with the literature, the development of this dissertation was also informed by two studies that I conducted over the past five years: an action research project with a middle school Social Studies teacher, Ms. Sheehan, as well as the study of Ms. Nichols and Ms. Reynolds’s classroom described above. The action research project underscored for me the importance of applying UDL with specific disciplinary aims as well as the potential of supporting teacher learning through collaborative research. Ms. Sheehan began the project with a desire to more fully apply the UDL principle of “multiple means of action and expression” to her practice. We sought to explore how offering varied modes of expression influenced her students’ demonstration of disciplinary thinking in Social Studies: we intended to compare students’ demonstration of disciplinary thinking on baseline assignments that offered *one* form of expression to students’ demonstration of disciplinary thinking on redesigned assignments that offered *multiple* forms of expression. Yet, our initial analysis revealed that the baselines elicited very little disciplinary thinking to begin with. Most tasks were multiple-

³ As described in Chapter 6, the notion of the influence of teachers’ preexisting practices and beliefs on their learning was used to inform the analysis of this study.
choice, matching, and short answer items that did not promote deep historical thinking among students (Appendix B). Thus, we needed to redesign the assignments in terms of multiple means of expression and disciplinary thinking. This study uncovered important questions about how UDL can be used to promote discipline-specific thinking. Simply applying “multiple means of action and expression” to the assignments may have yielded products that were “UDL”; yet, these assignments would have offered minimal opportunities for students to engage in disciplinary practices. Furthermore, the process of applying UDL to her practice spurred Ms. Sheehan to question the substance of thinking that she elicited from her students and sparked new conversations about disciplinary rigor. This study revealed that teachers needed more practice with designing lessons that foster disciplinary thinking itself and that a collaborative, “teacher-driven” process of applying UDL can be a potentially rich professional learning opportunity.

The insights I gained from this action research project motivated me to explore how teachers use UDL to promote disciplinary thinking among diverse learners and ultimately led me to Ms. Nichols and Ms. Reynolds’s 5th grade inclusive classroom. Through observations, interviews, and analysis of student work, I examined how the co-teachers used UDL to support student thinking during a 10-week ELA unit. Using a theoretical framework similar to the disciplinary thinking in ELA framework described above, I observed the co-teachers provide numerous opportunities for students to begin to engage in the

---

4 For this pilot study, I used four themes of disciplinary thinking in ELA distilled from the literature: read for meaning, read like a writer, write like a writer, and identify as a writer. As described above, this dissertation adds a fifth theme that I uncovered in the literature: identify as a reader.
practices of the discipline: students “identified as writers” as they reflected on the end of the unit via blog-posts; students read their own work “like writers” as they revised fables and parables to enhance their use of descriptive language; students “read for meaning” and “read like writers” by examining author’s craft and by constructing their own interpretations; and students “wrote like writers” as they applied their exploration of an author’s technique and strategies to their own writing. Further, the findings highlighted that the application of particular Guidelines, as well as other strategies, through a discipline-specific lens served to encourage deep disciplinary thinking among students (Gravel, in press) (Appendix C). This study revealed the richness of students’ thinking when UDL is used for disciplinary aims. And as described above, this study also revealed to me the topic of this dissertation. After witnessing such meaningful application of UDL and the sophisticated student thinking that emerged among all learners, I set out to explore how we might support other more novice teachers to do the same.

**Research Questions**

This study examines the following overarching research question: *For three teachers who are new to the framework of UDL, how, and in what ways, can a co-developed intervention support them to apply UDL to encourage disciplinary thinking in ELA among diverse learners?*

Through this overarching question, this study explores the following specific sub-questions: *With respect to applying UDL in ways that encourage disciplinary thinking in ELA among diverse learners,*

1. *In what ways, if at all, did teachers’ practice change throughout the process?*
a. In what ways, if at all, was disciplinary thinking reflected in students’ actions and work? How, if at all, did this change throughout the process?

2. In what ways, if at all, did teachers’ perceptions of UDL and disciplinary thinking change throughout the process?

3. What aspects of the intervention, if any, did teachers self-report as being particularly useful in developing their practice and/or perceptions? Which did they feel were less useful? Why?

The following chapter will describe the data collection and the analytic processes used to answer these research questions.
Chapter 2: Methods and Analytic Strategy

As described in Chapter 1, this study employs design-based research (DBR), a methodological approach developed by Brown (1992) and Collins (1992) in which participants and researchers work together to design interventions intended to explore theory in situ through cycles of enactment, analysis, and revision. By leveraging the cooperative, cyclical nature of DBR, Ms. Edwards, Ms. Oliver, Ms. Ayala, and I explored how to support educators to apply UDL in ways that encourage disciplinary thinking among diverse learners. This chapter offers a detailed depiction of the methodology and describes the research site and participants, the data collection process, the analytical strategy, and the steps taken to maintain validity.

The School

I utilized a purposive sampling strategy (Palys, 2008) in order to explore the research questions in an inclusive school environment where developing teachers’ instructional practice in ELA is a priority. Windsor School, a public K–8 elementary school in an urban district in the northeast U.S., offered an ideal setting in which to conduct this study for two reasons. First, Windsor is an inclusive school, serving students with diverse strengths, weaknesses, cultures, and backgrounds. Of the approximately 450 students enrolled during the 2014–2015 school year, 53 percent were White, 29 percent were Hispanic, 12 percent were African American, 5 percent were Asian, and 5 percent were multi-race. 

---

5 Pseudonyms for the research site, teachers, and students are used throughout this dissertation.
6 These data to describe the school were retrieved from the State’s Department of Education website. However, the percentages have been rounded to the nearest whole number, and the full citations are not included in order to protect the identity of the school.
Approximately twenty-five percent of students were classified as “economically disadvantaged,” 7 13 percent of students were English language learners, and 23 percent of students’ first language was a language other than English. Furthermore, 24 percent of students received special education services, a percentage higher than the district average of approximately 20 and the state average of approximately 17 percent (Appendix D). 8 The school used a combination of inclusion and special education classes in an effort to address students’ varying needs. There was at least one “inclusion class” made of students with and without disabilities for each elementary grade. And, at the middle school level, students with disabilities were grouped together for their ELA class in order to provide more targeted support by a special educator. Thus, Windsor offered an ideal site to study the ways in which UDL and disciplinary thinking in ELA could be leveraged to support the learning of students with and without disabilities.

Second, Windsor was focused on strengthening ELA instruction at the time of this study. Windsor is consistently high-performing on statewide assessments and ranked among the highest in the district for ELA and math scores during the 2012–2013 academic year. 9 Further, the school was recognized by the state for three consecutive years prior to this study and is a top choice among many district parents seeking placement for their children. In order to build on this momentum and improve instruction even further, administrative

---

7 This is a term used by the State’s Department of Education.
8 Again, these data were retrieved from the State’s Department of Education website. However, the percentages have been rounded to the nearest whole number, and the full citations are not included in order to protect the identity of the school.
9 Again, this information was retrieved from the State’s Department of Education website, and the full citation is not included to protect the identity of the school.
leaders were focused on supporting teachers to weave opportunities for students to “write about reading” into their ELA practice. Given this school-wide focus, school administrators welcomed the study as a way for participants to explore ELA instructional methods, and the participants themselves were eager and already primed to dig deeper into disciplinary thinking in ELA.

The Participants

Given that this study builds from 5th grade and middle school pilot data, I recruited teachers from Windsor’s upper-elementary/middle grades who expressed interest in receiving support to begin applying UDL through a discipline-specific lens. After meeting with teachers, I worked with the following participants as the focus of the study: Ms. Edwards, a fourth grade inclusion teacher; Ms. Oliver, a fifth grade inclusion teacher; and Ms. Ayala, a seventh grade ELA special education teacher.

Ms. Edwards and her 4th graders. Ms. Edwards taught the 4th grade “inclusion class” at Windsor. When we began this study in August 2014, Ms. Edwards was about to begin her first year teaching at the school. However, she brought five years of prior teaching experience in various settings with her. Certified in both general and special education, Ms. Edwards worked previously as a special educator at a suburban K–8 parochial school and as a general educator at two different “low performing” public schools engaged in turnaround models. Ms. Edwards had limited knowledge of UDL and the notion of disciplinary thinking prior to participating in the study. She characterized herself as a “sponge” and was eager to participate in order to improve her practice.
Ms. Edwards’s inclusive fourth grade class consisted of fifteen students, and parental consent and student assent were obtained for all but one child. Of the fourteen students included in the study, six students in the class were students with disabilities.10 two students were labeled as having a Language-based Learning Disability; one student was labeled as having Autism; one student was labeled as having a Speech Impairment; one student was labeled as having Attention Deficit Hyperactivity Disorder (ADHD) and was diagnosed with Tourette Syndrome (TS) and Obsessive Compulsive Disorder (OCD) during the course of the study; and one student was labeled as having ADHD and was served under a 504 Plan.

Ms. Oliver and her 5th graders. Ms. Oliver taught the 5th grade “inclusion class” at Windsor. Like Ms. Edwards, the 2014–2015 school year was her first year teaching at the school. Prior to coming to Windsor, Ms. Oliver spent four years as a certified special educator at another school in the same district. In this earlier role, Ms. Oliver “pushed in” to ELA classes in order to provide accommodations and modifications for students with disabilities, and she taught science and social studies in a substantially separate classroom. Ms. Oliver began the study with little knowledge regarding the notions of disciplinary thinking in ELA and some initial background on UDL through a professional development workshop held at her previous school two years earlier. She expressed a desire to

---

10 I am uncomfortable with describing students solely by their “label”; within each disability category there is remarkable diversity in terms of students’ unique strengths, weaknesses, and interests. Further, disability labels imply that the disability resides within individual students and not within inherent barriers in the curriculum and in the environment (Baines, 2014; CAST, 2011; Kliewer, Biklen, & Petersen, 2015). Yet, I decided to include the labels in order to highlight to readers that these students with disabilities—students who have historically been held to low expectations—engaged in rich, sophisticated ways of thinking throughout this study.
further develop her practice in ELA now that she was taking on the role of the “lead teacher” as opposed to “pushing in” for ELA, and she was eager to receive support as a participant in this study. She emphasized that she was always open to feedback, stating with a laugh, “If you are seeing things that I should be doing along the way, just tell me. I am not, like, offended!”

Ms. Oliver’s fifth grade class consisted of 16 students, and student assent and parental consent was obtained from every child. Of these sixteen students, six students were students with disabilities: three students were labeled as having a Specific Learning Disability (SLD); two students were labeled as having a Communication Impairment; and one student was labeled as having a Nonverbal Learning Disorder and Attention Deficit Hyperactivity Disorder (ADHD). Additionally, Ms. Oliver identified one student who struggled in both reading and writing but who was not diagnosed with an official disability.

**Ms. Ayala and her 7th graders.** Ms. Ayala was the middle school ELA teacher for students with language-based disabilities. The 2014–2015 school year marked her third year teaching at Windsor and her fourteenth year teaching in the district. Ms. Ayala began her career as a paraprofessional in another school in the district and earned her special education certification through a “transition to teaching” program. She then spent seven years teaching students with mild to moderate disabilities in a self-contained setting before moving to Windsor. During her first year at Windsor, Ms. Ayala taught a 6th grade ELA class designed for students labeled with language-based disabilities and other students who struggled with reading, and her role soon expanded to teaching a 7th and 8th grade version of this ELA class as well. In the past, the pace and content of Ms. Ayala’s ELA classes differed from the regular education middle
school ELA classes taught by her colleague, Mr. Wells. Yet, the start of this study marked the first year in which Ms. Ayala and Mr. Wells would collaborate to align the two classes. Ms. Ayala began the study with little familiarity regarding the notion of disciplinary thinking in ELA and with some initial background on UDL through a course for her special education certification. She was enthusiastic to join this study and most looked forward to the opportunity to view and discuss video of her practice. She stated, “. . . if I am being recorded and I am videoed, I feel like, I can see it. We can talk about it. We can figure things out, and do it in a different way.”

Ms. Ayala’s seventh grade class consisted of 11 students at the beginning of the year, and student assent and parental consent was obtained from all but one child. In December of 2014, one student included in the study moved out of the district. In that same month, a new student joined the class and consent and assent were obtained. Of these 12 students, all students were labeled as students with language-based disabilities or as “struggling readers.” (See Table 1 below for a summary of the participating teachers and Table 2 below for a summary of the participating students.)
<table>
<thead>
<tr>
<th>Participant</th>
<th>Position at Windsor</th>
<th>Years teaching</th>
<th>Years at Windsor prior to study</th>
<th>Certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Edwards</td>
<td>4&lt;sup&gt;th&lt;/sup&gt; grade inclusion</td>
<td>5</td>
<td>0</td>
<td>General and special education</td>
</tr>
<tr>
<td>Ms. Oliver</td>
<td>5&lt;sup&gt;th&lt;/sup&gt; grade inclusion</td>
<td>4</td>
<td>0</td>
<td>Special education</td>
</tr>
<tr>
<td>Ms. Ayala</td>
<td>6&lt;sup&gt;th&lt;/sup&gt;, 7&lt;sup&gt;th&lt;/sup&gt; &amp; 8&lt;sup&gt;th&lt;/sup&gt; grade self-contained ELA</td>
<td>14</td>
<td>2</td>
<td>Special education</td>
</tr>
</tbody>
</table>
Table 2. Participating Students by Grade and Disability Label.

<table>
<thead>
<tr>
<th>Teacher/Grade level</th>
<th>Study size</th>
<th>Disability label</th>
<th>Number of students with disability label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Edwards, 4th Grade</td>
<td>14</td>
<td>Language-based Learning Disability</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Autism</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Speech Impairment</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attention Deficit Hyperactivity Disorder (ADHD)/Tourette Syndrome (TS)/Obsessive Compulsive Disorder (OCD)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ADHD</td>
<td>1</td>
</tr>
<tr>
<td>Ms. Oliver, 5th Grade</td>
<td>16</td>
<td>Specific Learning Disability (SLD)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication Impairment</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nonverbal Learning Disorder/Attention Deficit Hyperactivity Disorder (ADHD)</td>
<td>1</td>
</tr>
<tr>
<td>Ms. Ayala, 7th Grade</td>
<td>12</td>
<td>Language-based Learning Disability/Struggling reader</td>
<td>12</td>
</tr>
</tbody>
</table>

Data Collection

The study was conducted from August of 2014 to July of 2015 and included three phases: 1) establishing a baseline for each teacher by examining
the presence of UDL and disciplinary thinking in ELA in each classroom; 2) collaboratively designing, implementing, and refining individualized interventions with each teacher; and 3) reflecting on the collaborative experience with each teacher (See Appendix E for a summary and timeline of the 3 phases).

As described below, this three-phase plan generated a wealth of data to ensure a comprehensive exploration of each research question. Over the course of 11 months, I collected a total of 155 observations of ELA classes (138 hours); 138 instructional materials; 650 pieces of student work; 29 planning meetings; and 9 interviews.

**Phase 1: Establishing a baseline.** Phase 1 spanned the months of August to December in 2014. During this time, I explored the following goals: 1) teachers’ current understanding of UDL and of disciplinary thinking, 2) how, if at all, teachers applied UDL and disciplinary teaching to their practice, and 3) the kinds of student thinking taking place in the classroom and how, if at all, it aligned to disciplinary thinking. I gathered data using semi-structured interviews to uncover each teacher’s understandings of, challenges with, and beliefs about UDL and disciplinary thinking (Appendix F for protocol). These interviews were audio recorded and transcribed. I also gathered data on each teacher’s use of UDL and disciplinary teaching by conducting observations of teachers’ approximately 50-minute ELA blocks 3 times per week. These observations were not meant to be evaluative but instead were intended to help me to develop a robust sense of teachers’ current practice. A total of 76 baseline observations (22 in fourth grade, 25 in fifth grade, and 29 in seventh grade; totaling 68 hours) were videotaped and documented through extensive fieldnotes. In these fieldnotes, I used “thick description” (Geertz, 1973) to pay
particular attention to specific teacher moves and to the details of instructional tasks. Additionally, I collected and/or scanned a total of 82 instructional materials (handouts, books, websites, etc.) associated with these observations: 24 materials in fourth grade, 21 materials in fifth grade, and 37 materials in seventh grade.

Finally, in order to understand the kinds of student thinking taking place in each teacher’s ELA class, it was essential to collect a wealth of student-generated data. Artifacts produced by the students (e.g., worksheets, drafts, final essays, story maps, etc.) were gathered throughout the baseline observations. A total of 271 artifacts were collected (29 in fourth grade, 152 in fifth grade, and 90 in seventh grade). Students’ questions and discussions were captured through the thick description of classroom observations and through video footage. Furthermore, I engaged with students and questioned their thinking through informal conversations throughout the unit. This range of data—interviews, classroom video, fieldnotes, materials, and student work—created a rich archive of teacher beliefs and classroom events (Brown, 1992) and offered the basis for designing the interventions in Phase 2 of the study. (See Table 3 below for the amount of data collected in Phase 1.)

Table 3. Data Collected in Phase 1 of the Study.

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Observations</th>
<th>Instructional materials</th>
<th>Student artifacts</th>
<th>Interviews</th>
<th>Working meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>4th Grade</td>
<td>22 (21 hours)</td>
<td>24</td>
<td>29</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td>5th Grade</td>
<td>25 (23 hours)</td>
<td>21</td>
<td>152</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td>7th Grade</td>
<td>29 (24 hours)</td>
<td>37</td>
<td>90</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td>Total</td>
<td>76 (68 hours)</td>
<td>82</td>
<td>271</td>
<td>3</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Phase 2: Developing, implementing, and refining an intervention. This phase took place from December 2014 to April 2015 and focused on the following goals: 1) collaborate with each teacher to design, implement, and refine an individualized intervention through iterative cycles in order to support her growth in using UDL to promote disciplinary thinking; 2) explore any changes in teachers’ practice; 3) explore any changes in students’ disciplinary thinking; and 4) explore any changes in teachers’ perceptions of UDL and disciplinary thinking.

A key feature of DBR is the “collaborative partnership between researchers and practitioners” (Anderson & Shattuck, 2012, p. 17). Thus, I worked with teachers to co-design tailored interventions in an effort to support them in moving forward along a trajectory of using UDL to encourage disciplinary thinking. To begin this collaborative phase, I conducted semi-structured interviews with each teacher. Each interview was audio recorded and transcribed and consisted of: (1) a reflection on the teacher’s understandings uncovered in the initial interview and (2) a “stimulated recall” (Calderhead, 1981) component where each teacher and I viewed and discussed specific moments of the classroom video and associated student work from Phase 1 to elicit teachers’ comments on their processes and realities (Jordan & Henderson, 1995) (See Appendix G for protocol).

The following week, teachers and I began to co-design interventions. Each intervention was tailored to teachers’ unique abilities and contexts and consisted of supports such as exploring CAST’s UDL Guidelines, analyzing classroom video (Ball & Cohen, 1999), exploring students’ work (Lampert & Ball, 1998), co-planning and implementing lessons/units that leveraged UDL to encourage
students’ disciplinary thinking, and reflecting on necessary refinements (See Appendix H for summary of supports). A total of 29 meetings were conducted (13 with Ms. Edwards, 10 with Ms. Oliver, and 6 with Ms. Ayala), and all meetings were audio recorded, transcribed, and documented through extensive fieldnotes in order to create a record of our process. The majority of the meetings consisted of (re)designing particular scaffolds, lessons, or projects; reflecting on strengths and weaknesses from a UDL/disciplinary perspective once we implemented our designs in the classroom; and making the necessary refinements and adjustments. During these meetings we explored student work and used stimulated recall to analyze video footage from specific lessons that were reflective of progress or challenge. During these meetings, we also revisited teachers’ initial beliefs about UDL and disciplinary thinking and discussed any changes. Finally, we continued to reflect on how, if at all, their practice may be developing in terms of applying UDL to promote disciplinary thinking and what supports are needed to further their growth (See Appendix I for sample conversation topics).

To explore any changes in teachers’ practice and students’ disciplinary thinking, I continued to observe teachers’ ELA blocks 3 times per week and to collect instructional materials and student work. Throughout Phase 2, a total of 79 observations were conducted (28 in fourth grade, 23 in fifth grade, and 28 in seventh grade; totaling 70 hours), and a total of 56 instructional materials were

---

11 As will be described in Ms. Ayala’s case study (Chapter 5), I did not have as much access to Ms. Ayala compared to the other two teachers in the study. Her role on numerous students’ IEP teams, her responsibility to administer assessment accommodations, and an unprecedented number of snow days prevented her from devoting as much time to our collaboration as she had anticipated.
collected (13 in fourth grade, 12 in fifth grade, and 31 in seventh grade). Finally, a total of 397 student artifacts were gathered (168 in fourth grade, 85 in fifth grade, and 126 in seventh grade). The regular meetings also allowed me to track any shifts in teachers’ perceptions of UDL and disciplinary thinking. The three teachers and I collaborated through the end of April 2015, designing lessons, implementing them, reflecting on them, and making refinements. (See Table 4 below for the amount of data collected in Phase 2.)

Table 4. Data Collected in Phase 2 of the Study.

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Observations</th>
<th>Instructional materials</th>
<th>Student artifacts</th>
<th>Interviews</th>
<th>Working meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>4th Grade</td>
<td>28 (24 hours)</td>
<td>13</td>
<td>168</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>5th Grade</td>
<td>23 (23 hours)</td>
<td>12</td>
<td>85</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>7th Grade</td>
<td>28 (23 hours)</td>
<td>31</td>
<td>126</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>79 (70 hours)</td>
<td>56</td>
<td>379</td>
<td>3</td>
<td>29</td>
</tr>
</tbody>
</table>

Phase 3: Reflection. The study concluded with a final interview with each teacher in June or July of 2015, once teachers had substantial time to reflect on our experience together. During this final interview, we revisited teachers’ beliefs about UDL and disciplinary thinking and focused on perceptions that may or may not have evolved. I also provided each teacher with a chart listing all of the scaffolds/lessons/projects that we tried out in her classroom as a way to prompt reflection as to the attempts that were the most and least successful at engaging all learners in disciplinary thinking. Finally, we reflected on the usefulness of the various supports offered to teachers as part of the intervention (See Appendix J for protocol).
In sum, I collected an abundance of both student-level and teacher-level data throughout the three phases of this study. The 155 observations of ELA classes, 138 instructional materials, 650 student artifacts, 29 planning meetings, and 9 interviews allowed for a rigorous examination of the research questions and offered numerous opportunities for triangulation during the data analysis process. (See Table 5 below and Appendix K for the Data Collection Matrix.)

**Table 5. Total Data Collected.**

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Observations</th>
<th>Instructional materials</th>
<th>Student artifacts</th>
<th>Interviews</th>
<th>Working meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>4th Grade</td>
<td>50 (45 hours)</td>
<td>37</td>
<td>197</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>5th Grade</td>
<td>48 (46 hours)</td>
<td>33</td>
<td>237</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>7th Grade</td>
<td>57 (47 hours)</td>
<td>68</td>
<td>216</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>155 (138 hours)</td>
<td>138</td>
<td>650</td>
<td>9</td>
<td>29</td>
</tr>
</tbody>
</table>

**Analytical Framework**

The analytical framework joins the UDL framework and the themes distilled from the literature that characterize disciplinary thinking in ELA. To identify UDL in practice, I drew from CAST’s UDL Guidelines. To identify disciplinary thinking in ELA, I drew from the five themes illustrated in the literature review in Chapter 1: *identifying as a reader*, *identifying as a writer*, “reading for meaning,” “reading like a writer,” and “writing like a writer.”

**Analytic Strategy**

Data analysis was ongoing throughout the data collection phase and beyond. During Phase 1, I wrote reflective memos immediately following each observation, interview, and meeting. In these memos, I reflected on my initial impressions in terms of how, if at all, the teachers were applying UDL to
encourage students’ to engage in disciplinary thinking in ELA. I reflected on the teachers’ specific instructional moves and how these moves did or did not align with UDL. I also considered the kinds of thinking the teachers attempted to generate among their students and how these ways of thinking aligned or did not align with disciplinary practices. In addition, I reflected on students’ thinking and how their actions and work products did or did not align with disciplinary practices. During Phase 2, I wrote reflective memos after every teacher interview and meeting with a specific focus on the teachers’ goals, the kinds of supports each teacher requested, and the ideas each teacher had for lesson and unit development. I also kept track of the role I played in supporting each teacher, making note of suggestions I made or moves I made to facilitate a teacher’s thinking in a specific way.

In order to begin organizing these initial impressions, I created a spreadsheet of observations that listed the date, time, objectives, materials, video file name, a summary of my thoughts with regard to the teachers’ moves, and a summary of my thoughts with regard to student thinking. This spreadsheet assisted me in tracking all my observations by date and allowed me to easily reference the associated fieldnotes, memos, and videos when needed. Further, this strategy helped me to identify particular moments—moments when teachers seemed to be successfully encouraging students to engage in disciplinary practices, moments of rich student thinking, moments ripe for development, etc.—to analyze with the teachers during our interviews and meetings in Phases 2 and 3.

Upon the conclusion of the data collection phase, I dove deeply into analyzing the wealth of data collected. To analyze my first sub-question—In what
ways, if at all, did teachers’ practice change throughout the process?—I focused on teachers’ instructional moves. I used ATLAS.ti qualitative research software to code fieldnotes and video from the classroom observations as well as the instructional materials. My coding scheme included a set of etic codes, or “existing organizational or theoretical categories” (Maxwell, 2013, p. 108), based on the UDL guidelines (e.g., codes such as “UDL Guideline 1: Provide options for perception”) as well as a set of codes based on the five themes of disciplinary thinking in ELA (e.g., codes such as “reading like a writer”). I also used “emic” coding, codes “drawn from the categories of the people studied” (Maxwell, 2009, p. 237), to analyze teacher moves that were not fully captured by the UDL Guidelines or the disciplinary themes (e.g., codes such as “reciprocal teaching” and “reading strategies”).

To analyze the related question—In what ways, if at all, was disciplinary thinking reflected in students’ actions and work? How, if at all, did this change throughout the process?—I focused on students’ thinking. I coded students’ questions and comments from the observations/video and all of the student work using the etic codes of the five themes of disciplinary thinking as well as emic codes to capture any kind of student thinking in ELA that did not fit into the five themes (e.g., codes such as, “student growth” and “student frustration”).

To analyze my second sub-question—In what ways, if at all, did teachers’ perceptions of UDL and disciplinary thinking change throughout the process?—I pored over the interviews and collaborative meetings I held with each teacher. I drew from this same combination of codes described above: I used the “etic” codes to capture connections to UDL and the five themes of disciplinary thinking, and I used the “emic” codes to capture teachers’ initial beliefs and understandings as
well as any changes that may have taken place over the course of the study (e.g., codes such as “teacher concern,” “student expectations/capabilities,” “change in beliefs_UDL,” “change in beliefs_DT”).

Finally, to analyze my third sub-question—What aspects of the intervention, if any, did teachers self-report as being particularly useful in developing their practice and/or perceptions? Which did they feel were less useful? Why?—I again looked to the interviews and the collaborative meetings, this time using an emic coding strategy to explore teachers’ perceptions of the usefulness of the intervention (e.g., codes such as “coaching strategy_video” and “coaching strategy_models”). I also generated my own interpretations by drawing from the analysis of teachers’ practice described above and coded for features that appear to have facilitated teachers’ development (e.g., codes such as “coaching strategy_building trust” and “coaching strategy_seeing_evidence”).

Analyzing this range of rich data according to each research sub-question allowed me to develop case studies for each of the three teachers and to dive deeply into “the particularity and complexity” of their journeys through this study (Stake, 1995, p. xi). After developing each case, I used a cross-case analytic approach (Stake, 2013) to develop codes such as “cross_case_seeing evidence” and “cross_case_student expectations/capabilities” that allowed me to uncover common and divergent themes among the three teachers’ stories.

Validity

Prior to conducting this study, I worked at CAST and played a role in the development of the UDL Guidelines. Thus, it was important for me to be cognizant of the danger of viewing data through my own preconceptions.
(Maxwell, 2013; Peshkin, 1988). To account for this potential bias, I engaged in “peer debriefings” with colleagues; I asked them to analyze samples of data and attend specifically to evidence (or lack thereof) of teachers’ applying UDL to encourage disciplinary thinking and to evidence (or lack thereof) of students’ disciplinary thinking (Lincoln & Guba, 1985). Further, Anderson and Shattuck (2012) highlight that balancing objectivity with relationship building is a central challenge with DBR. Therefore, I was diligent about writing reflective memos throughout the study and about using the “peer debriefings” to gain unbiased support in maintaining this complex balance. Finally, Cobb et al. (2003) reveal that researchers’ skills may develop as a DBR study unfolds and urge researchers to keep “a comprehensive record of the ongoing design process” (p. 12). The classroom video, interviews, and regular meetings, as well as my fieldnotes and reflective memos, served as my “comprehensive record” and supported me in disentangling and/or accounting for any growth in my ability as a researcher.

The thorough analysis of the wealth of data collected over eleven months of working with Ms. Edwards, Ms. Oliver, and Ms. Ayala led to new ways of thinking about supporting teacher learning and students’ disciplinary thinking. The following three chapters offer case studies to describe the stories of my collaboration with each of the teachers. Each case study opens and concludes with a vignette to highlight the central theme and explores the teacher’s starting point, our collaborative intervention, the kinds of teacher learning and student disciplinary thinking that did, and did not, emerge, and the successes and challenges we faced along the way.
Chapter 3: Ms. Edwards’s Journey—Developing a Commitment to UDL and Disciplinary Thinking

It is 12:30 p.m. on a warm afternoon in mid-April. Ms. Edwards and I settle into seats at the round table in the back of her classroom. We are in the midst of implementing a narrative writing project that we co-designed, and we have scheduled this meeting to check in on students’ progress. For the past two weeks, Ms. Edwards’s fourth graders—an inclusive class made up of students with and without disabilities—have been transforming drafts of narratives they wrote into digital books using a tool called UDL BookBuilder. On each page, students are developing “coaches”—animated characters that offer insight into how the students are “showing and not telling” the emotions of their protagonists. This strategy of using rich description as opposed to directly stating a character’s feeling is a technique Ms. Edwards identified as being challenging for her students, particularly for her “struggling writers.” We hoped that scripting the coaches would encourage students to reflect on their use of descriptive language and to monitor their own progress toward the goal of “writing like writers.”

After finalizing some logistics, our conversation turns to reflecting on students’ experiences with developing the coach. Ms. Edwards has sacrificed her lunch period to meet, and she has been attempting to finish a salad throughout our conversation. Her enthusiasm for the progress that she is seeing among her students—especially among her “struggling writers”—prevails over her hunger. We discuss the sophisticated thinking required to reflect on one’s own writing and to articulate these reflections through the use of the coach. Ms. Edwards puts her fork down and reflects,

That was interesting with the struggling writers. By the time we got to the coach, they would catch themselves. So, I didn’t have to intervene at all. I would just sit and watch them get to the coach and say, “Oh, well I actually did tell. I wasn’t
showing.” And then they would go back into their little, like, text page, and then they would edit it . . . So the coach kind of was like a “friendly reminder” to struggling writers.

In this moment, Ms. Edwards’s characterization of the coach as a “friendly reminder” signals her developing awareness of the role that UDL can play in allowing all learners—even those students who she considered to be her “struggling writers”—to engage in the rich disciplinary practices of ELA. She is recognizing how the coach prompted students to read their own work “like writers” as they reflected on the degree to which they were “showing and not telling” and how the coach also prompted students to add richer description to their narratives in order to more fully begin “writing like writers.” Further, Ms. Edwards is recognizing how the UDL feature of the coach allowed students to engage in these practices independently. Yet, the student thinking referred to in this vignette as well as the teacher learning demonstrated through Ms. Edwards’s comments did not happen suddenly; it took a process of collaboration to support her students to begin to more fully engage in these disciplinary practices and to support Ms. Edwards to recognize the role that UDL can play in generating this kind of rich thinking.

As part of our collaborative intervention, Ms. Edwards and I designed, implemented, refined, and reflected on six different scaffolds/lessons/projects, all of which were developed with the goal of more effectively leveraging UDL to encourage rich, disciplinary thinking among her diverse learners. This chapter will describe our journey in arriving at moments like the moment described above. I begin by offering a window into Ms. Edwards’s classroom at the start of this study and describe the ways in which she was currently applying UDL and
disciplinary teaching. Then I share the story of our work together—a story that chronicles the ways Ms. Edwards’s students began to more fully engage in the disciplinary practices of reading and writing “like writers” and the ways Ms. Edwards’s practice and beliefs began to change as she developed a stronger commitment to disciplinary thinking and a heightened awareness that all students are capable of engaging in these sophisticated practices and habits of mind.

Our Starting Point

I first met Ms. Edwards, Windsor’s 4th grade inclusion teacher, in August of 2014 just one week before the start of school. She was setting up the “rug area” of her classroom, thoughtfully displaying books in the bookshelf and arranging throw pillows and comfortable seating in anticipation of her new students’ arrival. During this meeting and our more formal initial interview, I began to develop a sense of Ms. Edwards’s hopes and fears for the upcoming school year as well as her initial understandings of UDL and disciplinary thinking in ELA. Although this was Ms. Edwards’s first year teaching at Windsor, she brought five years of teaching experience in various settings with her. Certified in both general and special education, Ms. Edwards worked previously as a special educator at a suburban K–8 parochial school and as a general educator at two different “low performing” public schools engaged in turnaround models. Ms. Edwards had a strong background in ELA; in the school where she taught prior to coming to Windsor, she served on the school’s Instructional Leadership Team as the “lead literacy teacher.” In this role, she benefited from “a lot of extra time” with the school’s literacy coach and the opportunity to take ELA professional
development courses, such as a recent course on reciprocal teaching. Ms. Edwards explained that she did not have a great deal of knowledge of UDL or the notion of disciplinary thinking prior to participating in the study; she characterized herself as a “sponge” and was eager to participate in order to improve her practice. She explained, “I see myself as still a beginner teacher. Like, I don’t know when I won’t see myself as a beginner teacher in the sense where, like, I have so much to learn . . .”

Although Ms. Edwards was unfamiliar with the notion of disciplinary thinking prior to our study, several of the overarching goals that she identified for her students for the coming year resonated with particular themes. First, Ms. Edwards expressed a desire for her students to understand “what it is to be an adult reader and to ask questions about a book and predict what might happen next, really synthesizing the text.” This goal of supporting students to become “adult readers” resonates with the disciplinary theme of “reading for meaning”—supporting students to move beyond basic comprehension and to wrestle with text at a deeper level. Second, Ms. Edwards expressed her hope that students would grow to find enjoyment in reading “because that’s what a real reader is,” a goal that aligns to the theme of supporting students to “identify as readers.”

With regard to UDL, Ms. Edwards began the project with vague ideas about the framework. She felt as though she couldn’t quite articulate what UDL meant and stated, “I hate to say, like, ‘Oh, I’ve never heard of it.’ I’m sure [12] Reciprocal teaching is a approach developed by Palincsar and Brown (1986) where students assume the role of the teacher in exploring texts and work to develop four strategies: summarizing, question generating, clarifying, and predicting.
have], but it’s really not something that stood out in my mind to remember right away.” Yet, despite the fact that Ms. Edwards was largely unfamiliar with UDL, her description of many of her instructional moves were consistent with the framework. In terms of strategies consistent with the principle of multiple means of engagement, Ms. Edwards emphasized the importance of modeling interest in a topic and supporting students to feel as though they have “opportunities rather than a task that they have to do, giving options . . . making it fun.” She also underscored the need to empower students to feel like “they were in charge, and they were the teachers.” With regard to strategies consistent with the principle of multiple means of representation, Ms. Edwards mentioned various types of digital content that she used with particular students such as “NewsELA” and “RazKids” that could be read aloud to students and that she could set to different levels of reading difficulty. She described her strategy in terms of presenting content as “a lot of different curriculums and a lot of moving parts, but it just kind of worked.” And, finally, in terms of strategies consistent with multiple means of action and expression, Ms. Edwards described her awareness of providing individual students with a mode of expression that worked well according to their strengths and weaknesses. She recalled a former student whose performance in her classroom changed dramatically once she offered him the option of typing his work on a computer. She reflected, “You know pencil and paper isn’t going to work for all kids.” Interestingly, however, Ms. Edwards’s strong awareness of students’ different strengths, weaknesses, and abilities seemed more akin to notions of differentiated instruction—an approach described in Chapter 1 where educators seek to customize learning according to students’ individual “readiness, interest, and learning profile” (Tomlinson, 1999,
Her focus on the individual student differed from UDL’s focus on embedding options and supports for all learners from the very beginning of the lesson planning process.

To complement our initial interview, I spent the first three months observing Ms. Edwards’s practice to gain a stronger sense of how, if at all, she currently applied UDL and disciplinary teaching to her practice. As revealed in Table 6 below, I conducted 23 observations of Ms. Edwards’s ELA class and collected 24 instructional materials and 29 pieces of student work. Analysis of these data revealed two important themes: 1) There were several moments when Ms. Edwards was offering opportunities for disciplinary thinking; however, not all learners were able to engage in these opportunities and 2) Ms. Edwards consistently applied certain instructional moves aligned to UDL; yet, increased UDL—in terms of both access and leveraging UDL beyond access—was needed in order to support all learners in reaching her disciplinary goals. Below, I describe a lesson that is illustrative of these two themes. I reveal the strengths that I observed with regard to UDL and disciplinary thinking, strengths that Ms. Edwards’s and I would leverage during our collaborative phase. I also reveal the areas for further development. This description is certainly not meant to evaluate Ms. Edwards’s practice, especially since Ms. Edwards began this study relatively new to notions of UDL and disciplinary thinking. Instead, this description is meant to highlight alternative and potentially more effective practices that Ms. Edwards and I would explore as we moved into the collaborative phase.
### Table 6. Data Collected in Ms. Edwards’s Class in Phase 1 of the Study.

<table>
<thead>
<tr>
<th>Phase of study</th>
<th>Observations</th>
<th>Instructional materials</th>
<th>Student artifacts</th>
<th>Interviews</th>
<th>Working meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>23</td>
<td>24</td>
<td>29</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>(21 hours)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

An illustrative example: The “Hook” lesson. Ms. Edwards’s “Hook” lesson is reflective of these two findings. This lesson took place in September of 2014. Students had begun a 9-week unit on narrative writing and were creating “imagined narratives” based on a real-life experience. In the lesson, Ms. Edwards sought to support students in developing “purposeful” introductions to their narratives and to “start their story in a way that hooks the reader.” She selected the introductions to three different young adult novels that she thought would resonate with her students and wanted students to explore the specific strategies that authors used to grab their attention. Students gathered on the rug area of the classroom with clipboards and highlighters in hand, and Ms. Edwards passed out paper-based copies of the three introductions. For each introduction, she asked students to read it—either independently or with a “shoulder partner” (a peer sitting beside them). She then asked students to consider the question, “What did this author use to grab your attention in this story?” When emphasizing the purpose of this activity, Ms. Edwards stated that she wanted students to be thinking, “Okay, I am an author, and I’ll be starting a narrative. I want to know how this author started his or her story.” She encouraged students to use their highlighters to mark up the different ways the author captured their interest, and she also referred to the “Ways Writers Hook Readers” poster hanging on the wall, a poster they generated as a class to highlight several
different strategies that authors might use to “hook” their readers’ attention. After reading each introduction, Ms. Edwards facilitated a discussion focused on the question, “How did this author hook you in?” She then provided students with the opportunity to “play around” with drafting their own hooks in their ELA notebooks. She told students that they just had time to explore “how other authors do it, and now it is your turn to be the author.”

**Strengths to leverage.** In this “Hook” lesson, aspects of disciplinary thinking and UDL were both present. By asking students to attend to the different strategies that published authors use to “hook” readers’ attention, Ms. Edwards offered her students an opportunity to engage in the disciplinary theme of “reading like a writer.” And, creating the space for students to take their “turn” at being an author aligns to the notion of “writing like a writer”: students were given the chance to apply what they learned from reading introductions “like writers” into their own writing. This lesson also revealed the ways in which Ms. Edwards applied specific instructional moves that aligned with UDL in order to prompt this type of student thinking. Selecting models from popular young adult novels was consistent with UDL checkpoint 7.2 “Optimize relevance, value, and authenticity,” and asking students to use highlighters to note published authors’ strategies aligned with UDL checkpoint 3.2 “Highlight patterns, critical features, big ideas, and relationships.” Further, the “Ways Writers Hook Readers” poster also “highlighted the critical features” associated

---

13 The strategies listed on the “Ways Writers Hook Readers” poster included: Start at the end . . . and flash back to the beginning, open with dialogue, open in the middle of a mystery, narrate (talk from outside the story), open with an experience that readers are likely to identify with, imply or suggest an adventure, and open with a question.
with developing hooks (checkpoint 3.2) and also offered students explicit ideas as to how they might begin their own introductions (checkpoint 6.2 “Support planning and strategy development”).

Analysis of students’ hooks reveals that these instructional moves did support some of Ms. Edwards’s students to engage in these disciplinary practices. For example, Caroline was working on a narrative about her experience visiting the 9/11 Memorial in New York City, a trip she and her family made in honor of her uncle who they lost in the attack. She drafted the following hook: “Guess how it feels to be visiting the memory pools of 9/11? Tragic. Especially if your uncle died in the fire for it. Well that’s how I felt when I visited them.” When asked how she got the idea for this hook, Caroline read the first line of the model introduction to Colfer’s (2009) Artemis Fowl: “How does one describe Artemis Fowl?” She explained, “Well, I read it and it made me feel like, ‘Oh, I could ask them [her readers] a question and kinda be like BOOM that’s how it feels.’”

Liza, a student labeled as having a speech disability, drew from the “Ways Writers Hook Readers” poster and from the models to create an introduction to her narrative about her family trip to England. She decided to “open with dialogue,” a strategy that she pointed out on the poster. She began her initial draft introduction in this way: “‘[Liza] wake up!!!’ my dad said. ‘C’mon [Liza] let’s go!’ ‘Wake me up tomorrow.’ I said. I forgot that today we were going to England . . .” When asked if any of the introductions they explored in class also contributed to her idea, Liza noted that Blume’s (1990) introduction to Fudge-a-Mania started with this same strategy. She found the introduction and read the opening line aloud: “Guess what, Pete?” (p. 3).
Areas for further growth. Although some students such as Caroline and Liza were able to engage in reading and writing introductions “like writers,” not all students were as successful. First, many students struggled with the transition from reading the model introductions “like writers” to “writing like writers”; they were able to identify a strategy that they wanted to use, but were not quite sure where to go from there. For example, Henry stated that he wanted to start with “implying or suggesting an adventure,” one of the strategies listed on the poster; yet, he was uncertain as to how to begin. Ms. Edwards emphasized the difficulty of applying the strategies of model authors to students’ own work. She reflected, “It was really hard for them [her students] then to do it in their own writing.” Thus, the “Hook” lesson was a strong example of providing students with the opportunity to engage in reading and writing “like a writer.” Looking ahead to our collaborative phase, I was eager to explore with Ms. Edwards how we might leverage UDL to ensure that all students could engage with these rigorous goals.

Second, from a UDL “access level” perspective, more UDL could have been embedded into the design of the lesson in order to reach all of Ms. Edwards’s learners. The three model introductions were provided in paper format, and although she offered students the option to read aloud with a shoulder partner, none of the students took advantage of the offer. Further, the singular mode of expression of their draft hooks—paper and pencil—also appeared to be a barrier. Some students had developed “hooks” by the end of the class, while other students had nothing at all written down in their “writers notebooks.” This reliance on paper and pencil was observed throughout the
baseline period as students were expected to do all of their drafting in these notebooks.

On occasion, I did observe Ms. Edwards offer Tomas, a student labeled with a communication disability who she initially described as a “reluctant writer,” the use of her own laptop. And Ms. Edwards reflected on the success of this alternative in an early meeting stating, “[Tomas] is one of those kids where he is so bright, but unless you give him the way to show you that he wants . . . he just won’t show you.” She continued, “. . . I figured out pretty quickly that [Tomas] is actually a really great writer. You have to give him a means to write what he wants.” Ms. Edwards contrasted Tomas’s experience with her experiment of offering the classroom iPad to Caleb, a student labeled with Autism. She also characterized Caleb as a “reluctant writer” and had hoped that the dictation function on the iPad would support his writing. Yet, Ms. Edwards soon concluded that the iPad was too distracting for Caleb “because he was just so enthralled by the fact that he could talk and then the iPad would write it for him.” Thus, Ms. Edwards decided to transition Caleb back to paper and pencil, and on occasion either she or her instructional aide would scribe for him. My observations of Ms. Edwards experimenting with different modes of expression for specific students were a signal of her awareness of the importance of multiple means of expression. Interestingly, however, she did not offer alternative modes of expression to other students in the class, even after witnessing Tomas’s success on the laptop. This finding resonates with the story Ms. Edwards shared in our initial interview of the student in her class who benefited from being allowed to type on a computer and again suggests that Ms. Edwards’s orientation toward supporting diverse learners was more aligned to
differentiated instruction as opposed to UDL. I was eager to explore with Ms. Edwards the ways that UDL could be embedded into the design of lessons in order to reduce barriers to expression and increase access for all learners.

Our initial meeting and interview as well as the three months of baseline observation allowed me to begin to develop a sense of Ms. Edwards’s understandings, practice, and beliefs. It was exciting to discover the seeds of both disciplinary thinking and UDL that were already present, and I was eager to work with Ms. Edwards to nurture these seeds as we moved into the collaborative phase.

**Overarching Goals of Our Collaborative Intervention**

Ms. Edwards and I held a series of initial meetings to brainstorm the goals of our collaborative work once the baseline period ended. We reviewed classroom video and analyzed student work to reflect on the kinds of disciplinary thinking that was and was not taking place. We also reflected on which disciplinary themes resonated most with the goals Ms. Edwards had for her students. Among the many areas that Ms. Edwards highlighted as potential foci of our work, two overarching goals surfaced. First, Ms. Edwards expressed an interest in the disciplinary themes of “reading like a writer” and “writing like a writer.” She hoped our work would support her to “grow as a professional” in the area of supporting student writing. She reflected,

I think many of them [her students]—the majority of them—are motivated. But then, refining their ideas in a more sophisticated manner rather than just, like, telling me every single little thing that they did
[laughs]. I guess that would be “read like a writer,” so tying what they read into how they write. I would love to focus on these if that’s possible.

After reviewing video clips from the “Hook” lesson, Ms. Edwards reflected that she was encouraged by the progress of specific students; yet, she also noted how some students struggled to transfer what they had learned from reading the models “like a writer” into their own writing. And she reflected that this struggle was not limited to the “Hook” lesson. She explained that she often facilitated class discussions exploring model work created by published authors, peers, and herself and then provided students with time to try these strategies in their own writing, a structure that she characterized as a “we do” then “you do.” Ms. Edwards stated that the “we do” portion of the lesson typically runs smoothly. In contrast, she noted,

Then when it comes to [“you do”], I have a few students in here who would be like, “So what do we do?” You know? Like, it was really hard for them to then do it in their own writing. And, like, I would have to sit in a small group with them, and then [her instructional aide]—thank god I have her—would be back here with the other ones that, you know, still didn’t know. They couldn’t do it on their own—well they can do it on their own—but they won’t lean in enough to do it on their own. Like a teacher has to be present in order for them to really get started.

Ms. Edwards also used this time to reflect on the students’ final imagined narrative and how these notions of reading and writing “like writers” could support students’ developing writing abilities. She reflected, “One pattern that I noticed was that they had these ideas, and they really struggled to refine all of their ideas, to give it a structure so that the reader stays interested.” Now that the
narrative writing unit was over, Ms. Edwards had just launched a unit on nonfiction writing. With this new unit, she explained how she wanted to support students to “refine their ideas, and understand that a structure to their text will help not only them in getting their ideas down on paper but will also help the reader stay interested.” Ms. Edwards further articulated this goal by stating,

Not only seeing yourself as the writer, but then also seeing yourself as the reader of this piece of text. And yourself as the reader of someone else’s text. Like, when we do peer editing and peer feedback, really being able to hear someone’s story or read someone’s story and be like, “You know, this doesn’t make sense to me. This is actually confusing to me.”

In these initial meetings, Ms. Edwards expressed a genuine interest in the notion of more fully supporting students to apply what they “read like writers” into their own work so that they could begin to “write like writers.” She wanted students to develop the skills and confidence to engage in this disciplinary work on their own, without prompting from a teacher. Further, Ms. Edwards’s emphasis on the idea of “seeing yourself as the reader” offered a unique twist on “reading like a writer”—a sign that she was drawing from her robust background in teaching ELA and beginning to think about how she could make these disciplinary themes her own. I looked forward to continued exploration of these disciplinary ideas as we began our collaborative phase.

Second, Ms. Edwards wanted to explore the notion of expanding modes of student expression. As described above, she had experimented with offering Caleb and Tomas alternatives to paper and pencil, but these options were not offered to all students. In our brainstorming meeting, I asked Ms. Edwards if she thought other students might benefit from using a laptop like Tomas. This
question prompted her to share her concern that other students in the class were encountering barriers. She shared a story about Gino, a student labeled with ADHD who was served under a 504 plan, and how he burst into tears when handwriting the final copy of his Imagined Narrative to share with peers, teachers, and family members at an upcoming “publishing party.” She discovered that he “was so embarrassed of his handwriting, he didn’t want people at the publishing party to see . . .” She explained that she never thought of Gino as having poor handwriting and confessed, “It made me feel terrible as his teacher. Like, how did I not know that you didn’t like your handwriting?” She revealed that it was taking her time to “pinpoint” the modes of expression that work best for her students at this early stage in the school year.

Ms. Edwards’s concerns about barriers to expression resurfaced in a later meeting. She was thinking ahead to an upcoming lesson in which students would be hand-writing diary entries, and she referred again to Tomas and Caleb as well to another student, Rocco. She explained, “They are the most reluctant writers, even if I give them the most fun task at hand to write about.” With the diary entry, she wondered, “How can we support them, so they can be more independent in their writing? Like what would we do? Do they type it on the iPad?” As we began discussing possible alternative modes—the classroom iPad, the use of a scribe, the class set of laptops that the school shares, etc.—I noticed a tension begin to emerge. On the one hand, Ms. Edwards felt strongly that certain students—her “reluctant writers”—needed an alternative format to express their ideas. On the other hand, she voiced concerns with regard to providing alternatives to all students on a regular basis, wondering if students would come to rely too heavily on technology. She reflected, “I fear that—because we just
finished in the computer lab, and they loved it so much—I fear that they are going to really milk that, for like, ‘I need it.’ These kids are so perceptive in that sense.” Ms. Edwards explained that she did not “want the expectation of writing [paper and pencil] to go out the window.”

In these honest reflections, Ms. Edwards voiced a concern that is common among many educators who are new to UDL: offering options for expression will allow students to select the mode that they like the best and will prevent them from developing skills in other modes. As described in Chapter 1, UDL emphasizes the importance of selecting “construct irrelevant” options and supports that do not infringe on the instructional goal (CAST, 2011; Mislevy, et al., 2013). For example, in relation to Ms. Edwards’s concern, an array of expressive options might be offered if the instructional goal is unrelated to the mode of expression. However, if a particular mode of expression is tied to the instructional goal (e.g., a teacher does in fact want students to write out their ideas on paper), offering a range of expressive options would infringe upon the teacher’s goal and thus should not be offered. In this case, the Guidelines could be applied to embed other “construct irrelevant” options and scaffolds into the lesson, such as the use of a graphic organizer, a choice in topic, etc. This notion of construct relevance is often unclear to teachers who are just learning about UDL, and this initial perception that students have choice regardless of the instructional goal is understandably concerning to them. Yet, despite Ms. Edwards’s hesitations and her developing understanding of UDL at this time, she wanted to continue to experiment with offering alternative modes of expression to more of her students—modes that would reduce barriers and offer students more independence. Further, students would take the online version of
the Partnership for Assessment of Readiness for College and Careers (PARCC) assessment in a few months, and she wanted them to be comfortable working in a digital environment. She stated, “They are going to be able to use computers on PARCC, why not start that [experimenting with computers] ASAP?” After observing the reliance on paper and pencil in the baseline observations, I was eager to explore this aspect of UDL with Ms. Edwards as well.

In these meetings, Ms. Edwards uncovered the goals and tensions that would steer our work. She expressed a curiosity about the notion of disciplinary thinking and already showed signs of making the themes her own. Further, she revealed interest, albeit somewhat hesitant, in multiple means of expression. Although she wanted to reduce barriers for more learners, she wondered who “needs” alternatives, and she questioned the consequences of consistently offering these alternatives. I observed rich promise in the baseline data of Ms. Edwards’s practice as well as in these candid meetings. Her strong background in ELA, her inquisitiveness, and her willingness to experiment with different ideas—even ideas with which she was not yet fully comfortable—were qualities that would serve us well as we continued into our collaborative phase.

**The Collaborative Intervention**

Throughout our five months of collaboration, Ms. Edwards and I held thirteen meetings to brainstorm, design, refine, and reflect on six different scaffolds/lessons/projects to “try out” in her class. I was fortunate that Ms. Edwards made our work a priority; I had consistent access to her throughout the study, and she often sacrificed her lunch to make herself available. The six ideas that we co-designed were all aimed to encourage more disciplinary thinking in
ELA among her students by more fully leveraging UDL. As we implemented these ideas, I collected a range of data to document our efforts: 28 classroom observations, 13 instructional materials, 168 pieces of student work, and 2 interviews (See Table 7). Below, I highlight the illustrative moments in this journey, a journey that assumed a progression from experimenting with a small revision to a lesson as a way to build trust, to designing a lesson that targeted more specific UDL guidelines, to developing a five-week UDL BookBuilder project that leveraged a range of UDL Guidelines to immerse students in the practices of the discipline. In keeping with DBR, this progression is reflective of our cyclical process of reflecting on the strengths and weaknesses of our ideas and making needed refinements. The moments described below reflect not only the ways in which Ms. Edwards’s students began to more fully engage in the disciplinary practices of “reading like a writer” and “writing like a writer” but the ways in which her practice began to evolve as well.

Table 7. Data Collected in Ms. Edwards’s Class Throughout the Study.

<table>
<thead>
<tr>
<th>Phase of study</th>
<th>Observations</th>
<th>Instructional materials</th>
<th>Student artifacts</th>
<th>Interviews</th>
<th>Working meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>23</td>
<td>24</td>
<td>29</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>(21 hours)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 2</td>
<td>28</td>
<td>13</td>
<td>168</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>(24 hours)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 3</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>37</td>
<td>197</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>(46 hours)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Diving Right In: Reading and Writing Introductions “Like Nonfiction Writers”

As illustrated in Chapters 4 and 5, the other two teachers and I eased into focusing on the intersection of UDL and disciplinary thinking. Yet, given her
strong background in ELA and given that aspects of UDL and disciplinary thinking were already apparent in her practice, Ms. Edwards seemed immediately ready to explore the intersection of these two frameworks; thus, following her lead, we dove right in.

As we began our collaboration in early December, Ms. Edwards and her students were in the midst of a unit on nonfiction writing. Students worked in groups to research the following student-generated topics: humans’ bodily emissions, endangered and extinct animals, and phobias. Now that their research phase had concluded, students were drafting nonfiction reports that they would ultimately turn into a PowerPoint presentation to share with peers, teachers, and family members. Ms. Edwards sought to guide students to recognize nonfiction text features—headings, bold words, images, captions, quotations, structures, etc.—when researching their topics and to apply these features to their own writing.

During one meeting, Ms. Edwards reflected on how her overarching goal of supporting students to incorporate text features—specifically the use of quotations—connects with the disciplinary theme of “writing like a writer”:

When I think about “writing as a writer” for this unit, I think it’s really important for them [her students] to really use what they know from these books to say like, “Okay, this author didn’t just use quotes for the their entire page” . . . I think it’s definitely going to be a—I don’t know if it’s going to be a challenge—it’s going to be interesting when they come to the point when they’re realizing that the quotes are great, but that they do need to string those together with their own ideas . . . When I think about “writing like a writer,” authors of nonfiction, they do add quotes, but they
also add their own words and their own voice. They [her students] still need their own voice to show through in their reports.

Ms. Edwards’ goal for this unit was already aligned to notions of reading and writing “like writers”: she hoped that through the process of researching their topics, students would be exposed to nonfiction features and structures that they could then apply to their own writing. Further, the use of PowerPoint for the final product was a departure from the reliance of paper and pencil observed in the baseline observations and a signal of Ms. Edwards’s developing openness to alternative modes of expression. Thus, the seeds of disciplinary thinking and UDL were already established in this nonfiction unit prior to the start of our collaboration.

Before we began meeting to develop ideas for this unit, Ms. Edwards gave a lesson focused on supporting students to write the introductions to their nonfiction reports. She began by providing students with a copy of the introduction to her own model nonfiction report (Appendix L), the quotations/notes that she used to write the introduction (Appendix M), and a handout listing “Transitional Words and Phrases” (Appendix N). She asked students to highlight all of the transition words in her model introduction, and she then facilitated a discussion on the transition words that students found and the ways she used these transition words to connect quotations and ideas. Ms. Edwards then provided students with time to work on their own introductions. She reminded students that they had already spent time finding quotations through their research, and stated, “Today, what we will be doing, is we will be connecting all of your hard work using transition words.”
When reflecting on this lesson later that day, Ms. Edwards thought critically about the lesson’s focus on text features, specifically the use of transition words to offer structure: “The whole idea behind this lesson plan was transition words. And, I wish that I had just, like, not even talked about transition words today. But, really just talked about, ‘Here’s my intro and here are the notes that it is based off of. What could you do in yours?’” Given this early stage in our collaboration, I wanted to assume more of a listening role and refrain from suggesting too many ideas too early on. I asked Ms. Edwards more about how she might like to revise the lesson. She revealed how she wished that she had offered students more specific support on the elements of an effective nonfiction introduction. Since transition words are not specific to introductions, she reflected that exploring her use of these words “wasn’t a support for their independent work time . . . Like, I felt like it really led to some confusion.”

This thoughtful reflection led Ms. Edwards to brainstorm how she might revise the introduction lesson and re-introduce it the following day. Instead of focusing on text features and exploring the use of transition words specifically, she decided to focus students’ exploration more broadly on the elements that make for a strong nonfiction introduction. She expressed how she wanted students to explore her model again, this time considering: “What is the structure that I used to write this?” Ms. Edwards’s idea aligned with UDL checkpoint 3.2. “Highlight patterns, critical features, big ideas, and relationships”; through the disciplinary lens of “reading like a writer,” she wanted to support students to uncover the features of a model nonfiction introduction. Although we could have more fully leveraged UDL to support students to engage in this disciplinary task,
I wanted to start small and follow her lead at this early stage (See Appendix O for a summary of the ways in which UDL were leveraged).

**Implementation.** The next day, Ms. Edwards revisited the introduction lesson. She asked students to take out her model introduction once again and stated, “When we have an intro paragraph, when we were writing our hook, what was our whole purpose? Students offered responses such as to make readers “want to read more” and “to get you interested in what you’re going to read.” During this discussion of the hook, Ms. Edwards emphasized how students would be “writing as readers”; she reminded students to maintain an awareness of their audience—herself along with their shoulder partners, parents, and other teachers—and how “it’s really important that we hook these people into our reports.” Ms. Edwards had alluded to this twist on the disciplinary themes in our brainstorming meeting, and it was interesting to see her use this new phrase—“writing as readers”—in practice.

Ms. Edwards then supported students to move beyond the hook and asked them to also consider the organization of a nonfiction introduction. Referring to an “Organizing Our Ideas” poster on the wall, Marco offered, “the facts that they [readers] need to know before reading the report.” She then guided students to identify the importance of defining the topic (“What is it?”) as well as the need to balance their voice with the author’s words. Throughout the discussion, Ms. Edwards documented students’ ideas on the white board, and the following list of the features that make nonfiction introductions effective emerged: “hooks readers [sic] interest, background info, what is it?, and author’s voice.”
After this explicit scaffolding, Ms. Edwards asked students to return to the draft introductions they began the previous day. She asked students to swap drafts with a shoulder partner and to offer feedback on the components of an introduction that they had just discussed. In her directions to students, elements of disciplinary language surfaced for a second time. Ms. Edwards stated [italics added for emphasis],

When you switch with a shoulder partner, you are going to be reading their work as a reader—someone who is reading their report. But, you’re also reading it as a writer. Because last night, you were a writer. Yesterday, you were a writer. And today you are still a writer. You know all of the important components that you added to your work. So you are reading your shoulder partner’s work and you are saying, “Hmm. Did this person add all of those important components? Did that person hit all of the bullets that we just brainstormed?”

Ms. Edwards asked students to offer feedback using the phrase “As your reader” and wrote this phrase on the whiteboard. She explained: “It’s important that you refer to yourself today ‘as your reader.’ Because as a writer, sometimes things make sense to us as we are writing them down. But then the person who reads your work sometimes says, ‘Well, I don’t get that. What does that mean?’” After students had time to conference with their peers and provide feedback, they moved into the computer lab to begin typing their introduction, which they would ultimately add to their PowerPoint presentation.

Emerging student thinking: The beginnings of reading and writing “like nonfiction writers.” As students shared their introductions and offered feedback, there were some signs of students beginning to read each other’s work “as
readers” and “as writers.” For example, Caroline shared how a line in Stella’s introduction to her report on phobias was confusing to her. Caroline explained,

I was reading Stella’s, and I told her—’cause she had a sentence that said when, like, some people have a phobia of vomiting, they stay away from small children such as infants. I didn’t know what that meant. I thought that meant, like, infants make them vomit. So, I told her that she could add, “They stay away from infants because infants vomit so much.”

Tomas offered feedback to Rocco on the introduction to his report on endangered animals. Tomas explained, “I gave [Rocco] feedback on how I liked all of the details he had in it [the introduction] . . . and I asked him to add another quote.”

In these moments, students’ engagement in the disciplinary practices of reading “like readers” and “like writers” seemed to be in the initial stages. Instead of focusing their feedback on the features of an effective introduction, students’ feedback was focused on more general aspects of the introduction. And some students’ feedback strayed even farther from the features of the introduction, focusing instead on peers’ “messy” handwriting and the need to “write bigger and neater.”

In the computer lab, clearer signs of students beginning to write their nonfiction introductions “like readers and writers” emerged, as well as some confusion. Several students commented on how exploring the nonfiction introduction and the nonfiction books in their classroom library were useful when trying to add quotations to their own introductions. For example, Claire explained,

If Vincent [sitting next to Claire] had a whole quote that you wanted to put in that was as long as to like to there [points toward bottom of a piece
of paper], the thing with text structure is, it would also help to make it
smaller and put it into a sentence but still have it with the author’s words.
The final version of Claire’s introduction to her report on phobias (Figure 1)
reveals how she was able to integrate a quotation among her own words
[quotation italicized for emphasis]:

A phobia is a fear or scare that people get when they see or experience
something scary. phobias come in varieties of phobias.” A phobia or a fear
that is so intense and unreasonable for the situation can be dangerous “Gail B.
Stewet. No one knows why phobias are here sciences say cave men got
fears of fire or dangerous animals they would sometimes be scared of
other cave men or women, and that’s what science’s say might be why we
have the fear of people.

Figure 1. Claire’s introduction to her report on phobias.
Other students expressed some confusion in the computer lab. For example, Vincent described how he was revising his introduction “to paraphrase, change it up a bit.” He explained, “You need your own words in an intro . . . you can’t just copy it from the book because . . . people won’t want to read it. They won’t.” Yet, when I checked in with Vincent a few minutes later, he was experiencing some difficulty. He stated exasperatedly, “I can’t change the quote. So, I have to tell [Ms. Edwards] that I can’t change this.” Vincent’s frustration was evident as he rubbed his eyes, shook his head, and took a deep breath. Ms. Edwards also needed to work individually with some students whom she characterized as “having been slow in grasping this hook concept.” She referred working with Caleb, a student labeled with Autism, and how she asked him to pretend that he was introducing the topic to his younger brother. Referring to Caleb and the other students who were struggling with developing their introductions, she said,

I think putting it in perspective for them as to who their readers will be—that their reader doesn’t know about it—that helped with some of the groups. Not all groups take to that, not all groups need to hear it that way. But, that’s an extension that I used with this lower group that I was working with today.

While this “extension” to the lesson seemed to support students in the “lower group,” it was also a sign that there was not enough scaffolding embedded into the design of the lesson itself to support all of Ms. Edwards’s learners. Thus, despite Ms. Edwards’s heightened attention to disciplinary themes of reading and writing “like writers”—as well as her own new phrase of reading and writing
“like readers”—a stronger application of UDL was needed to support students to more fully engage with these themes.

Emerging teacher learning. As described above, Ms. Edwards was beginning to incorporate disciplinary language into her practice: she emphasized the importance of maintaining an awareness of one’s audience and “writing like a reader,” and she instructed students to swap drafts of their introductions and to read their peer’s draft “as readers” and “as writers.” To gain insight into her use of this language, we explored a video clip of the moment when she set up students to read their peers’ work “as readers” and “as writers” and to provide feedback using the phrase “As your reader . . .” Before we began viewing the clip, Ms. Edwards stated with a laugh,

I am totally testing it out. I had never heard those before my conferences with you. So now . . . with your information that you are providing me with, I am testing it out with them. So this is totally my attempt to test it out. I am embarrassed. I don’t know what happened!

After viewing the clip, I asked Ms. Edwards about her phrase: “reading as a reader.” As described above, she first brought up this idea in an early brainstorming meeting, and I was eager to learn more about the thinking behind it. She revealed,

That phrase has never been in my vocabulary. But now, after meeting with you, it makes so much sense. And it seems to make sense to them [her students]. Because . . . a lot of the feedback that they were giving was like telling each other if something seemed random, if a quote seemed random in that section.
Ms. Edwards’s experimentation with language based on the five themes of disciplinary thinking—as well as a desire to tweak this language to better suit her own developing concept of disciplinary thinking—was a signal of her emerging understanding of and commitment to the notion of disciplinary thinking and her interest in incorporating these ideas into her practice at this early stage of our work. And it was also a signal to me as a collaborator that she might be ready for me to assume a more active role in supporting her to try other ideas as opposed to maintaining more of a listening role.

**Reflections and refinements for the future.** When reflecting on the revisions to the introduction lesson, Ms. Edwards felt that exploring the purpose of an introduction more broadly as opposed to how transition words can be used was a positive change. She stated that the “laser vision” of “just focusing on the intro” and the ways it can “hook me into this topic” was effective for many students. As our meeting continued, however, Ms. Edwards’s initial enthusiasm for the revised lesson shifted to the lesson’s weaknesses. She reflected on challenges students face when incorporating an author’s strategies into their own writing. As described above, students had Ms. Edwards’s model and they were encouraged to read their nonfiction books as models, and Ms. Edwards commented, “They do really well with the model—most of them. But, I do feel like the model is not enough for some students.”

Interestingly, student thinking and teacher learning both emerged during this revised introduction lesson: some students were beginning to more fully read and write “like writers”—and as Ms. Edwards would say, read and write “like readers” as well—and Ms. Edwards was beginning to test out these disciplinary themes in her own classroom. Yet, what seemed to be missing was a
more explicit focus on how we might more fully scaffold student learning from a UDL perspective. Revising the nonfiction introduction lesson together and reflecting on the barriers that remained led Ms. Edwards and me to an upcoming lesson: developing students’ nonfiction conclusions.

Making Refinements: Reading and Writing Conclusions like “Like Nonfiction Writers.”

Our motivation and design. In a planning meeting later in December, Ms. Edwards explained that the “main goal” of her conclusion lesson was to guide students to consider “How, as authors, can we wrap up this report?” She stated, “I would love to kind of brainstorm with you … the best way to introduce that to them.” Again, I was encouraged to see how Ms. Edwards was incorporating disciplinary language into our conversation; her use of the phrase “as authors” in this meeting was another signal of her developing commitment to disciplinary practices. We reflected on the revisions to the introduction lesson and agreed that focusing again on models could be an effective way to support students’ writing. Yet, based on Ms. Edwards’s reflection on the revised introduction lesson that “the model is not enough,” she felt that we needed to “take it a step further for some students.” She wanted to develop additional scaffolds that could support the students who struggled with the introduction lesson and could also “benefit all students.” Based on this concern, I shared a strategy I observed the teachers in my pilot study use in one of their writing lessons: students explored model texts and completed a graphic organizer that prompted them to consider: “What did you notice? What idea does this give you for your own writing?” We thought that this scaffold had potential to take the conclusion lesson this “step further.”
Via email and one more in-person meeting in early January, we brainstormed ideas for the conclusion lesson. I shared with Ms. Edwards the way that the co-teachers in my pilot study had used the “What did you notice/What ideas do you have” graphic organizer to support students’ writing. The co-teachers created three different stations, each with a different model text to explore. Students circulated in groups to each station, filling out their graphic organizer and jotting down “what they noticed” and the “ideas their had for their own writing” at each station. A scribe was offered (either a teacher or a peer) to students for whom filling out the graphic organizer posed a barrier. In this lesson, the co-teachers applied instructional moves consistent with UDL, but through disciplinary perspective: when exploring the models, the co-teachers “guided appropriate goal-setting” (checkpoint 6.1) and “supported planning and development” (checkpoint 6.2) in order to facilitate students to read and write “like writers.” While exploring this lesson, Ms. Edwards expressed her excitement at trying something similar in her own classroom: “Oh, I love this! I love this. This is, like, a perfect, perfect lesson for me to do.”

Drawing from the co-teachers’ lesson, Ms. Edwards and I explored some possible options for the design of the conclusion lesson: 1) Ms. Edwards could make three stations examining 3 different conclusions, and students could use a similar graphic organizer to jot down “what they noticed” and “their ideas for their own conclusions” as they rotated through the stations, or 2) Ms. Edwards could divide students into 3 groups, have each group explore one conclusion, and then share their findings with the rest of the class. I also summarized the different ideas for models that Ms. Edwards had generated during our planning meetings: her own conclusion, the conclusions of the nonfiction books in the
classroom library, and a 4th grader’s conclusion from a previous year. Finally, I emailed Ms. Edwards the graphic organizer I saw used in my pilot study, taking a first pass at tweaking the language to apply to the notion of developing conclusions and suggesting that Ms. Edwards make any additional changes that she saw fit (Appendix P).

Although our plan was not finalized before Ms. Edwards launched the conclusion lesson, the draft drew from several UDL strategies. Similar to the ways in which the co-teachers from my pilot study used the scaffold, exploring the model conclusions supported students’ goal-setting and organization in order to facilitate students reading and writing “like writers.” Further, as with the revised introduction lesson, the “What do you notice” column aligned with checkpoint 3.2 “Highlight patterns, critical features, big ideas, and relationships” in order to support students to uncover the features of a model nonfiction conclusion. Finally, in order to support students to reflect on the strategies that they incorporated into their nonfiction reports, Ms. Edwards and I drew from checkpoint 9.3 “Develop self-assessment and reflection” and created an “Insights from the Author” reflection page. One of the prompts asked students specifically about their conclusions: “What strategies did you use to conclude your report? Why?”(See Appendix Q for a summary of the ways in which UDL were leveraged.)

**Implementation.** When I walked into the classroom in mid-January to observe the conclusion lesson, I was unsure as to how much of our brainstorming would be incorporated into the lesson. The objective on the board first caught my eye: “Students will read as a writer, exploring how authors concluded nonfiction texts.” Seeing how Ms. Edwards wove this disciplinary
language into her objective foreshadowed the disciplinary thinking that I was about to witness from the students.

Ms. Edwards began the lesson by gathering students on the rug and exploring three nonfiction books from the classroom library: two on phobias and one on endangered animals. She wanted to support students to find any patterns in the ways that the three authors chose to conclude their books. The concluding chapter of the first book was called “Overcoming your fears,” and the concluding chapter of the second book was called “Managing your fears and anxieties.” Ms. Edwards held the concluding chapters of the books side by side. Henry noticed that both were about “treating and managing.” She then held up the conclusion to the book on endangered animals titled “A future for all of us” and asked, “What might that mean to you?” Daniel, a student labeled with a communication disability, stated, “Like the way people can help” and several of his classmates snapped their fingers in agreement. Ms. Edwards pointed out that she was noticing an “interesting pattern” of “ending on a positive note.”

Students then broke into pairs to further investigate this pattern by exploring three more conclusions: a conclusion from a nonfiction book on phobias, a conclusion from a nonfiction book on endangered animals, and a conclusion of a nonfiction report written by a 4th grader last year. Ms. Edwards passed out the graphic organizer that we had discussed in a previous meeting. For the “What did I notice?” column, she emphasized making note of “anything that you notice about this section that might make it special or unique. Or maybe

---

14 In this case, Ms. Edwards focused on one particular way that nonfiction writers choose to conclude their work. It is true, however, that this is not the only way to conclude a nonfiction report, and this is discussed below.
you notice things about this section that is a pattern.” And for the “My ideas” column, she emphasized making note of “any ideas from this author’s conclusion . . . anything that you might want to incorporate into your own conclusion.” Ms. Edwards stated that students could work together to fill out their graphic organizers and that they could begin drafting their conclusions individually or as a team.

**Emerging student thinking: Reading and writing conclusions “like nonfiction writers.”** As students explored the models and documented their noticings and ideas, evidence of students “reading like writers” began to emerge. Vincent noticed that the concluding chapter in the endangered species book “tells you what to do to help protect the earth.” He further elaborated on this observation stating, “It tells you what to do to protect the earth and . . . to clean up the world!” When asked what ideas this gave him for his own conclusion, Vincent stated, “The whole world can write an article for the people who have phobias.” He continued to explain that an article “would help them . . . to get rid of their fears step by step.”

Vincent incorporated this idea of helping people into the final version of his conclusion (Figure 2), highlighting the “ways to get rid” of phobias such as seeking help from a therapist and emphasizing the ability to “overcome” one’s phobia. He further emphasized his desire to help people “get rid” of their phobias on the “Insight from the Author prompt: “I used examples for phobias and how to get rid of them. If you have a phobia of colors you wouldn’t be able to go outside and you wouldn’t have color in your house.”
Caleb shared what he noticed about the concluding chapter on endangered species. He explained to Ms. Edwards, “. . . it’s talking about—um, um—hurting life . . . like it says the green pitcher [a plant] might become endangered because it lost its habitat.” He then pointed out the classroom window and stated, “Look out the window, and look how much land we own. That is part of us . . . But, we take away their habitats.” Ms. Edwards then asked Caleb, “Right, now what is this conclusion kind of hinting at us?” And Caleb responded, “That we are part of extinction.”

Caleb then worked to apply this idea of emphasizing humanity’s role in animal extinction to his own conclusion. He stated, “So this is what I have so far. ‘For example, we have been destroying life on Earth.’ Oh I forgot to write . . . after Earth I forgot I was supposed to write, ‘you may not think so, but it’s true.
Look out your window and see the land that you have conquered.” This idea of the role humans play in extinction continued into Caleb’s final conclusion and “Insight from the Author” page. In his final conclusion (Figure 3) he wrote, “People are the only ones that can save endangered animals . . . from extinction.” And, in the “Insight from the Author” page he reflected, “To conclude my report I talked about endangered and extinction and how we can save animals.”

Figure 3. Caleb’s conclusion to his report on endangered species.

The following excerpt of Stella, Laura, and Claire’s conversation reveals how they were also able to pick up on a pattern across the three conclusions they read:

Stella: They all were about how they can help. Like the first one was how we can help—

Claire: —by cleaning up and volunteering and animal shelters—
Stella: And the second one was with machines, and the third one was with therapy and medicine. And also, they are all positive. They are not like, ‘You can help by this, but then this might happen.’ It’s always like, ‘You can help by this, and then you’ll be better!’ Never worse. So, you always want to—in the conclusion you always have to have a positive thing in at the end.

Laura, a student whom Ms. Edwards characterized as having a “really hard time expressing her thoughts in a comprehensive, sequential manner,” thought carefully about how they might apply this to their own report on phobias. She stated, “Like in the first one, it was about endangered animals. It’s like telling us how we can help the environment. And, we can relate that to phobias, like how to overcome because you can’t just stay in your house and overcome it.” Laura continued to explain that her favorite conclusion was the 3rd model that she read. She explained, “I think that all of them give you solutions, but I like how this one kind of gives you, like, ‘Oh, this is what you can help in the situation that you’re in.’ Like, how you can help. Pointing to the “ideas” column of her graphic organizer, she explained one of their ideas for their conclusion: “What you can help . . . how you can help in the situation you are in. Like, how you can comfort the person.”

Laura incorporated this strategy of helping and positivity into her final conclusion (Figure 4). She offered two ways to overcome phobias, and stated to readers, “Those are only two ways to lead to a phobia free life!!!” She also underscored this notion of overcoming in her “Insight from the Author” page when she reflected, “One of my strategies were giving tips to the reader and
solutions. I also gave the reader positive thoughts to make people feel better if they have a phobia.”

Figure 4. Laura’s conclusion to her report on phobias.

Brian also picked up on a pattern across the conclusions. Looking down at his graphic organizer he reflected,

They are all ending in like, ending in a *lesson*. Something that you can help people with. And, like usually something that is happy to cheer them up because it might be talking about something that’s like how you can get it, like a phobia . . . how bad they are. You can maybe faint from them. It’s all bad stuff. So maybe they can cheer them up by ending with something happy.

When asked what idea this gave him for his own conclusion, Brian stated, “It gave me that I should maybe like, um, I should put something happy . . . ‘cause
mine’s talking about serious things, and I should cheer them up at the end!” This strategy of “cheering up” is evident in Brian’s final version of his conclusion (Figure 5). Among the many positive lines, he states, “Life is much more fun when you can enjoy it rather than being afraid of it. Once you overcome a phobia you’ll feel better and learn a lesson.” This theme of “cheering up” was also evident in Brian’s “Insight from the Author” reflection when he reflected, “Strategies I used to conclude my report was lessons, letting readers how to help phobias, and a happy ending. I used them to end my report on a happy note.”

Figure 5. Brian’s conclusion to his report on phobias.

Emerging teacher learning: Ms. Edwards’s growth. Exploring students “what did I notice/what do I want to try” organizers, their final conclusions, and their responses to the “Insight from the Author” conclusion prompt provided Ms. Edwards with evidence of students exceeding her expectations—evidence
that began to support her in recognizing that all students are capable of engaging in disciplinary thinking. In a meeting after the conclusion lesson, we reflected on video footage of the above quote from Laura stating how she was applying the notion of helping the environment to her topic of phobias. Ms. Edwards was surprised to see Laura making this shift and exclaimed, “Wow! [Laura]! I am impressed with her!” as she watched the footage. When asked about her reaction, Ms. Edwards stated,

I am thinking, wow, I didn’t know that she was—I thought that when I went over to talk to them that [Stella] had come to that decision and everyone else around her had just kind of piggy-backed off of what she was saying. Um, so seeing that, I am like so impressed. I am so happy that [Laura] was able to come to that conclusion and relate it to her own topic.

Ms. Edwards was also pleased to see how Caleb came to the notion of humanity’s role in animal extinction on his own. Ms. Edwards explained that she often struggled to find an effective balance of support and independence for Caleb. She reflected, “I feel like sometimes at the end of my conversations with [Caleb], I am like, ‘Was that me? Did I come up with all of those ideas and then he is just reading them?’” But, in this case, Ms. Edwards emphasized Caleb’s independence. She stated, “The fact that it was him . . . that made me feel good . . .” Unlike many of the lessons observed during the baseline observations, and unlike the revised introduction lesson, this conclusion lesson was closer to providing the scaffolds necessary to ensure that all students could take advantage of the opportunity to engage in disciplinary thinking.

**Reflections and refinements for the future.** When reflecting on the lesson, Ms. Edwards was pleased with the way in which students were beginning to
both read and write conclusions “like writers.” In terms of “reading like a
writer,” she stated,

I was able to go to each group and say, like, “So what’s the pattern, what
are you guys noticing?” And every single group was able to say, “Well,
they are ending on a positive note. It seems like they are kind of tying
everything together on a positive note.” . . . So everyone was able to, like,
recognize a pattern.

And Ms. Edwards was encouraged that, in general, students were able to then
“implement” this “trend” into their own writing. She elaborated,

At the end of the class, you had gone by then, but we just kind of talked as
a whole, “How was that helpful? What did you put into your writing?
What did you notice?” And they kind of just reiterated what they had
already said to me in private conversations, but for everyone to hear. So
there was a lot of like this going on [does agree sign], their silent sign,
which was nice because they were able to hear from kids in other groups
that they were doing the same thing, “Ending on a positive note, we are
kind of tying everything together."

We also considered the weaknesses of the lesson. Although Ms. Edwards
was pleased with the way that Caleb generated the notion of humanity’s role in
animal extinction on his own, she felt as though even more scaffolding could
have been in place to further his independence as well as the independence of
other students. She reflected on the experiences of Vincent, Tomas, and Caleb—
whom she thought of as her “struggling writers.” She was encouraged to see
how all three students were able to read the model conclusions “like writers”
and implement the pattern into their own writing; yet, she felt as though she needed to continuously prompt them to stay on task. She explained,

It's really hard because I have this group of writers that I have to be with at all times. So, if I am not with them, they are not doing anything . . . So, I am really trying to find this balance in writing class of, like, how can I be in conference with the other kids and still have these guys doing something? I would give them like a very small task and walk away to another group, and I look over, and they are all over the place.

When considering the changes that we could have made to this lesson to provide students with increased independence, Ms. Edwards reflected on ways we could have provided more scaffolding for students to “read like writers,”

I feel like, now looking back on that, I could have done something so simple, like a post-it note for them. They could have written on a post-it note the main idea of each of those conclusions, stuck it on the page, and then at the end we could revisit those post-it notes and find a theme.

Further, Ms. Edwards intended for students to recognize the ways many nonfiction writers of serious topics tend to conclude their books on a “positive note.” She explained that she noticed this pattern in her own exploration of the nonfiction books in the classroom, and she wanted her students to explore this pattern as well. Since this is not the only way to conclude a nonfiction report, one might argue that the exploration of this one strategy was too limiting. Yet, regardless of whether or not the technique of ending on a “positive note” was the “correct” technique to focus on, there is rich evidence to support the claim that students were reading the models “like writers” and applying the technique to their own writing. Thus, it could be argued that the students’ disciplinary
thinking may have been more pronounced in the process of reading and writing “like writers” as opposed to the in end product.

Despite the success of this lesson, our reflections uncovered the need to continue to draw more heavily from the UDL framework in order to support students to further refine their disciplinary practices and to gain greater independence in the process. We saw our culminating collaborative effort—a narrative writing project using CAST’s UDL BookBuilder—as just the opportunity to continue this important work.

**Digital Narratives with UDL BookBuilder: The Culmination of Our Efforts**

Ms. Edwards and I drew from our reflections on the successes and weaknesses of the conclusion lesson—as well as our reflections on the revised introduction lesson and other experimentations not included in this chapter—to design our last collaborative effort: a narrative project using CAST’s UDL BookBuilder that would continue to address Ms. Edwards’s goal of supporting her students to more fully read and write “like writers.” Further, this project allowed us to explore Ms. Edwards’ interest in offering alternative modes of expression to her students. As described in the sections that follow, this culminating collaboration supported Ms. Edwards’s students to engage more deeply with the practices of the discipline, and as a result, supported Ms. Edwards to begin seeing her practice—and her students—in a new way.

*Our motivation and design.* UDL BookBuilder is a free tool created by CAST that allows students and teachers to create their own digital books that include a range of UDL options and supports: text-to-speech; Spanish language translation; a multimedia glossary; images with accessible descriptions; student
response areas; and coaches that can be scripted to offer readers background information or some other specific insight. After providing Ms. Edwards with a quick demonstration during one of our meetings, she immediately began to consider how we might incorporate BookBuilder into a future unit.

Ms. Edwards decided to use BookBuilder as the mode of expression for the final project of an upcoming genre unit. As part of this unit, students would revisit narrative writing through two different assignments: 1) develop an “immigration narrative” written from the point of view of a relative who had immigrated to the United States or 2) develop a continuation of a narrative that they read in class about a girl named Lizzie, who goes to summer camp. For the final project, Ms. Edwards wanted students to select the narrative draft that they felt most proud of and transform it into “a book that they build themselves in BookBuilder as motivation.” Ms. Edwards had expressed concern in earlier meetings that not all students seemed to fully engage with the “Imagined Narrative” unit at the beginning of the year, and she hoped that using BookBuilder would enhance students’ excitement to return to narrative writing. Further, as noted above, Ms. Edwards’s students would be taking the online version of the PARCC assessment the following month, and she hoped that BookBuilder would help students to prepare by “practice[ing] those typing skills.” As revealed in the initial brainstorming meetings, this pressure of taking PARCC online seemed to ease Ms. Edwards’s uncertainty of offering multiple modes of expression to her students; and now, with the administration of the assessment even closer, these previous concerns seemed to diminish even more. She stated, “[BookBuilder] gets them on the computer, and it gets they typing,
which is our *number one goal* right now because they are taking PARCC on the computer . . . I’m, like, any exposure we can give them!”

Ms. Edwards’s motivation for incorporating BookBuilder aligned with the top level of the UDL Guidelines, the UDL “access” guidelines: she wanted to recruit students’ interest and develop students’ typing skills. Through a series of meetings and emails, I worked to support her to consider how we might also leverage BookBuilder to achieve our overarching goal of supporting students to engage in disciplinary practices. Given the flexibility of the coach, I encouraged Ms. Edwards to think about how we might use this feature strategically. We drew from our previous reflection on the revised nonfiction introduction lesson as well as the “What I Notice/What I Want to Try” scaffold that we developed for the nonfiction conclusion lesson. Due to our earlier reflection that we needed to more fully leverage UDL to further engage students in disciplinary thinking and to further enhance student independence, we decided to use the coach feature as a way to provide students with continued opportunity to practice “writing like a writer” and reading their own work “like writers.”

After a series of meetings and emails, Ms. Edwards came up with the idea of asking students to script the coach to describe how they “were *showing* not *telling*” their characters’ emotions, a technique that students were continuing to work on ever since the “imagined narrative” unit. This task leveraged UDL checkpoint 6.4 “Enhance capacity for monitoring progress” through a *disciplinary* lens in two different ways: 1) it would support students to reflect on the description in their writing and make any needed revisions, and 2) it would support students to articulate the thinking behind their writing. Ultimately, we
hoped that the task of scripting the coach would contribute to students’
developing ability to “write like a writer.”

We also used our meetings to develop a scaffold to support students’
executive function when creating their BookBuilder books. We developed a
“planning template” to support students in “storyboarding” the pages and the
associated text and images of their books (Appendix R). With this scaffold, we
were intentional about leveraging UDL in ways that would encourage students
to “write like writers.” We applied UDL checkpoint 6.2 “Support planning and
strategy development” through a discipline-specific lens: students were mapping
out their stories and engaging in the same planning and organizational processes
as published writers. And, in order to explicitly support the task of scripting the
coaches, we added the following prompt: “EXPLAIN how you are SHOWING
(not telling) the character’s feeling on this page.” Here we drew from UDL
checkpoint 6.4 “Enhance capacity for monitoring progress” and again added a
discipline-specific lens: we hoped that this would support students in using rich
descriptive language “to show and not tell” and thus begin to “write like
writers.”

Finally, we discussed options for student expression. Students would use
BookBuilder in the computer lab, and this tool would offer them a very different
mode of expression than the typical paper and pencil format to which they had
grown accustomed. But, we also wanted to embed options for revising the
narrative drafts and for expressing ideas for the planning template. Because we

15 This planning template was modeled after a planning template used by two co-teachers in my
pilot work that explored how seasoned teachers use UDL to encourage disciplinary thinking in
ELA.
did not have access to computers in the classroom, we decided to offer students the options of using a scribe to express their ideas (either partnering with a peer, Ms. Edwards, the instructional aide, or myself). (See Appendix S for a summary of how UDL was leveraged).

**Implementation.** After more than three months of collaborative planning, we launched the BookBuilder project. I facilitated three mini-lessons in which I modeled for students how to create and edit pages in their books, while students followed along at individual computers. By the fourth class period, students were working with confidence and independence. The following sections illustrate the ways in which this project supported both student and teacher learning.

**Emerging student thinking: The beginnings of “writing like a writer.”** An analysis of the students’ planning templates, the final BookBuilder books, and the conversations with students as they were engaged in the creation process reveals that this intervention supported Ms. Edwards’s diverse students to begin “writing like a writer.” As designed, the use of the coach seemed to be an effective way to prompt students to incorporate rich detail into their narratives. The following examples of student work are representative of the descriptive writing that students with and without labeled disabilities used to show their characters’ feelings.

Daniel, a student labeled as having a communication disability whom Ms. Edwards’s characterized as often struggling to organize and express his ideas, experimented with descriptive language to show his character’s feelings of sadness. On one page of his “Lizzie Goes to Camp” narrative (Figure 6) he wrote,
I’ve just got out car. It’s 5:00 in the morning at a camp. I promise my grandmother ill stay here for three weeks. But it will feel like three years of my life wasted. My grandmother is driving away i am already holding in the tears.

Daniel used the coach on this page to highlight how he attempted to convey his character’s feelings. He scripted the coach to say, “when Lizzie said ‘am already holding in the tears’. She was showing not telling that she was sad.”

Figure 6. A page of Daniel’s BookBuilder book.

Rich description was also evident in Laura’s Immigration Narrative about a relative from Italy. On one page (Figure 7), she wrote,

Hello my name is Josuuph Anthany Ceci and this is my story of why and when i moved to Amarica from Italy. It all started in the 1900s whe I thought that America would offer me a better life so i paked and offI I went on a ship to America. When I got on the ship my heart wasd
pounding my eyes were moving from side so side wondering f the ship was going to crash.

Laura used the coach on this page to explain to readers how she attempted to convey Josephus’s anxiety. She wrote, “I was showing not telling that Josephus was worried to go to America by him saying that his heart was pounding and that his eyes were going from side to side.”

Figure 7. A page of Laura’s BookBuilder book.

Gino also experimented with description in his Immigration Narrative about his family’s journey to the United States from Italy. On one page (Figure 8), he wrote,

About a week later we finally started to leave for america. We had to take a boat but the docks were like 10 miles away. We all had to carry our own luggage. Some luggage was ar heavy as a couch and some was as light as a feather. It was as hot as a oven outside and every body was sweating bullets. I thought I was going to die! Even though it felt like a 5 hour walk
we still made it. When we got to the docks they were packed and all everyone could think of is rest.

And, he used his coach on the page to reveal how he described the family’s tiring walk to the dock: “I showed the family was hot by saying ‘it was as hot as a oven outside and everyone was sweating bullets’.”

Figure 8. A page of Gino’s BookBuilder book.

Finally, Marco used rich description to describe both his characters’ emotion and the setting in his “Lizzie Goes to Camp” narrative. Ms. Edwards described Marco as an “excellent writer,” and she encouraged him to take on both tasks since describing the character’s emotion was “starting to get a little bit repetitive” for him; she wanted him to “kick it up a notch.” On one page (Figure 9), Marco wrote,

I walk on the creaking wooden floorboards with dim lights and to top it off it smells like manure.I see about 17 kids around 4 tables baby blue
colored tables some kids have grins and are kicking the floor but most of
the kids are slumped over, frowning, and ignoring everything around
them. I ask if this is the 11-13 year old class and a man comes out of a dark
corner and in a weird texan accent says “Yarp” (yep). I hit my head with my
hand and solemnly walk to a table.

Marco used the coach on this page to explain to readers how he attempted to
describe the building as well as the characters’ emotions. He wrote, “To show the
setting I described what the inside of the building looked like and what the kids
were feeling and doing.”

![Figure 9. A page of Marco’s BookBuilder book.](image)

**Emerging student thinking: The beginnings of “identifying as a writer.”**

Ms. Edwards and I had hoped and anticipated that the task of scripting the coach
would effectively prompt students to “show and not tell” their characters’
emotions. Yet, in our work with individual students and in our analysis of
students’ planning templates and BookBuilder books, a surprise finding emerged: instead of scripting the coach using the personal pronoun of “I” to describe how they were showing and not telling, 4 of the 14 students scripted the coach to refer to themselves as “the author.” This finding was unexpected as we had designed the lesson assuming that students would use “I” when scripting their coaches. When brainstorming with one another in our planning meetings, we offered potential student examples using “I.” And, when introducing the task of scripting the coach to the class, Ms. Edwards offered a model using “I”: “I explained that Lizzie was feeling nervous through her actions: pacing back and forth and shaking.” Despite this explicit model, however, four students assumed the role of the author. Thus, the scaffold originally designed to support students in “writing like a writer” proved to support some students in beginning to “identify as a writer” as well.

Throughout the pages of her immigration narrative retelling the journey of her ancestor’s trip from England to Watertown, MA, Stella used the coach to offer a window into “the author’s” thinking. She began the book (Figure 10),

My name is Jeffry Ferris and I immigrated to America from England. I left because of the puritan beliefs, my wife and I thought it was too strict so we moved to Watertown Massachusets in America. In watertown the puritan beliefs are not too strict and it is perfect for my wife and I. In watertown I am always smiling, in Watertown I can build towns, by land and sell it, hear I am getting money. In watertown there are oceans and fish like shellfish, hear I can eat more fish because the puritan beliefs say some fish is ok to eat.
On this first page, Stella embraces the persona of an author to explain how she used facial features of the character to show emotion. She scripted the coach to say, “When the author [italics added for emphasis] says, In watertown I am always smiling, that shows Jeffery is happy.”

Figure 10. A page of Stella’s BookBuilder book.

Tomas also showed signs of “identifying as a writer” throughout his “Lizzie Goes to Camp” narrative. Expressing his thoughts through a combination of his own handwriting/typing as well as a scribe, he scripted every coach using the phrase “the author”—once even inserting his first and last name—to reveal the thinking and intentions behind his writing. For example, Tomas began his narrative in this way: “Lizzie enters summer camp with hope she will have a good first day. She held her head high. She stood straight and tall.” He scripted the coach to say, “In this hook the author [student’s first and last name] [italics
added for emphasis] is showing that the character is proud and ready when she held her head high” (Figure 11).

*Emerging teacher learning: Ms. Edwards’s growth.* This BookBuilder project deepened Ms. Edwards’s developing understanding of the intersection of UDL and disciplinary thinking. First, exploring the evidence of students beginning to write and identify “like writers” strengthened Ms. Edwards’s emerging awareness that *all* students are capable of engaging in the rich disciplinary practices of ELA. Similar to her experience reflecting on students’ nonfiction conclusions, this project again provided Ms. Edwards with evidence of students exceeding her expectations. For example, she revealed how she was most compelled by the sophisticated writing that emerged in Tomas’s “Lizzie
Goes to Camp” narrative. As described above, Tomas’s narrative was replete with rich description that showed Lizzie’s emotion through a range of actions and facial expressions, and his coaches revealed how he began to assume and “identity as a writer” throughout the process. In earlier meetings, Ms. Edwards revealed how she had mistakenly characterized Tomas as a “struggling writer” at the beginning of the year. Yet, through the course of the study she observed his disposition toward writing change and his creativity emerge. When exploring students’ BookBuilder books in a meeting, she reflected, “Can you believe how far he [Tomas] has come?” She went on to state, “He is an amazing writer! He’s got really cool ideas, and I just didn’t know. Like at the beginning of the year, I did not hold him accountable enough now seeing what he is like as a writer.” Although the BookBuilder project alone was not responsible for Tomas’s transformation, Ms. Edwards reflected on how this project served to showcase his development as a writer—and the development of his identity as a writer as well.

Further, Ms. Edwards recognized how UDL can be a powerful tool for students with and without disabilities. She referred to Marco, the student whom she tasked with scripting the coach to describe how he was “showing and not telling” the characters’ emotions as well as the setting. She explained how “he started, like, pushing his coach to the next level. And his [BookBuilder book] was really cool. So, it was kind of a nice way to differentiate.” Ms. Edwards’s insight contrasts with her initial idea of certain aspects of UDL being only for her “struggling writers” and her initial question surrounding who “needs” alternative modes of expression. In this moment, she was recognizing how the
UDL supports embedded into BookBuilder—multiple modes of expression as well as other options and scaffolds—were valuable for all learners.

Second, this project supported Ms. Edwards in recognizing how leveraging the power of UDL not only facilitated students’ engagement in disciplinary practices but facilitated students’ independence as well. As described above, Ms. Edwards had expressed concerns about the level of teacher support that many students with disabilities needed to engage with a lesson. However, the scaffolds embedded into this BookBuilder project offered students the support to engage in the project with relative independence. As revealed in the opening vignette, Ms. Edwards was pleased to see how the task of scripting the coach served as a “friendly reminder” to students to take initiative to add rich description into their writing—especially among the “struggling writers” in the class. Ms. Edwards also noted students’ growing agency when reflecting on the ways in which some students assumed an “identity as a writer” through the development of the coaches. She reflected, “So the fact that they just like decided that they are the author and they went with it was really cool.” Thus, our collaboration on this project supported Ms. Edwards to recognize that her students were capable of exceeding her expectations and doing so independently, given the appropriate supports.

Finally, evidence of students beginning to “identify as a writer” solidified Ms. Edwards’s developing commitment to the importance of incorporating the themes of disciplinary thinking more explicitly into her practice. When reflecting on the project once the genre unit was over, Ms. Edwards attributed students’ developing “identities as a writer” to the disciplinary themes that we had been exploring since the start of our collaborative work: supporting students to read
and write “like writers” and as well as Ms. Edwards’s own notion of reading and writing “like readers.” As described above, she began experimenting with this language early on in our collaboration, integrating it into objectives and conversations with students and tweaking it to fit her goals. She reflected that she was beginning to see signs of students assuming an “identity of a writer” not just in the BookBuilder project but in some of the lessons that she was planning outside of our work together as well. She stated, “. . . just the principle of thinking of yourself like a writer and thinking of your peers as fellow authors has really taken them to the next level. These are not the same writers as we had in the beginning of the year.” She continued, “I mean, they are referring to themselves as the [writers] now . . . I think back and I think, how did I ever teach writing without that? Without that vocabulary?” Ms. Edwards continued to reflect on the ways in which students were taking up disciplinary language in an email she sent me a couple of weeks after our collaboration concluded. She wrote, “As we continue into our poetry and argument essay units of study, it is really surreal to hear the students refer to themselves and one another as “authors” and “poets” - I really didn’t know if we would get to this point, and here we are!!”

**Reflection and refinements for the future.** Although the BookBuilder project marked the end of our collaboration, Ms. Edwards and I considered the strengths and weaknesses of the project. Ms. Edwards’ reflections above reveal the success we experienced with supporting all learners to engage in reading and writing “like writers” with relative independence. However, this success was not without its weaknesses. Ms. Edwards reflected that some students’ “showing verses telling” seemed somewhat forced as they seemed to rely on the same
kinds of description to convey their characters’ emotions. When exploring Stella’s narrative, Ms. Edwards pointed out that Stella’s descriptive writing became “a little bit repetitive.” Ms. Edwards reflected, “I haven’t seen that she has deviated from that facial expression showing. Like, how are other ways that we can show a character’s emotions?” Further, some students continued to “tell” even in the midst of experimenting with descriptive language. For example, while Gino’s simile “it was as hot as an oven outside” added rich imagery, he directly “told” his audience about the heat. Thus, in some cases, the students’ disciplinary thinking may have been more prominent in the process of adding description into their writing and reflecting on their thinking as writers as opposed to in the end product.

Further, it was interesting to note that many of the students’ BookBuilder books contained numerous alternative spellings. Some of these alternative spellings might be expected given students’ developing spelling abilities and the nature of some students’ disabilities. Yet, alternative spellings were apparent across the books, even in the books of those students who typically took advantage of spell-checking options. Without firsthand knowledge of the process in which these students engaged, one might interpret these alternative spellings as reflective of students’ disinterest in the project. However, these alternative spellings may actually indicate that this project prompted students to think beyond the technical aspects of writing and engaged them in the disciplinary aspect of beginning to “write like a writer.” As opposed to an indication of disinterest, the alternative spellings could be an indication that students’ attention was placed not on conventional spelling but on using rich detail to describe their characters’ emotion. This unexpected finding would be an area to
further explore in a future study. Thus, this BookBuilder project left Ms. Edwards with strengths to optimize and weaknesses to further develop as she continued to explore the intersection of UDL and disciplinary thinking into the future.

Concluding Thoughts

There are only a few days left of the school year, and as I travel the hallways to Ms. Edwards’s classroom, the energy that bubbles out into the hallways is a clear indicator of students’—and teachers’—anticipation of the upcoming summer vacation. This is my first time meeting with Ms. Edwards since the birth of my twin daughters one month ago, and she welcomes me with a warm hug and an eager request to see pictures. We spend time catching up, but soon our conversation becomes more focused as we delve into reflecting on our collaboration over the past eleven months.

I ask Ms. Edwards if she thinks her understanding of UDL has changed since the start of our work together, and she replies, “Absolutely. I mean, I didn’t know what it was in September. So now I feel like I have a better understanding, a deeper understanding of it. Um, I will say, like, for me, I feel like it’s just a deeper differentiation . . .” She elaborates on this “deeper understanding” explaining, [UDL] gives everyone a chance to access the same task, right? But . . . it’s not just for the kids that I would normally differentiate tasks for, it’s for everyone . . . it’s definitely opened up my eyes to all the other kids in the classroom, and although they’re really strong writers, it doesn’t mean that they don’t get other scaffolds . . . that could help them.

Ms. Edwards brings us back to the ways in which the UDL options and supports embedded into the BookBuilder narrative writing project allowed her to reach all learners. She refers back to Marco’s BookBuilder book and how the project “pushed him as a
writer.” She then updates me on her experience of supporting her 4th grade colleague Ms. Young to implement the BookBuilder narrative project in her own classroom. Ms. Edwards exclaims, “We are loving it!”

Our attention then turns to our goal of applying UDL to more fully engage Ms. Edwards’s students in disciplinary thinking. She first reflects on the language itself stating, “It’s changed my practice, in just using that language. Like, we talk about ourselves as readers and as writers all the time . . . and that is something that I’ve really never—that’s language I’ve never used with my students before this year.” Ms. Edwards then describes how she has continued to develop scaffolds to support students to engage with disciplinary themes and how students are beginning to incorporate the themes into their own conversations. She explains,

We’ve implemented that language into feedback forms . . . if two students are working on one of those student’s writing, the other student will say, like, “Well, as your reader, this was not clear for me. I couldn’t paint a picture in my head for this . . . here is a way that perhaps you could do it.” Like, it’s just created a really nice dialogue between the kids when we are doing sharing and feedback and editing. That whole process.

Yet, Ms. Edwards emphasizes how her commitment to the notions of disciplinary thinking—as well as her students’ commitment—took time to develop. She reflects, “I wasn’t even 100% comfortable using that language in the beginning. Because it was so new to me. So it’s interesting . . . I was experimenting with the language . . . I feel like because I was experimenting, they [her students] felt open to experiment with it too.” She then looks ahead to next year, when she will feel even more confident and asks, “ . . . I wonder next year when I come in hot with, like, knowing how to use this language and
implement it into the writing class right away, I wonder what type of difference it will make?

Ms. Edwards began this study with little background knowledge on the notions of UDL and disciplinary thinking. Yet, observing for three months in her classroom and exploring her initial beliefs revealed that the seeds of UDL and disciplinary thinking were already present in Ms. Edwards’s practice. Our process of collaboration allowed us to nurture these seeds and to examine the intersection of these two frameworks as we explored Ms. Edwards’s goals of more fully supporting her students to read and write “like writers” as well as her initially cautious goal to increase modes of student expression for all learners. From the start of our five-month collaborative phase, Ms. Edwards’s strong background in teaching ELA seemed to position her to prioritize our work and to embrace an “experimental mode” as we designed, implemented, and reflected on six different scaffolds/lessons/projects. This DBR approach allowed us to continually refine our ideas. Each cycle allowed us to more fully support Ms. Edwards’s students in reading and writing “like writers”; and, in turn, each cycle allowed Ms. Edwards to more fully reflect on her own understandings and beliefs as she developed a commitment to disciplinary thinking and a “deeper understanding” of UDL. Our final interview revealed that Ms. Edwards grew to embrace UDL as a framework for all learners; yet, interestingly, she continued to interpret UDL through a differentiation lens. And, our final interview also revealed her motivation to keep “experimenting” as she continued to support Ms. Young with using BookBuilder in her own classroom, as she incorporated disciplinary themes into her students’ editing process, and as she looked to the future. In Chapter 6, I will consider Ms. Edwards’s journey alongside those of
Ms. Oliver and Ms. Ayala and identify the factors and conditions that contributed to the teachers' growth in terms of leveraging UDL for discipline specific aims.
Chapter 4: Ms. Oliver’s Journey—“Seeing” Students’ Disciplinary Thinking and Their Potential

Ms. Oliver’s 5th grade classroom is buzzing as groups of students are working to develop digital books of their own poetry using a tool called UDL BookBuilder. Ms. Oliver and I co-designed this project, seeking to leverage BookBuilder’s digital features to prompt her students to offer us a window into their thinking as poets. Students will use an animated coach to describe how they developed the mood, imagery, or rhythm of their poem. And, students will link poetic devices in their poems to a digital glossary that will reveal their intention behind incorporating the particular devices.

Today, students are mapping out the pages of their BookBuilder books using a paper-based planning template: students are considering the layout, scripting their coaches, and creating their glossary entries. Ms. Oliver has asked that I act as a scribe for Brianna, a student labeled as having a Specific Learning Disability (SLD) in the area of reading and expressive language delays, to ensure that the paper format of the planning template does not pose a barrier. Brianna has selected her poem “Mosquito” to include in her team’s digital book, a poem filled with imagery in which she compares herself to a mosquito when she is angry.

“Mosquito”
When i feel angry
i feel like a mosquito
drinking blood from other people
i will swallow
and swallow over again
until i pop like popcorn
till i am back to myself
once again.

By the end of the class, the script for Brianna’s coach reads: “MOOD: It will tell my readers how I will fell [sic] when I’m mad. I used words like ‘drinking blood,’ ‘being like a mosquito’ and ‘POP’ to describe how I feel when I’m mad.” Brianna has also
created glossary entries for three poetic devices. The glossary entry for “pop like popcorn” identifies this poetic device as a simile and describes her intention as: “I’m describing when I’m finally coming back to myself, all good and buttery.” With barriers to expression reduced, it is clear that Brianna is beginning to “write like a poet” as she articulates the devices and elements that she used to create her sophisticated poem.

This is the first time that Ms. Oliver has offered a scribe—a scaffold that she wanted to experiment with as part of our collaborative intervention. We will be meeting to reflect on this lesson in a few days, but I am eager to hear Ms. Oliver’s reaction to Brianna’s thinking. As students pack up and the next class begins to stream in, Ms. Oliver and I have a moment to chat briefly. She exclaims to me with a smile, “So that’s the UDL! It’s like the writing is what stops her. Scribing lets us see what she’s thinking.”

In this moment, Ms. Oliver is beginning to see the power in applying UDL to engage her diverse learners in rich disciplinary thinking. She is reflecting on the kinds of student thinking that can emerge when barriers are reduced and scaffolds are in place, an awareness that is critical to providing all learners with opportunities to access and engage with the rich practices of ELA. Yet, the student thinking described in this vignette and the teacher learning evidenced in Ms. Oliver’s comment did not happen overnight. Ms. Oliver began this project with very little background in both UDL and disciplinary thinking in ELA, and it took a process of collaboration to support Ms. Oliver students’ to begin to more fully engage in the practices of the discipline and to support Ms. Oliver to begin to see her practice in a new way.

As part of our collaborative intervention, Ms. Oliver and I designed, implemented, refined, and reflected on five different scaffolds/lessons/projects, all of which were developed with the goal of more effectively leveraging UDL to
encourage more disciplinary thinking among her diverse learners. This chapter will describe our journey in getting to moments like the moment described above. I begin by offering a window into Ms. Oliver’s classroom at the start of this study and describe the ways in which she was currently applying UDL and disciplinary teaching. Then I share the story of our work together—a story that chronicles the ways Ms. Oliver’s students began to more fully engage in the disciplinary practices of reading and writing “like writers” and the ways Ms. Oliver’s practice and beliefs began to change as she developed a stronger commitment to disciplinary thinking and a stronger awareness of the student thinking that is possible when barriers to learning are reduced.

**Our Starting Point**

I first met Ms. Oliver, Windsor’s 5th grade inclusion teacher, on a muggy afternoon in August, a few days before the first day of school. During this meeting and our more formal initial interview, I began to develop a sense of her hopes and fears for the upcoming school year as well as her initial understandings of UDL and disciplinary thinking in ELA. This was Ms. Oliver’s first year teaching at Windsor, and she explained that the inclusion model of her previous school in the same district was “very different.” At that school, educators used a “push-in” and “pull-out” model to provide services to students with disabilities. She would “push in” to ELA classes, with the general education teacher taking the lead on instruction while she provided accommodations and modifications for students with disabilities. And she would “pull out” students with disabilities from the general education classroom to teach them science and social studies in a substantially separate classroom. Ms. Oliver admitted feeling
somewhat anxious about transitioning to Windsor’s model stating, “I never really stood in front of the room and been the lead teacher for ELA.” She was thankful that the 5th grade general education teacher, Ms. Lynch, was offering her guidance, curricular resources, and lesson plans. Ms. Oliver stated, “She’s [Ms. Lynch’s] been teaching 5th grade forever. So I am learning from her, taking what she tells me and then making it suit the way I teach.”

Although Ms. Oliver had never heard of the notion of disciplinary thinking prior to our study, several of the overarching ELA goals that she identified for her students for the coming year resonated with particular themes. Her intention of supporting students to develop into “strong writers” and her emphasis on the importance of “learning through doing, and re-doing, and editing, and revising, and peer editing” hinted at the themes of “writing like a writer” and “identifying as a writer.” Given her new role as the “lead teacher” for ELA, Ms. Oliver explained that she was eager to learn more about supporting students in this particular discipline.

With regard to UDL, Ms. Oliver began the project with some initial background on the framework. She was first introduced to UDL through a professional development workshop held at her previous school two years before the start of this study. She explained that this workshop did not help her to see UDL as particularly novel or compelling from her perspective as a special educator and reflected, “I remember sitting there thinking this is a great review for me, and I think it’s really great for regular ed teachers. [But] I felt a lot of it was what I have to do in my classroom anyway because I teach special ed.” Ms. Oliver offered several examples of the ways in which she applied UDL to her practice, and these examples all connected to the UDL principle of “Provide
Multiple Means of Representation.” She described herself as a “visual learner” and stated, “I think I teach the way I have to read and re-read and highlight and underline.” She explained that this learning preference motivated her to create a range of representations such as projecting content on the whiteboard; highlighting important information through boxing, underlining, and adding color; and the use of models. When thinking broadly about the benefits of UDL, she stated, “. . . really just reaching every student, making sure that you reach every student.” Now that Ms. Oliver was assuming the role of a fifth grade inclusion teacher, she expressed an eagerness to dig deeper into the UDL framework. Her incoming class consisted of sixteen students—six of whom were students with disabilities—and Ms. Oliver wanted to learn more about the ways UDL could be applied to improve her practice for all learners. She emphasized that she was always open to feedback, stating with a laugh, “If you are seeing things that I should be doing along the way, just tell me. I am not, like, offended!”

To complement our initial interview, I spent the first three months observing Ms. Oliver’s practice to gain a stronger sense of how, if at all, she currently applied UDL and disciplinary teaching to her practice. As revealed in Table 8 below, I conducted 25 baseline observations of Ms. Oliver’s ELA practice and collected 21 associated instructional materials and 152 pieces of student work. Analysis of these data revealed two important themes to explore in our collaborative intervention. First, there were several moments when Ms. Oliver created opportunities that could be viewed as the beginnings of disciplinary practice in ELA, and these moments offered potential to become more robust in order to more fully engage students in the practices and habits of mind of the
discipline. Second, although Ms. Oliver consistently applied certain instructional moves aligned to UDL, increased UDL—in terms of both access and leveraging UDL beyond access—was needed in order to support all learners to engage with these disciplinary opportunities. Below, I offer a description of a lesson that is illustrative of these two themes. I describe the strengths that I observed with regard to UDL and disciplinary thinking, strengths that Ms. Oliver and I would leverage during our collaborative phase. I also describe the areas for further development with regard to UDL and disciplinary thinking. As noted in Ms. Edwards’s case study, this description is certainly not meant to evaluate Ms. Oliver’s practice, especially since Ms. Oliver began this study relatively new to notions of UDL and disciplinary thinking. Instead, this description is offered to highlight alternative and potentially more effective practices that Ms. Oliver and I would explore as we moved into the collaborative phase.

Table 8. Data Collected in Ms. Oliver’s Class in Phase 1 of the Study.

<table>
<thead>
<tr>
<th>Phase of study</th>
<th>Observations</th>
<th>Instructional materials</th>
<th>Student artifacts</th>
<th>Interviews</th>
<th>Working meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>25 (23 hours)</td>
<td>21</td>
<td>152</td>
<td>1</td>
<td>n/a</td>
</tr>
</tbody>
</table>

An illustrative example: The “Take a Closer Look” lesson. The “Take a Closer Look” lesson that Ms. Oliver taught early on during a unit on journalistic writing is reflective of the two themes that emerged from my observations. As part of the unit, fifth graders school-wide worked together to come up with a theme and target audience for a new magazine, and each student was responsible for writing a “journalistic feature article” (JFA) to contribute to the magazine. The two-day “Take a Closer Look” lesson was designed to support
students to “Immerse ourselves in the genre of Journalistic Feature Articles (JFA), demonstrated by our publication analysis of 2–3 magazine articles.” Ms. Oliver began the lesson by facilitating a discussion of the features of a JFA and documented students’ comments on the whiteboard, bulleting and underlining important ideas. Students then worked in small groups surrounded by an assortment of magazines—*Martha Stewart, Real Simple, Sports Illustrated, Zoogoer*, etc.—and selected 2–3 articles to analyze by completing a “Take a Closer Look” worksheet. The worksheet guided students to explore specific features of JFAs: the “point,” the intended audience, the type of article, the length, the use of subheading/subtitles, the use of sideboxes/fun features, the use of illustrations, the “lead” and its effectiveness, and the use of interviews/quotes (Appendix T). Ms. Oliver concluded the first day by explaining to students, “[Our goal is] to write your own feature article. We are just getting to know what feature articles look like.”

**Strengths to leverage.** In this “Take a Closer Look” lesson, Ms. Oliver applied some specific instructional moves that aligned with UDL to prompt students to engage in what can be viewed as the beginnings of disciplinary thinking in ELA. Ms. Oliver’s goal of supporting students to delve into a “publication analysis” aligns with the notion of “reading like writers.” Students spent two classes surrounded by model articles and were prompted to explore the different features of a journalistic piece. The “Take a Closer Look” worksheet

---

16 Ms. Oliver and her students engaged in three different units during the baseline observations: a study of Lloyd Alexander’s (1963) *Time Cat*, this journalistic writing unit, and an author study of Roald Dahl. Although the illustrative case that I offer here is drawn from the journalistic writing unit, it is nonetheless representative of the kinds of lessons that were taking place in Ms. Oliver’s classroom during the other units as well.
aligns with UDL checkpoint 3.2 “Highlight patterns, critical features, big ideas, and relationships,” as it was designed to support students to “read like a writer” and uncover the elements of a JFA. And, analysis of students’ worksheets and classroom conversation reveals that some of Ms. Oliver’s students were able to do just that. For example, Juliette analyzed a Zoogoer article that described an epidemic of cardiac problems among apes. Juliette described the audience as “everyone” and explained her reasoning: “It’s about animals which [sic] many kids like, its also talking about a very important issue which [sic] may prove interesting to some adults.” When considering the lead, Juliette stated, “This is effective because its [sic] heartwarming and you get interested. You want to know more.” In this moment, Juliette was beginning to “read like a writer” as she analyzed the Zoogoer article from both the author and the audience’s perspectives.

Further, implicit in this lesson was the idea that students would apply the features that they explored through the “Take a Closer Look” worksheet to their own JFA, a goal which aligns to the connection between reading and writing “like writers.” There were brief moments when this connection was made explicit to students. For example, Jake and Noah analyzed a Sports Illustrated article on the Boston Marathon bombings. They were confused as to where the title ended and the piece began since both appeared in large font, and Ms. Oliver supported them to distinguish between the two elements. She then added, “When you write your article . . . lead doesn’t have to be the same font size . . . as the rest of the article. So that might be a strategy that you use to get the reader’s attention.” In this moment, Ms. Oliver explicitly supported Jake and Noah to read the article “like writers” in order to generate ideas for their own JFAs.

Further, as noted above, Ms. Oliver’s comment at the end of class that the goal
was to “write your own feature article” also signals this connection between reading and writing “like writers.”

Finally, from a UDL “access level” perspective, Ms. Oliver embedded certain scaffolds into the lesson that served to reduced barriers. For example, documenting, highlighting, and underlining on the whiteboard the ideas generated during the discussion of JFA features align to UDL checkpoint 1.2 “Offer alternatives for auditory information.” Ms. Oliver referenced this instructional move in her initial interview, and it was a strategy that I saw consistently throughout my observations.

Areas for further growth. The “Take a Closer Look” lesson is also reflective of several areas to further develop. First, there seemed to be a mismatch between the magazines’ content and the lesson’s goal. When reflecting on the lesson, Ms. Oliver feared that articles from magazines such as Martha Stewart and Real Simple did not effectively capture students’ interest. She felt that students “weren’t making any connections” to the articles and that the magazines “were for adults.” Further, it was challenging for students to find appropriate articles given that so many of the magazines offered brief pieces on lifestyle advice as opposed to in-depth, informative articles. For example, Ethan, a student labeled with a Nonverbal Learning Disorder and Attention-Deficit Hyperactivity Disorder (ADHD), had difficulty finding a JFA in Real Simple. Ms. Oliver initially perused this magazine with him but ultimately led him toward selecting an article in Smithsonian instead. Without clear examples of JFAs, it was challenging for students to read these articles “like writers” and to explore what
elements they should strive to incorporate into their own writing. As I looked ahead to our collaborative phase, I was eager to explore with Ms. Oliver how we might leverage UDL to provide students with access to more engaging, generative models and scaffolds in order to better support them in reading and writing “like writers.”

Second, specific scaffolds seemed to be missing that would more fully support learners to read the articles “like writers” and to make connections to their own writing. Many students struggled to complete their worksheets, and skipping the “effectiveness” portion of the question about the lead emerged as a pattern among the class. For example, Lila chose an article from Better Homes and Gardens. For the question on the lead, she quoted the beginning of the article; yet, she did not comment on its effectiveness. Abby’s approach to the lead question was the same: she jotted down the introductory sentence to her Zoogoer article, but did not explain why or why not this lead was successful. This question about the lead was one of the few prompts that supported students to consider both the author’s intention and the reader’s reaction, perspectives that encouraged students to read their articles “like writers”; yet, many students did not engage with the question. Further, although there were brief moments described above when the connection between reading the articles “like writers” and writing their own JFAs “like writers” were highlighted, this connection was not embedded explicitly into the lesson. And, once students began drafting their own JFAs later in the unit, connections back to this analysis were not made in order remind

---

17 Later in the unit, Ms. Oliver provided her students with copies of TIME for Kids, a magazine that she thought offered students more opportunities to explore JFAs. She reflected that this magazine and others like it might be more appropriate for teaching this JFA lesson in the future.
students of the features that they should strive to incorporate into their own articles. As we moved into the collaborative phase, I looked forward to supporting Ms. Oliver to consider the ways in which UDL could be applied to more fully support students to “read like writers” and to make the connections that would assist them to “write like writers” as well.

Finally, from a UDL “access level” perspective, more UDL could have been embedded into the design of the lesson in order to reach all of Ms. Oliver’s learners. Given that the articles were geared for adults, decoding and comprehension barriers may have prevented some students from accessing the articles and the worksheet. Although Ms. Oliver often provided alternatives to printed text such as audio versions or read-alouds of novels that they read as a class, these alternatives for accessing other print-based materials were not always present during my observations. Further, the paper-based version of the “Take a Closer Look” worksheet may also have posed barriers to expression for some students. I was eager to explore with Ms. Oliver how we might leverage UDL to reduce these barriers and to increase access for more students.

Our initial meeting and interview as well as the three months of baseline observation allowed me to begin to develop a sense of Ms. Oliver’s understandings, beliefs, and practice. This “baseline” revealed promising opportunities to work with Ms. Oliver to build on her strengths and to further develop her application of UDL and disciplinary thinking as we moved into the collaborative phase.

**Overarching Goals of Our Collaborative Intervention**
After completing the baseline observations, Ms. Oliver and I held a series of initial meetings to brainstorm the goals of our collaboration. We reviewed classroom video and analyzed student work to reflect on the kinds of disciplinary thinking that was and was not taking place among her students. We also considered which disciplinary themes resonated most with the goals that Ms. Oliver had for upcoming units. Three overarching goals surfaced during these initial conversations. First, like Ms. Edwards, Ms. Oliver was interested in the disciplinary themes of “reading like a writer” and “writing like a writer.” She saw a connection between these themes and the current instructional initiative at Windsor, explaining, “Writing about reading. That’s, like, a major focus here.” She noted that the notion of writing about reading was “a little different” than reading and writing “like writers,” yet she was intrigued by the relationship nonetheless.

Second, similar to Ms. Edwards, Ms. Oliver had questions regarding ways to expand modes of student expression. She revealed that she felt somewhat reluctant to offer typing as an option given what she perceived as students’ limited typing skills. She wondered aloud, “What are the other ways other than typing?” In these early meetings, we discussed exploring alternatives such as the set of Chrome books to which she had access, speech-to-text, and scribing. Although these ideas were intriguing, Ms. Oliver wondered about the drawbacks, especially from an assessment perspective. She asked, “Right, but then how do you, like, [do it] when these kids actually have to write . . .?” She also mulled over questions about determining the lesson’s goal and when offering an alternative to paper and pencil would be appropriate. She referred to Eric, a student who struggled to express his ideas on paper given his preoccupation
with perfect handwriting. She speculated that offering Eric an alternative mode might be effective in those instances when the goal is not associated with writing and when “we just want to know what he wants to write about?” Ms. Oliver expressed an eagerness to work through her questions about lesson goals and the appropriateness of offering options for expression during our collaboration, and I was eager to explore these questions with her as well. Identifying barriers and considering whether or not they are related to the instructional goal offered a valuable avenue for exploring how we might use UDL to open up possibilities for her students to engage in challenging, disciplinary thinking.

Third, Ms. Oliver wanted to explore ways to more successfully challenge all of the learners in her classroom. She reflected on her “biggest struggle” stating, “You’re trying to push these high level kids and push these lower level kids, and then you want to make sure that everyone’s being pushed. And, that’s hard to do.” Coupled with this goal of reaching all learners, I also noticed a promising opportunity to support Ms. Oliver in exploring her own beliefs surrounding student expectations and her perception of “high level” and “low level” students. This opportunity also emerged during an early conversation about the five themes of disciplinary thinking when Ms. Oliver wondered about the level of challenge associated with the themes. She pointed to a resource that I developed for us—a two-column table that listed the five themes on one side and a description of each theme on the other (Appendix U). I had created this table to use as a reference as we discussed specific disciplinary themes that we might like to explore, and it was not meant to imply any sort of hierarchy. Yet, Ms. Oliver wondered if the themes did in fact suggest an order and explained,
Because I think if you even go down [down the two-column table starting with “Identity as a reader” and ending with “Write like a writer”], you’d have to be here [“Identity as a reader”] before you could be here [“Write like a writer”]. If you were connecting reading and writing or writing about reading, wouldn’t you have to first be able to read it? And then “identify as a writer” about that? . . . but this . . . I don’t know, I just thought—in thinking of those lower kids, like, where do they have to start to get to where they need to be?

In these honest reflections regarding the goals of our collaborative effort, Ms. Oliver surfaced important questions and concerns that would guide our work together. Her concern regarding the appropriateness of offering multiple means of expression resonates with the concerns of other teachers with whom I have worked in the past; breaking free of traditional modes of expression can be an unsettling and intimidating undertaking for teachers, especially in this era of high-stakes accountability. Further, Ms. Oliver’s use of language such as “high level” and “low level” students and her questions surrounding the appropriateness of engaging “lower kids” in rich, sophisticated disciplinary thinking also resonate with the concerns of teachers whom I have supported; Ms. Oliver wanted only the best for her students—to “push” all of her learners—but some of her language and concerns implied that she was wrestling with her expectations and the idea of all learners being able to engage in disciplinary thinking. Thus, although Ms. Oliver’s story represents our unique journey, connections can be made to the concerns, challenges, and constraints that arise for many teachers teaching in inclusion classrooms today. The promise I saw through the baseline data combined with Ms. Oliver’s three goals and the
resonance of her concerns positioned our collaboration to be a potentially rich, complex, and meaningful experience.

**The Collaborative Intervention**

During our five months of collaboration, Ms. Oliver and I met 12 times to brainstorm, design, refine, and reflect on five different scaffolds/lessons/projects to “try out” in her class. These five different ideas were all designed to experiment with the notion of encouraging more disciplinary thinking in ELA among her students by more fully leveraging UDL. I then collected a range of data on the implementation of these co-developed scaffolds/lessons/projects: 23 classroom observations, 12 instructional materials, 85 pieces of student work, and 2 interviews (See Table 9). Below, I highlight the illustrative moments in this journey, a journey that assumed a progression from experimenting with relatively simple ideas as a way to build trust, to designing more targeted scaffolds that leveraged just one or two specific UDL guidelines, to developing a four-week UDL BookBuilder project that leveraged a range of UDL Guidelines to immerse students in the practices of the discipline. In keeping with DBR, this progression is reflective of the knowledge we developed together through our cyclical process of designing, implementing, reflecting, and refining. The moments described below reflect the ways in which Ms. Oliver’s students began to more fully engage in the disciplinary practices of “reading like a writer” and “writing like a writer.” Further, these moments reveal how Ms. Oliver’s practice and beliefs began to change as well. Seeing evidence of her students engaging in disciplinary thinking supported her to acknowledge the power in leveraging UDL, to understand the value of engaging students in disciplinary thinking, and
to recognize that all students are capable of engaging in these sophisticated ways of thinking.

Table 9. Data Collected in Ms. Oliver’s Class Throughout the Study.

<table>
<thead>
<tr>
<th>Phase of study</th>
<th>Observations</th>
<th>Instructional materials</th>
<th>Student artifacts</th>
<th>Interviews</th>
<th>Working meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>25 (23 hours)</td>
<td>21</td>
<td>152</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td>Phase 2</td>
<td>23 (23 hours)</td>
<td>12</td>
<td>85</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Phase 3</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td>Total</td>
<td>48 (46 hours)</td>
<td>33</td>
<td>237</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

Early experimentation: Building trust. Our early experimentation consisted of developing relatively simple scaffolds that were loosely connected to the goal of leveraging UDL to encourage disciplinary thinking; I wanted to address the immediate ideas and concerns that Ms. Oliver prioritized as a way to build trust and to begin establishing a rhythm to our work together. For example, just as our collaborative phase was beginning, Ms. Oliver was concluding a unit on Roald Dahl. Students had read Dahl’s (1961) *James and the Giant Peach* as a class and divided into book clubs to read other Dahl novels such as *The BFG* and *Fantastic Mr. Fox*. As one of the culminating activities, students were asked to write a personal response essay in which they described a connection to a character, event, setting, or problem. Ms. Oliver wanted to create a scaffold “to get kids started.” Over two working meetings and a series of emails, we designed a graphic organizer that offered a model sentence starter and a format to structure ideas. After implementing the scaffold, we explored students’ graphic organizers and students’ experiences using them in class, and we reflected on the strengths and weaknesses of the support. Although the
graphic organizer was only tangentially related to the notion of disciplinary thinking and although more UDL could have been embedded, the development of this scaffold—as well as other initial experimentations—was an effective way to ease into our work together. Co-developing this graphic organizer proved to contribute to a foundation of trust, honesty, and reflection and enabled us to push deeper into our exploration of more fully leveraging UDL to engage Ms. Oliver’s students in disciplinary thinking.

“What I Notice/What I Want to Try”: The Beginnings of Reading and Writing “Like Poets”

_Our motivation and design._ After our early experimentations, we focused our efforts on an upcoming poetry unit. Ms. Oliver planned to begin the unit by exploring a different form of poetry each day and to follow a two-part structure: 1) note taking on a specific form of poetry and reading a poem that is representative of that form, and 2) providing students with time to try out that form of poetry on their own. Ms. Oliver’s original goal for this portion of the unit was to support students in finding “evidence” of specific poetic devices within model poems. Ms. Oliver implemented this structure into an early lesson on mood—a lesson that took place prior to the start of our collaboration on this unit. Students took notes on this device and then explored the poem “The Creature” by Bill Dodds. Ms. Oliver and two student volunteers read the poem aloud as students followed along. Ms. Oliver then facilitated a discussion of the poem’s mood, asking students to point to specific words as “evidence.” Then students created their own poems, focusing specifically on developing mood.
When Ms. Oliver and I began brainstorming the ways that we might be able to apply UDL to more fully support students in reading and writing “like poets,” we reflected on the mood lesson. We were encouraged that students were able to find evidence of the mood in the poem. For example, Brianna, the student introduced in the opening vignette, described the mood as a “scared emotion” and offered the line “He’s big and mean and ugly,/and I shiver when he glares” as her evidence. Other students pointed to evidence such as “sometimes he growls and threatens me” and “he lives beneath me.” At this early point in our collaboration, I posed a question to direct our brainstorming toward disciplinary themes. I wondered aloud about framing the exploration of mood as finding “evidence”: Did this framing successfully support students to “read like poets” and to consider the poet’s choices and intentions? I also wondered aloud if finding “evidence” for the mood was the same as exploring how the poet created the mood. Mulling over this distinction, Ms. Oliver characterized it as supporting students to explore the how (how did the poet use particular devices?) “instead of where” (where is the evidence?). We returned to Brianna offering the line “He’s big and mean and ugly,/and I shiver when he glares” as evidence of the mood. Ms. Oliver imagined Brianna’s response had this different framing been in place: “Instead of saying ‘Here it [the evidence] is,’ she would have said ‘Oh, the poet chose to use the word shiver because then it shows mood or that he’s afraid.’” During this meeting, Ms. Oliver began to consider how focusing students’ attention on the poet’s intentions—the how—may be more productive than focusing on evidence—the where—alone.

Ms. Oliver and I also reflected on students’ experiences creating their own poems—a portion of the lesson that was full of potential for students to begin
“writing like poets.” Some students were able to jump right in, while others struggled to begin. When working with Eric, he asked, “Where do I start?” and Ms. Oliver commented that many students shared Eric’s feelings of confusion. She reflected, “When we don’t give them anything and just say, write, it’s hard to get started.” Similar to the “Take a Closer Look” lesson described above, there were no scaffolds to support students in using what they read in “The Creature” to generate ideas for their own poems.

We then considered ways to more fully scaffold students’ exploration of poetry to more fully “read like poets” as well as students’ application of poets’ strategies to their own work to more fully “write like poets.” I suggested that focusing more specifically on how the poet used particular poetic devices might support students in generating ideas for their own poems. I shared with Ms. Oliver a two-column graphic organizer developed by the co-teachers in my pilot study: on the left-hand column was space for students to document “what they noticed” about a text, and on the right-hand column was space for students to document ideas for their own writing. This seemingly simple scaffold leveraged a range of UDL Guidelines through a discipline-specific lens to prompt students to more fully read and write “like writers.” Focusing on the choices authors made and the strategies they used aligned with UDL checkpoints associated with “Provide options for comprehension”: checkpoint 3.2. “Highlight patterns, critical features, big ideas, and relationships” and checkpoint 3.3 “Guide information processing, visualization, and manipulation.” Further, prompting students to consider how they might apply authors’ ideas to their own writing aligned with UDL checkpoints associated with “Provide options for executive function”: checkpoint 6.1 “Guide appropriate goal setting” and checkpoint 6.2
“Support planning and strategy development.” I suggested that we tweak this organizer to fit the goals of the poetry unit: students could jot down what they noticed about how a poet was using a particular device or form of poetry in one column, and in the other column, students could make note of ideas for their own poems (Appendix V; Appendix W for a summary of the ways in which UDL were leveraged). Ms. Oliver reflected on how this organizer could have supported students in the mood lesson. She returned to our conversation regarding Eric’s struggle to begin his poem and reflected, “’Cause for [Eric], it would have helped, ‘Oh, I could start with the setting.’” And, she returned to our discussion of the evidence of the mood that Brianna found and reflected, “For [Brianna], it would have helped, ‘Oh, look at the choice of words, I could have used words like this.”’ Ms. Oliver decided to incorporate this scaffold into the remaining forms of poetry lessons. Over the next few days, we sketched out a vision of what this “What I notice/What I want to try” graphic organizer might look like and shared ideas of specific poems to explore with students.

**Implementation.** Ms. Oliver first experimented with the “What I notice/What I want to try” scaffold in the limerick lesson later that week. She began by asking students, “I want you to draw a T-chart. On one side you’ll write ‘What I notice about the poet’s strategies’ and on the other side ‘What would I like to try out in my own poem’ [models the T-chart on the whiteboard].” Ms. Oliver also passed out copies of the graphic organizer that we had generated over email to specific students for whom she feared note taking/drawing the T-chart could pose a barrier. She then read the limerick “Star” by Kaitlyn Guenther aloud to the class. She asked, “What do we notice about the poem?” Students discussed the AABBA rhyme scheme, the number of
syllables in each line, the “funny” mood, as well as specific types of poetic devices such as personification to give the star human qualities. Ms. Oliver then asked, “On your T-chart write down some poetic devices or ideas that you have for your limerick poem.” Students explored other limericks as a class, added to their T-charts, and then embarked on creating their own.

**Emerging student thinking: The beginnings of reading and writing “like a poet.”** An analysis of students’ T-charts, conversations, and poems revealed that this T-chart was a useful start at supporting students to begin reading and writing “like poets.” Lila used her T-chart to document her idea for trying out the two forms of poetic devices in “Star” that they discussed as a class—simile and personification—as well as other devices such as onomatopoeia and metaphor. By the end of the class period, Lila had created the following poem that incorporated the personification that she had seen the poet use in “Star”:

The pencil was used every day
She was always brought out to play
She got shorter
And even shorter
And now she can never go out to play

While jotting down ideas for his own poem, Nathan, a student labeled with dyslexia, picked up on the “happy! funny!” mood of the model limericks. He too wanted to try incorporating the personification they explored in “Star.” Further, Nathan began making connections between poetic devices and how they could be used to create mood. He explained that he was also interested in trying out onomatopoeia and noted how words like “BAM and POW” were “funny” and could contribute to a limerick’s lighthearted mood. By the end of
class, Nathan created a poem that incorporated the poetic devices with which he wanted to experiment: personifying a bird and using the word “boom”:

There once was a bird driving a car
And the bird really wanted to drive far
But then the car went boom
And it kept going boom
There goes his dream of driving far.

In her T-chart, Sonia, a student labeled with a communication impairment, noted the AABBA rhyme scheme, the five-line structure, the use of syllables, and the “funny” mood of the model limericks. She was especially interested to try out “couplet” and rhyme. Her poem “Snow” reveals her use of rhyming couplets:

Snow
There once was a cold snowy day
I went outside in the cold to play
Then I fell down the hill
The wind move like a windmill
Lets go out and we can play today.

Reflections and ideas for refinements. Ms. Oliver and I reflected on the strengths and weaknesses of this “What I notice/What I want to try” scaffold and how we might make future adjustments in order to more fully support students in reading and writing “like poets.” Ms. Oliver was pleased that the T-chart inspired students to try out so many different poetic devices in their own poetry. When reflecting on the use of the same T-chart in a haiku lesson, Ms. Oliver referenced Jake’s T-chart as an example of the scaffold’s potential: “... Instead of doing what he wanted to try, he actually just wrote it. He didn’t say
what he wanted to try, he just wrote it!” We returned to his T-chart: in the “what I notice” side, Jake noted metaphor, and then on the “What I want to try column” he dove into creating his poem: “The streets were mountains/The air felt like a freezer/I just stayed inside.” Ms. Oliver also reflected on how the consistent use of the T-chart—as well as the overall structure of exploring the poem together, completing the T-chart, and writing their own—established “a routine so the anxiety of what’s expected is eliminated.” She felt as though students were growing accustomed to what she characterized as “stealing ideas” from the poet and “trying it out myself.”

We also reflected on the weaknesses of the scaffold. At this early point in the poetry unit, Ms. Oliver noted that some students continued to struggle to identify poetic devices. She referred to the model poems that they analyzed as a class, and she explained that she tried to “pick [poems that were] a little more obvious—like this is obviously personification.” Yet, Ms. Oliver noted, “But for some kids it wasn’t obvious.” Further, some students continued to experience difficulty recognizing poetic devices in their own writing and articulating their thinking behind incorporating them. For example, in Sonia’s “Snow” poem described above, there was an interesting use of simile with “the wind move [sic] like a windmill.” Yet, Sonia did not note this in her “ideas column,” which causes one to wonder whether or not she could articulate her decision to include this imagery. Eric was also not quite yet able to offer a window into his thinking regarding his limerick about the 2015 Super Bowl:

In 2015 the Patriot won
Seattle Seahawks, it’s all done
We want one next year
Sherman looked like a deer
Seattle Seahawks, it was fun.

When asked about the poetic devices he wanted to include, Eric mentioned “deer” and the line “Sherman looked like a deer,” but he was not yet able to articulate why or how he used this poetic device of a simile. The fact that students continued to struggle to identify and articulate poetic devices—both in model poems and in their own—was a signal to us that we needed to continue our work in designing scaffolds that would more fully support students to read and write “like poets.”

Finally, from a UDL perspective, we were beginning to leverage UDL to support students to engage in disciplinary thinking: as described above, the T-chart drew specifically from UDL guideline “Options for comprehension” to support students in focusing on the poet’s strategies and from UDL guideline “Options for executive function” to support students to consider how they might apply these strategies to their own writing. Further, Ms. Oliver’s decision to pass out pre-made T-charts to students who had motor weaknesses was a signal that she was beginning to feel more confident about exploring UDL from an access perspective and to consider alternative forms of expressions. These critical reflections laid the foundation for our next collaboration—another scaffold to continue supporting Ms. Oliver’s students to “read like poets.”

The “Figurative Language Column”: Another Step Toward “Reading like poets”

As the poetry unit continued to unfold, so too did our collaboration. After the introduction to forms of poetry, students continued their exploration of
poetry by reading Karen Hesse’s (2009) *Out of the Dust*, a novel written in free verse about a young girl named Billie Jo and her experience living in the dust bowl of Oklahoma during the 1930s. We used this deeper dive into poetry as a way to also dive deeper into supporting Ms. Oliver’s students to read “like poets.”

**Our motivation and design.** Prior to our collaboration on *Out of the Dust*, Ms. Oliver guided students in analyzing the novel by focusing on the main idea and the mood. The early lessons prior to our collaboration followed the same daily structure. The class would listen to a portion of the novel via an audio recording while following along with the text. Students would then transition into book clubs to analyze specific poems included in the portion that they just read for the following elements: main idea, Billie Jo’s mood, and evidence of the mood. Students kept track of the elements in a chart they created in their notebooks, adding to the chart during each class. Finally, at the end of each class, book clubs would share their findings by contributing to a class-wide chart on the whiteboard.

After one week of this structure, however, I observed Ms. Oliver add a small twist. She asked the class, “Guys, I’d like you to also note if you see any figurative language in your poems. Note it in your minds.” When sharing out, almost all of the groups did not address figurative language; their analysis focused on the three original elements of main idea, Billie Jo’s mood, and evidence. There was one group, however, who also shared their discovery of figurative language in their poem. After being offered a reminder to look for figurative language during their exploration, Noah pointed out the line “Our future is drying up and blowing away with the dust.” He identified this as a
metaphor and explained, “The future is going away, like losing the wheat. And, like, you know, that’s their future because they need money.” When sharing with the class, he stated, “… Their future—like their food and wheat—you know, that’s how they get food and money, so if that blows away their future blows away as well.”

When reflecting on the early *Out of the Dust* lessons and brainstorming how we could better support her students to more fully “read like poets,” Ms. Oliver expressed some concerns. She wanted students to think more carefully about the author’s intention, and reflected, “They are not connecting with the author—that the poet is writing the poems as if she is Billie Jo. You know what I mean? They are missing that there’s this other person.” She continued, “They are not getting why the author writes that way. They are reading it, but they’re not relating it to why the author, or the poet in this case, is doing it that way.” Interestingly, Ms. Oliver’s concerns echoed our attempts to more fully support students in “reading like poets” with the “What I Notice/What I Want to Try” scaffold described above, a scaffold we designed in an attempt to reframe students’ exploration of poetry from an “evidence” perspective to more fully consider the poet’s perspective. Yet, in this meeting, it was Ms. Oliver—as opposed to myself—who raised this continued concern, a signal of her developing confidence and her developing commitment to the disciplinary notion of “reading like a writer.”

It was clear from our reflections on the “What I Notice/What I Want to Try” scaffold described above as well as Ms. Oliver’s current concerns that we needed to continue to refine the ways in which we supported students to explore the poet’s choices and strategies. When brainstorming possible scaffolds, I
brought up the moment when Noah was prompted to look specifically for
figurative language. Instead of analyzing the poem for main idea, mood, and
evidence, Noah and his group dug deeper into the poem’s meaning and the way
the poet created this meaning by considering figurative language. Ms. Oliver
reconsidered her previous instructions to simply keep figurative language “in
mind” and wanted to more explicitly address it, stating, “They [the students]
should definitely be looking for that.” I suggested adding a fourth column—a
figurative language column—to the chart, and Ms. Oliver hypothesized that this
additional column would better support students to explore the poet’s
intentionality. Adding this column, a seemingly simple scaffold, again leveraged
specific UDL Guidelines to prompt students to more fully read “like poets”:
focusing specifically on the poet’s use of figurative language aligns with UDL
checkpoint 3.2. “Highlight patterns, critical features, big ideas, and relationships”
as well as UDL checkpoint 3.3 “Guide information processing, visualization, and
manipulation.” Further, the original chart structure for organizing students’
analyses aligns with UDL checkpoint 6.3 “Facilitate managing information and
resources” (Appendix X for a summary of how UDL was leveraged). Ms. Oliver
felt optimistic about the “Figurative Language” column and decided to
implement the scaffold in the next lesson.

**Implementation.** As I walked into Ms. Oliver’s classroom, students were
busily adding to the charts on the whiteboard, and this time the chart included a
column on the right-hand side for figurative language. This additional column
remained in the chart until the end of the Out of the Dust portion of the poetry
unit. And, interestingly, Ms. Oliver complemented this additional column with
her own explicit prompting, an additional support that we did not discuss in our
planning meetings: throughout the remainder of the *Out of the Dust* unit, Ms. Oliver consistently ask students “why” the poet chose to incorporate particular figurative language.

**Emerging student thinking: The beginnings of reading “like a poet.”** An analysis of students’ charts and conversations revealed that students were continuing to develop their abilities to more fully “read like poets.” And, interestingly, evidence of Ms. Oliver’s development was also apparent as she explicitly supported students to contemplate the poet’s choices. For example, when sharing her book club’s analysis of “The Path of Our Sorrow” with the class, Mia explained that they found personification in the following lines: “But now,/sorrow climbs up our front steps,/big as Texas, and we didn’t even see it coming, even though it’d been making its way straight/ for us all along.” Ms. Oliver supported Mia to analyze the poet’s reasoning for including this poetic device: “Can sorrow walk up your front steps? What is she saying that sorrow actually is?” Mia thought of the sorrow as “dust,” and Ms. Oliver asked, “Why is she using sorrow instead of dust” to which Mia replied, “To give you a picture in your mind.”

Noah also shared a piece of figurative language that his group found in their analysis of the poem “Haydon P. Nye.” He read the line “then folks moved in and sod got busted /and bushels of wheat turned the plains to gold, and Haydon P. Nye/ grabbed the Oklahoma Panhandle in his fist and held on.” He identified “and bushels of wheat turned the plains to gold” as a metaphor because the poet was “comparing wheat to gold.” Ms. Oliver pushed further and asked the class, “Why did the author choose to compare wheat to gold? You know it. To tell the reader what?” Noah responded, “More description,” and Ms.
Oliver again urged the class to consider the poet’s intentionality stating, “Yes, but why? What did the author want to tell us here? Bushels of wheat turned the plains to gold. Why would you want gold?” Noah offered, “Because it makes you rich,” and Jake added, “They’re saying how much money wheat was bringing in for the families.” Over the next several lessons, Ms. Oliver continued to support students to begin to examine the poet’s intentionality, reminding students with prompts such as “Authors are choosing devices to put into poems for a reason” and “Why would the author choose to use this poetic device? To show the reader what?”

Emerging teacher learning: The beginnings of Ms. Oliver’s growth. Our collaboration on the Out of the Dust lessons seemed to more fully support Ms. Oliver in “reading like a poet” along with her students. As noted above, Ms. Oliver surfaced the concern of students’ struggle to recognize the poet’s intentionality in our planning meeting—a concern that I originally surfaced in our previous planning for the “What I Noticed / What I Want to Try” scaffold. Further, Ms. Oliver’s practice began to evolve. In the early Out of the Dust lessons, Ms. Oliver’s prompting focused squarely on main idea and evidence; yet, this focus on “evidence” evolved to a focus on more thoroughly analyzing “why” a poet chooses to use particular poetic devices and the impact these choices have on the reader.

Yet, when reflecting on Ms. Oliver’s new emphasis on the poet’s intentionality, she did not attribute it to our collaboration but to a recent data meeting in which she and her colleagues analyzed student test scores. She stated, “We decided through our [standardized test] scores that they [the students] weren’t getting it, they weren’t getting the author questions.” She went on to
explain that the timing of implementing the figurative language column was “right along the same time we had this data meeting” and that her focus on the poet’s choices stemmed from the need to develop a plan to address students’ test scores. Ms. Oliver also communicated this message to students—that this focus on “why” and the poet’s intentionality was “something we struggled with in our testing.” Interestingly, Ms. Oliver’s eagerness to support her students to more fully “read like poets” and her own development in considering this disciplinary theme seemed to be influenced by her motivation to increase students’ test scores as well as through the accountability pressures of her environment. This interpretation will be more fully explored in Chapter 6.

_Reflections and ideas for refinement._ When reflecting on the kinds of thinking that emerged by adding the figurative language column and more explicitly prompting students, Ms. Oliver felt that it was “effective” in supporting her students to more fully consider the choices that authors make. She stated, “You almost assume people think that way when they read. But they don’t. It has to be taught. You know?” Ms. Oliver contrasted students’ progress with the early _Out of the Dust_ lessons, stating, “I remember at the beginning of the discussions, them not making those connections.”

Although our analysis of student work and video footage revealed progress, there were also areas in the design of the lesson that were in need of refinement. For example, in students’ charts in their notebooks or during classroom discussion, it was occasionally unclear as to whether students were referring to “she” as the poet or as Billie Jo. For example, when discussing the imagery in “The Competition,” Ms. Oliver asked the class, “What is she doing in this whole stanza?” to which Lila replied, “She’s telling about all the different
people that performed.” In this exchange, it was unclear to whom “she” referred. Ms. Oliver caught Lila’s—and her own—imprecise language and clarified, “Right, and she specifically—the author here is specifically trying to let the reader have what?” Conflations such as these signaled the challenge of separating the author from the main character’s voice and that we needed to further scaffold students’ budding ability to “read like poets”—and to apply that learning to being writing “like poets” as well.

Further, from a UDL perspective, more options were needed to ensure that all students were able to access these disciplinary opportunities. As noted above, the figurative language column drew from UDL checkpoints associated with “Options for comprehension” and “Options for executive function.” However, from an access perspective, the charts were all done in students’ notebooks or on the whiteboard, posing potential barriers. Our earlier experimentation focused on one or two UDL Guidelines or on offering an alternative form of expression to specific students. Now that we had developed a stronger collaborative relationship, how might we more fully explore the potential of offering multiple modes of expression—a goal that Ms. Oliver was initially curious yet cautious to explore? Further, Ms. Oliver’s explicit prompting proved to be useful for some students, but how might UDL be more fully leveraged to scaffold students in thinking about the poet’s intentionality in a more reflective and independent way? As the Out of the Dust lessons concluded, Ms. Oliver and I had already moved on to planning for our final collaborative effort—a digital poetry book project using CAST’s UDL BookBuilder. We drew from these reflections regarding the figurative language column and Ms. Oliver’s explicit prompting—as well as our reflections on earlier experimentations such
as the T-chart scaffold described above—to develop this project that represented the culmination of our collaboration.

**Digital Poetry Books with UDL BookBuilder: The Culmination of Our Efforts**

The scaffolds and lesson plans described above can be seen as “warm-ups” to the most intensive idea that Ms. Oliver and I developed together: we leveraged our earlier successes and weaknesses to design a project using CAST’s UDL BookBuilder\(^{18}\) that would continue to address Ms. Oliver’s goal of supporting her students to more fully read and write “like poets.” Further, this project specifically targeted Ms. Oliver’s two other overarching goals that she communicated at the start of our work together: to expand modes of expression in her classroom and to more successfully challenge all learners in her classroom. This culminating collaboration supported Ms. Oliver’s students to engage more deeply with the practices of the discipline, and as a result, supported Ms. Oliver to begin seeing her practice—and her students—in a new way.

*Our motivation and design.* I first introduced Ms. Oliver to BookBuilder in December 2014 during one of our first planning meetings when we discussed possible technology tools that we could offer to students to provide enhanced options for expression. After a quick demonstration, Ms. Oliver immediately began to consider how we might incorporate BookBuilder into the upcoming poetry unit. Over the next two months, Ms. Oliver and I met approximately seven times and exchanged numerous emails to develop the BookBuilder project.

---

\(^{18}\) As described in Ms. Edwards’s case study, UDL BookBuilder is a free tool created by CAST that allows students and teachers to create their own digital books that include a range of UDL options and supports: text-to-speech; Spanish language translation; a multimedia glossary; images with accessible descriptions; student response areas; and coaches that can be scripted to offer readers background information or some other specific insight.
Initially, Ms. Oliver saw BookBuilder as a potentially engaging tool that would offer her students a unique form of expression, exclaiming as we explored the features, “They are going to love this!” Similar to Ms. Edwards’s initial intrigue with BookBuilder described in the previous chapter, Ms. Oliver also originally viewed the tool as a way to support students to develop their typing skills in preparation for the new online version of the PARCC assessment. She had planned to find “websites they [her students] can go on to practice typing skills,” and BookBuilder seemed to her to be a perfect practice opportunity.

Ms. Oliver wanted to use BookBuilder as the capstone to the poetry unit. Students would work in groups of four to create a book of poetry, and each student would select their two favorite poems that they had created during the introductory part of the poetry unit where students explored different forms of poetry and used our co-developed T-chart to document “What I Notice/What I Want to Try.” The flexibility of BookBuilder’s coach feature offered a potential point of leverage to continue to support Ms. Oliver’s students to more fully develop the practices of reading and writing “like poets,” and I encouraged Ms. Oliver to think about how we might use the coach strategically. We drew from our previous reflection on the “What I Notice/What I Want to Try” scaffold as well our reflection on the figurative language column and Ms. Oliver’s explicit prompting that we implemented in the Out of the Dust lessons. As described above, these scaffolds began to support students in reading and writing “like poets”; yet our reflection surfaced the need to create enhanced opportunities for students to develop these disciplinary practices. Thus, drawing from Ms. Oliver’s focus on mood, imagery, and rhythm throughout the poetry unit, we decided to
use the coach feature to prompt students to describe the kind of mood, imagery, or rhythm that they sought to develop and how.

We also took advantage of the glossary feature as a way to further support students’ exploration of poets’ intentionality—this time their own. Early on in our planning phase, Ms. Oliver shared our BookBuilder idea with her 5th grade colleague Ms. Lynch, and Ms. Lynch offered the idea of using the glossary feature as a way for students to highlight the figurative language in their poems. Building off of this idea, we decided to ask students to not only define specific poetic devices but also to explain their thinking behind why they decided to incorporate particular devices.

The coach and glossary tasks leveraged UDL checkpoint 6.4 “Enhance capacity for monitoring progress” through a disciplinary lens in two different ways: 1) Support students to reflect on the mood, imagery, rhythm, and figurative language in their poetry and make any needed revisions, and 2) Support students to articulate the thinking behind their poetry and again offer a way to continue to develop their ability to “read like poets”—this time reading their own poetry in order to be more transparent about their decision making and intentions. Ultimately, we hoped that the task of scripting the coach and highlighting the figurative language would contribute to students’ developing ability to read their own poetry “like a poet” and to write “like a poet” as well.

We also used our meetings to develop a scaffold to support students’ executive function when creating their BookBuilder books. I shared with Ms. Oliver a planning template that I had seen the co-teachers in my pilot study use
to support students’ in “story boarding” prior to creating digital books. This template intrigued Ms. Oliver, and we developed a similar planning template to support students in mapping out the pages of their poetry books. With this scaffold, we were intentional about leveraging UDL in ways that would encourage students to read and write “like poets.” Students were “storyboarding” their pages and engaging in the same organizational processes as published authors (checkpoint 6.2 “Support planning and strategy development”). Further, to explicitly support the task of scripting the coach and developing the glossary entries, we drew from checkpoint 3.3 “Guide information processing, visualization, and manipulation.” For the coach, we embedded an explicit prompt—“What kind of mood, imagery, or rhythm are you trying to create? HOW?”—as well as an example response. For the glossary, we created a table with a model to guide students’ creation of their entries, and students could also draw from a handout that defined particular poetic devices as a resource (Appendix Y).

Finally, we discussed options for student expression. Students would be using BookBuilder on Chrome books in the classroom, a very different mode of expression than the typical paper-and-pencil format to which they had grown accustomed. But we also wanted to embed options for expressing ideas in the paper-based planning template. Because we did not have consistent access to the Chrome books, we planned to offer a scribe to students whom Ms. Oliver

---

19 This was the same planning template that I shared with Ms. Edwards described in Chapter 3.
identified as potentially encountering a barrier.\(^{20}\) (See Appendix Z for a summary of how UDL was leveraged).

**Implementation.** After almost two and a half months of collaborative planning, we launched the BookBuilder project in early March 2015. I facilitated three mini-lessons in which I modeled for students how to create and edit pages in their books while groups followed along on laptops.\(^{21}\) By the fourth class period, students were working with confidence and independence. The following sections illustrate the rich disciplinary thinking that began to emerge among all learners throughout this project and the ways in which Ms. Oliver’s thinking began to change as well.

**Emerging student thinking: The beginnings of “writing like a writer.”** An analysis of the students’ planning templates, the final BookBuilder books, and the conversations with students as they were engaged in the creation process reveals that this project supported Ms. Oliver’s diverse students to begin reading and writing “like poets.” As designed, the use of the coach and the glossary entries proved to be a useful way to prompt students to reflect on the ways in which they were incorporating poetic elements and figurative language into their poems. The following examples of student work are representative of the reflection that students with and without labeled disabilities were able to engage in while developing their BookBuilder books.

---

\(^{20}\) Although a “true” UDL implementation would have offered scribing as an option to the whole class, with this initial experimentation, Ms. Oliver focused on specific students.

\(^{21}\) Unfortunately, we did not have consistent access to the Chrome books, so we oftentimes had to let students use our own laptops and borrow the laptops of Ms. Oliver’s student teacher and/or instructional aide.
In her poem “Beach,” Lila describes how she used her five senses to develop imagery in her poem (Figure 12). She scripted her coach to say, “I used my five senses sight, smell, taste, feel, and hear to describe the beach. what senses do you use at the beach?” And she used the glossary feature to describe her use of two different poetic devices. First, she identified the line “washing away the sound” as personification and explained her intention as, “I want my reader to know the waves are washing away the sound.” Second, she identified the line “like a mountain of waves” as a simile and explained her intentions as, “I want my reader to picture a lot of waves.” Lila’s references to “my reader” signal an awareness of how her decision-making as a poet influences her audience. When reflecting on Lila’s poem, Ms. Oliver felt as though Lila was able to demonstrate “complex,” “higher-level thinking” through the poem itself as well as through her use of the coach and glossary features. Although her intention behind the use of personification does not quite reveal her understanding of personification as giving the waves a human characteristic, this poem and the windows into her thinking show how Lila is beginning to read and write “like a poet” through this project.
Figure 12. Lila’s BookBuilder page for her poem “The Beach.”

Sonia, a student labeled with a “communication impairment” who Ms. Oliver described as often struggling to express her thoughts, wrote her poem about her favorite peppermint lip gloss, EOS (Figure 13). She used the coach to describe her use of imagery, asking her readers, “Do you feel peppermint crawl up your nose? You can get an imagery [sic] of me smelling icy breeze up my nose. Did you know [sic] that icy breeze is a sense?” And she used the glossary feature to provide readers with a window into her use of figurative language. She highlighted the line “It crawls into mt [sic] nose with an icy [sic] breeze,” identified this line as an example of personification, and stated “I used this figurative language to get an image in my mind.” Sonia used the coach to communicate directly with her readers. The questions that she posed to readers
in order to help them understand her use of imagery demonstrate Sonia’s developing understanding of “author’s craft” and how she used imagery for a specific purpose. Interestingly, her explanation of her use of simile does not show this same awareness of her readers; instead, she explained how she used this comparison “to get an image in my mind.” Yet, developing an image in the author’s mind and then communicating that image to readers is an important part of the writing process. When reflecting on Sonia’s poem, Ms. Oliver was pleased with Sonia’s progress; she considered Sonia’s poem and her use of the coach and glossary features as “successful” and believed that Sonia “felt successful as well.”

Figure 13. Sonia’s BookBuilder page for her poem “Smell EOS.”

Ethan, a student labeled with a Nonverbal Learning Disorder and Attention-Deficit Hyperactivity Disorder (ADHD), also used his coach and glossary entries to begin to more fully articulate his thinking behind his limerick,
“Kung Fu Spy Guy” (Figure 14). Ms. Oliver described Ethan as a “high level thinker” but said he often “zones off” if the lesson doesn’t capture his interest. Ethan scripted his coach to explain his thinking behind the way he developed the humorous mood of his limerick: “I was trying to create something with a ninja and something funny at the end so I came up with pie.” And for his glossary entries, Ethan began to articulate to readers his use of rhyme and the AABBA rhyme scheme of a limerick. He created glossary entries for all three of the “A” rhymes. He identified the rhyming words “guy” and “spy” and described his intentions: “I wanted the readers to know why the poem was called Kung Fu Spy Guy.” And he explained that he chose the word “pie” because “I wanted the poem to end in a funny way.” Through the BookBuilder features, Ethan begins to offer his readers a window into the ways that he played with rhyme in his poem to communicate ideas and to develop his mood.

Figure 14. Ethan’s BookBuilder page for his poem “Kung Fu Spy Guy.”
Despite the mixed emotions with regard to alternative means of expression described above, Ms. Oliver wanted to experiment with offering a scribe to some students in order to complete their planning templates. I worked with Eric, a student who Ms. Oliver characterized as struggling with both reading and writing. Although an evaluation showed that he did not qualify for an IEP, Ms. Oliver continued to express concern for Eric, especially his most recent scores on a district-wide assessment. She reflected, “I’m telling you, he shuts down if it’s too hard.” She also wondered if Eric had difficulty expressing his thoughts via paper and pencil, given his preoccupation with his penmanship; she explained, “He wants every letter to be perfect.” Ms. Oliver was interested to see if this scaffold might allow Eric to better express his ideas.

Using me as his scribe and using the sentence starter “I used words like,” Eric scripted his coach to offer a window into the mood of his poignant poem about the death of his cousin (Figure 15). His coach read: “This poem is supposed to be emotional. I am trying to create a sad, disappointing mood. I used words like ‘cry,’ ‘die,’ ‘respect,’ and ‘disrespect’ to create this mood.” Eric identified “Staying Strong,” the title of his poem, as alliteration but did not offer insight into the thinking behind this choice. When developing his poem in BookBuilder, he was also the only student to incorporate something other than an illustration: he brought in the pin that he received at his cousin’s funeral, and we uploaded a picture of it to accompany his poem. When reflecting on this poem together, Ms. Oliver and I were struck by the serious, moving tone. Earlier in the study, Ms. Oliver described Eric as often positioning himself as “sort of the goofy, class clown kid,” and this very “emotional poem” with its “sad, disappointing mood” and his scripting of the coach contradicted his outward appearance. We
discussed how Eric often presents himself to his peers as not caring about schoolwork, and Ms. Oliver reflected, “. . . But he’s the most sensitive kid on the planet . . . he does care.” Although Eric did not fully take advantage of the BookBuilder features to provide an even stronger window into his thinking as a poet through the glossary feature, we were encouraged to see how he offered the reader an insight into the emotion behind this poem through his coach.

**Figure 15.** Eric’s BookBuilder page for his poem “Staying Strong.”

I also worked with Brianna, the student introduced in the opening vignette, to support her in expressing her ideas for the coach and glossary features for her poem “Mosquito” (Figure 16). Through a combination of her own writing, my scribing, and the sentence starter “I used words like,” Brianna scripted her coach to explain how she created the angry mood of her poem:
“MOOD: It will tell my readers how I will feel [sic] when I’m mad. I used words like ‘drinking blood,’ ‘being like a mosquito’ and ‘POP’ to describe how I feel when I’m mad.” And she created three glossary entries to describe the figurative language in her poem. She identified “I feel like a mosquito” as a simile and described, “This helps the reader to visualize me as a mosquito because I am hungry for blood!” She identified using “pop” as onomatopoeia and explained that she chose to include this because “It makes them [her readers] visualize how I am feeling. Like I could really pop!” Finally, she identified “pop like popcorn” as a simile and explained, “I’m describing when I’m finally coming back to myself, all good and buttery.”

At the beginning of our work together, Ms. Oliver had characterized Brianna as a “lower student,” explaining, “She knows what she wants to say. She does—the thoughts are there. The ability to put it into a sentence that makes sense verbally or written, she cannot do it.” When exploring Brianna’s poem prior to developing it in BookBuilder, Ms. Oliver was amazed by the sophistication, explaining how the poem “was awesome” and how “[Brianna] came out of nowhere!” And when Brianna selected this poem to develop using BookBuilder, Ms. Oliver was even more impressed by the richness of Brianna’s thinking and the way in which Brianna incorporated so much self-reflection into her poem, the coach, and the glossary entries. She explained,

We do breathing strategies with her because she used to flip out, and she’d pop . . . And now she’s really good about coming and finding an adult and saying, “I need a space to calm myself down.” Really good about it. Um, so that’s why, when I read this, I was like “Wow, she’s doing some serious self-reflecting here.”
We also reflected on Brianna’s reasoning for incorporating the simile “i feel like a mosquito,” and Ms. Oliver was intrigued by the unique and creative comparison. She stated, “When I think angry, I think a bear. If you were to think of what to compare it to—like an angry bear. I don’t know. A hungry wolf or something like that. But to say a mosquito is interesting.” Ms. Oliver was also impressed by the complexity of Brianna’s reasoning for incorporating the simile “pop like popcorn”: “I’m describing when I’m finally coming back to myself, all good and buttery.” Ms. Oliver commented, “. . . She even used figurative language in her description. Because ‘I am good and buttery.’”

Figure 16. Brianna’s BookBuilder page for her poem “Mosquito.”
Emerging teacher learning: Seeing the potential of UDL and the potential in her students. Exploring this evidence of students beginning to read and write “like poets”—coupled with the learning from our previous experimentations—supported Ms. Oliver to develop new beliefs and understandings. As described above, one of Ms. Oliver’s goals was to ensure that she was challenging all of her learners and “making sure that everyone’s being pushed.” Yet, she initially wondered what kinds of challenge and goals were appropriate for those students whom she characterized as struggling readers and writers. She questioned whether there was an implied “order” to the themes of disciplinary thinking and if “lower students” would be able to get engage with disciplinary themes such as reading and writing “like writers.” Through the experience of co-designing and reflecting on this BookBuilder project, Ms. Oliver began to recognize the importance of providing students with multiple modes of expression and began to see the kind of student thinking that was possible among her students—most importantly, among the students whom she originally perceived as “lower students.” Specifically, seeing what Eric and Brianna were capable of when barriers were reduced marked a powerful turning point for Ms. Oliver and supported her to develop new understandings about UDL—and about the expectations she held for her students as well.

This realization began to emerge mid-way through our BookBuilder project. As described in the opening vignette, scribing for Brianna during the planning template lesson offered Ms. Oliver convincing evidence as to the potential of using multiple modes of expression to uncover students’ ideas: Ms. Oliver exclaimed, “So that’s the UDL! It’s like the writing is what stops her. Scribing lets us see what she’s thinking.” And, once the BookBuilder project had
ended, Ms. Oliver reflected further on the importance of the scribe for Brianna, noting, “I think sitting and prompting and you scribing took away the worry of, is she spelling it correctly? How does it look? And she just got to do the thinking.” Ms. Oliver continued to reflect on the use of a scribe and stated,

I think you can see that the lower kids, by you scribing, you’re getting their thinking. And a lot of times, we don’t get to their thinking because they are so limited with their writing. So there is that, that barrier . . . I really enjoyed seeing that. And learning that strategy. It’s so obvious and easy, but as teachers you can sometimes forget that scribing for a 5th grader can be so important, you know?

When reflecting back on BookBuilder during our final interview, Ms. Oliver referred to our experimentation with scribing as her “best example” of how her thinking about UDL changed over the course of our work together. She explained this change in her thinking, referring back to Brianna and to Eric, and stated,

You know, really thinking about the goals of the lesson and is the goal of the lesson to see what [Eric] can write? Or is the goal of the lesson to see what [Eric] knows and understands about this? And that helped me a lot. Because if you think about—If I said, ‘Oh I scribed, this is his essay, but I scribed,’ I think some people would look at that and be like, ‘But then you did the work,’ you know? So how is this really his work? But, really, it’s what he says.

Through this BookBuilder project and the experimenting that led up to it, Ms. Oliver was beginning to think of her practice and the capabilities of her students in new ways. Analyzing the rich disciplinary thinking that emerged in students’
planning templates and in their BookBuilder books allowed Ms. Oliver to see that all of her learners were in fact capable of beginning to engage in reading and writing “like writers” when given the appropriate scaffolds. This work supported Ms. Oliver to explore and confront some of the questions and concerns that she posed during the beginning of our collaboration regarding goals and the appropriateness of offering multiple modes of expression; she began disassociating goals and the means for achieving these goals, an important underpinning of UDL. Although Ms. Oliver continued to use the language of “lower students,” she was now beginning to reconsider the kinds of thinking that these seemingly “lower” students were capable of once barriers to disciplinary goals are reduced.

Reflection and refinements for the future. Although the completion of the BookBuilder project marked the end of our collaboration, we reflected on the strengths and weaknesses of the project. Our reflections revealed that Ms. Oliver was beginning to see more clearly the power in leveraging UDL to engage students in disciplinary thinking. She saw promise in the way that we leveraged the coach feature to support students to engage in reading and writing “like poets.” She explained that the task of scripting the coach effectively prompted students to reflect on their writing, “making them describe why they used the figurative language for the reader. Because that was something, remember, that they were missing.” Ms. Oliver reflected back to the beginning of the poetry unit when students were not considering the poet’s intentionality—a disciplinary practice that we attempted to develop by incorporating the “What I Notice / What I Want to Try” T-chart and the figurative language column/Ms. Oliver’s prompting. Ms. Oliver remembered how she needed to continually remind
students to read with the poet’s perspective in mind stating, “I was like why are poets using these different poetic devices? Why? Specifically for the reader.” She then reflected on students’ current abilities now that they had concluded the poetry unit and moved onto a new unit based on Katherine Paterson’s (1977) novel Bridge to Terabithia. She shared that one of the students asked the question, “Why does the author call it ‘Terabithia’?” and Ms. Oliver believed that this was a question that reflected students’ growth and contrasted it “to the beginning of the year when they were reading it, ‘It just is called that.’” She continued to reflect, “They [were] not thinking that somebody actually sat and wrote and chose that name. They [were] thinking, ‘I’m reading a story, and it is just called that.’ You know?” She went on to reflect on students’ ability to now consider the author’s intention stating, “That was not there until we focused on that.”

Ms. Oliver also reflected on how increasing students’ engagement can further their disciplinary thinking. She saw the coach as the most effective in terms of pushing their ability to consider their own intentions as poets, but she also saw the coach as the most engaging aspect of BookBuilder. When reflecting on the task of developing the coach, Ms. Oliver stated, “They have fun with it, so it keeps them engaged. They loved that part.” She continued, “They got to choose their coach. The voice for their coach. Their name for their coach . . . but also it was the most challenging. I think the most challenging is the one that has to keep them the most engaged.” As with Ms. Edwards’s experience, the BookBuilder project allowed Ms. Oliver to see how specific UDL features could be applied through a disciplinary lens to engage students in the rich practices and habits of mind of ELA.
Ms. Oliver also began to see the importance of offering multiple means of expression—the usefulness of a scribe as well as the usefulness of a variety of modes of expression at a broader level. She reflected on the effectiveness of embedding so many different modes of expression into the project: expressing ideas via written expression or scribe for the planning template; expressing ideas through typing into the BookBuilder digital environment; and expressing ideas during the final sharing of BookBuilder books with the class—a moment when they could choose to read their poem out loud or to have BookBuilder’s text-to-speech function read it for them. Ms. Oliver reflected, “. . . some [students] are really great at planning out and utilizing their planning, and some . . . were successful here [pointing to the laptop screen with the BookBuilder books], and then, some were very successful with their presentation.” She reflected on these multiple ways for students to be successful, stating, “There was opportunity to [use] technology . . . type, write, and also speak.” When looking toward the future, Ms. Oliver was eager to try our BookBuilder on her own. She estimated when the poetry unit might fall during the next school year and how she would like to use BookBuilder again, stating with a laugh, “So I may reach out to you that time of year. Maybe we will have a guest appearance!”

Ms. Oliver was also still left with questions that she wanted to explore in the future. During our final meeting, she explained that she had continued to offer a scribing option to specific students once our project had ended. Yet, she was still exploring when and how this option was most effective. She explained, “Finding a balance between when a kid like [Brianna] should do the writing and when she should have a scribe. That’s hard to do.” Our work together seemed to
leave Ms. Oliver with new ideas for her practice, new ideas regarding her students, and new questions to explore on her own.

Concluding Thoughts

It is a hot July afternoon, and Ms. Oliver and I meet over iced drinks and cookies at a coffee shop halfway between our homes for our final interview. With the pressure and frenetic pace of the school year behind her, we reflect back to the start of our work together nearly eleven months ago. Ms. Oliver considers our goal of engaging students in disciplinary thinking and shares,

To be honest with you, I’d never thought of it in that way, to “read like a writer.” To read and sit back and think why the author would make choices—choices as simple as word choice in a sentence or themes of novels... It makes sense now, though, and I think has made my teaching better to introduce that to the kids.

Our attention then turns to Ms. Oliver’s current beliefs in UDL as a tool to get students engaged in this kind of rich disciplinary thinking. She reflects on how her thinking has evolved since her first introduction to UDL through a workshop at her previous school. She reflects,

... when you came in I was like “Oh yeah, I’ve heard of that, I’ve had a training.” And thought about when I got the first training, I really sat in the room thinking, like, “How was this any different than teaching special ed? Like making modifications?” But then having you in the classroom and... you know, really thinking about the goals of the lesson and is the goal of the lesson to see what [uses Eric as an example] can write? Or is the goal of the lesson to see what [Eric] knows and understands about this? And that helped me a lot.
Ms. Oliver began this study in August of 2014 with little background knowledge on the notion of disciplinary thinking in ELA and some initial understanding of UDL. Meetings, interviews, and extensive observation of her classroom uncovered exciting strengths to build upon as well as areas for growth. As we moved into our collaborative phase, Ms. Oliver was eager to develop her knowledge of the intersection of disciplinary thinking and UDL but also somewhat hesitant to explore alternative modes for student expression. Over the course of our five-month collaboration, Ms. Oliver and I brainstormed, designed, refined, and reflected on a range of different scaffolds/lessons/projects, with the strengths and weaknesses inherent in each experiment informing the next. This cyclical process allowed us to leverage UDL to more fully engage her students in the practices of the discipline of ELA—they were beginning to acquire the skills of reading poetry “like poets” as they explored the poets’ choices to use different forms of poetic devices, and they were beginning to write like poets as they worked to make and articulate choices and decisions about their own poetry. And as students’ thinking began to develop, so too did Ms. Oliver’s practice and beliefs. She began to delve into the disciplinary practices herself, reflecting on the importance of considering a poet’s intention behind his or her choices; she began to see how UDL could be leveraged to increase her students’ disciplinary thinking; and she came to recognize the rich student thinking that can emerge among all learners when barriers to expression are reduced. The cross-case analysis chapter, Chapter 6, will put Ms. Oliver’s journey in concert with the other two teachers involved in this study and consider the common and divergent themes among the teachers.
and how these themes point to ways to better support teachers to apply UDL to encourage disciplinary thinking in ELA among all learners.
Chapter 5: Ms. Ayala’s Journey—“Opening Doors” for Students through UDL

It is a hot July morning, and Ms. Ayala and I meet at Windsor School for our final interview, a chance to reflect on our collaboration that started fifteen months ago. It is strange to be back at the school in the middle of the summer—the typically crowded hallways are deserted, the bulletin boards that once boasted colorful student artwork are bare, and the energetic hum of students and teachers has gone silent. I find Ms. Ayala in a new classroom busily arranging desks and making this unfamiliar space her own. She is dressed in shorts and a T-shirt and her hair is pulled into a loose ponytail, a sharp contrast from the more professional attire that I typically observed. With the stress and demands of the school year behind her, Ms. Ayala seems relaxed and ready to reflect.

Minutes into our conversation, Ms. Ayala dives into reflecting on our most intensive collaborative effort: providing her seventh graders—all of whom were students labeled with language-based disabilities or as “struggling readers”—accessible versions of paper-based novels. She reflects on how this effort to reduce barriers to printed text was “the best part” of our work together. She is especially struck by Zara’s experience, a student who would typically see a printed book and “become overwhelmed with it.” Ms. Ayala explains that Zara’s success with accessible formats began to change her relationship with text. Ms. Ayala recalls how Zara became “super engaged” and even sought out alternatives to printed text on her own and shared them with her classmates. Ms. Ayala believes that our efforts empowered Zara to think, “You know what, this helped me understand. It wasn’t a thing I can’t do it anymore. Like, yes, I am a struggling reader, but now I know where to go to get that reading.” Ms. Ayala continues, “...with this, she just flew away...it just opened up a lot of doors for her.”

In this moment, Ms. Ayala is reflecting on the power of applying UDL to break down barriers to student learning. By drawing from the UDL principle of
“Multiple Means of Representation” and exposing her students to alternative forms of printed novels, we were able to reduce barriers and allow all of Ms. Ayala’s students to access and engage with text. Yet, as in the case studies of Ms. Edwards and Ms. Oliver, this student growth and teacher learning took time to develop. Ms. Ayala began this project with little background in UDL, and it was a collaborative process that supported her to see the promise in leveraging the framework in this way.

Although the goal of this study was intended to support teachers to explore the intersection of UDL and disciplinary thinking in order to promote discipline-specific practices and habits of mind among diverse learners, Ms. Ayala and I focused the majority of our efforts on applying the UDL “access guidelines” to address the critical need of reducing the unintentional barriers to text that existed in her classroom. Alongside this central focus, we also began to explore how to leverage the UDL “expert learner guidelines” to encourage students to engage in disciplinary thinking. This chapter will describe our journey in getting to the moment described above as well as to other moments where we began to apply UDL beyond access; it will uncover the successes as well as the hesitations and challenges that so often accompany the learning process. I begin by describing the ways in which Ms. Ayala was currently applying UDL and disciplinary teaching. Then I share the story of our work together—a story that recounts our collaborative attempt to break down barriers to text and our initial work to break down barriers to disciplinary thinking as well.

Our Starting Point
I first met Ms. Ayala in April of 2014 when I visited her at Windsor School to see if she might like to participate in the study. She immediately expressed interest, explaining how she often struggled to get her students to feel “more excited” and “more confident” in ELA. As I summarized the study’s focus on the intersection of UDL and disciplinary thinking, Ms. Ayala eagerly nodded her head; she saw this project as “perfect” for her and her students.

We met again a few days before the start of the new school year to explore Ms. Ayala’s ELA goals and her current understandings of UDL and disciplinary thinking. This was Ms. Ayala’s third year at Windsor and her fourteenth year teaching in the district. She began her career as a paraprofessional at another school in the district and earned her special education certification through a “transition to teaching” program. She then spent seven years teaching students with mild to moderate disabilities in a self-contained setting before joining the Windsor staff. During her first year at Windsor, Ms. Ayala taught a 6th grade ELA class designed for students labeled with language-based disabilities and other students who struggled with reading, and her role soon expanded to teaching a 7th and 8th grade version of this ELA class as well. In the past, the pace and content of Ms. Ayala’s ELA classes differed from the regular education middle school ELA classes taught by her colleague, Mr. Wells. The start of this study marked the first year in which Ms. Ayala and Mr. Wells would collaborate to align the pace and content of the two classes. Ms. Ayala explained the transition as “something that we wanted to create as a school. Not having that division—‘Oh, you’re in [Ms. Ayala’s] class? Oh, we’re not reading the same books.’”

At the beginning of the study, Ms. Ayala had little familiarity with the
notion of disciplinary thinking in ELA. Yet, when reviewing the five themes of disciplinary thinking identified in the literature, she described some connections to her own practice. For example, she noted the disciplinary theme of “identifying as a reader” and explained how she typically surveyed students at the beginning of the school year to determine their preferences as readers. She also described moments in the previous years when she saw connections to “reading like a writer” and “writing like a writer,” explaining how students would read different genres and she would then prompt them to think about how they could “write in this form” or in “this way.” Yet she explained that although she spends time teaching the writing process, she concentrates more on reading. She stated, “We always focus, I want to say, on the reading. I always feel like, if you’re struggling with reading, it’s going to be very hard to continue writing.” With regard to “writing as a writer,” Ms. Ayala reflected, “I don’t think we’ve ever gotten to that point.”

Ms. Ayala also emphasized the importance she has always placed on reading comprehension and on supporting her students to develop specific reading strategies: make connections, visualize, question, predict and infer, and synthesize. These goals were reflective of Ms. Ayala’s strong commitment to developing students’ foundational reading skills, but they were not reflective of the notion of disciplinary thinking that encourages students to move beyond basic comprehension and to develop the practices unique to ELA. When asked about the particular habits of mind that she hoped to support her students to develop, she explained, “When I think of habits of mind, I think for my students—if you speak to [Mr. Wells], he has possibly another—because my kids,
they struggle with reading so much, so for me, it’s just to be able to understand what you are reading.” She continued,

I kind of focus more on reading strategies and comprehension . . . because the kids who I do teach are kids who struggle with comprehension, struggle with reading. So pretty much . . . my focus is to make sure that they are able to use the strategies on their own so they can better comprehend.

Although Ms. Ayala’s description of her ELA practice connected to some disciplinary themes, her reflections about “her students” as opposed to Mr. Wells’s general education students and her emphasis on basic comprehension and reading strategies suggested that she considered disciplinary thinking as being beyond her students’ capabilities. Ms. Ayala felt as though she could best serve her students by offering them a strong foundation of basic reading skills. These beliefs with regard to her expectations of students seemed to push back against the goals of this study—to apply UDL as a means to support all learners to move beyond basic comprehension and to engage in sophisticated disciplinary practices. Thus, exploring these beliefs marked fertile—yet potentially sensitive—ground to explore as we moved into our collaborative phase.

With regard to UDL, Ms. Ayala expressed that she had limited familiarity with the framework. She vaguely remembered learning about UDL in a special education training, and she associated it with notions such as “differentiated instruction,” “different accommodations and what works for one student might not work for another,” and “finding those different ways to engage students.” She stated, “Overall I’m not very familiar with it, and I am excited to see how it’s going to work out.” Yet, despite her expressed unfamiliarity, many of the
strategies that Ms. Ayala described using in her classroom aligned with UDL principles for engagement and representation. With regard to multiple means of engagement, she explained how she would attempt to increase students’ motivation to read by offering choices and by emphasizing relevance to students’ lives. She explained, “So, pretty much, I try everything possible to get them engaged and to help them want to read.” With regard to multiple means of representation, Ms. Ayala described her use of alternatives to printed text such as books on CD and her recent experimentation with downloading audiobooks from Amazon’s audible.com. She stated, “I typically have anything possible.” Yet Ms. Ayala reflected that despite her efforts, reaching all of her students remained a persistent challenge. She reflected, “I have moments where I am like, ‘Oh my god, I’ve tried so many different ways, and I am still not getting the results, or I am not getting this student engaged. So I feel like, what else can I bring?’” By participating in this study with her 7th grade class—a class made up of 11 students labeled with language-based disabilities or considered as “struggling readers”—Ms. Ayala hoped to find ways to improve her practice. She explained, “Having this program [UDL] and having you in my class and actually seeing, you know, the evidence . . . it can give me more, you know, strategies or [a] network of how to get better results with the students.” She most looked forward to viewing and discussing video of her practice. She stated, “. . . if I am being recorded and I am videoed, I feel like I can see it. We can talk about it. We can figure things out, and do it in a different way.”

To complement our initial interview, I spent the first three months observing Ms. Ayala’s practice to gain a stronger sense of how, if at all, she currently applied UDL and disciplinary teaching to her practice. As revealed in
Table 10 below, I collected 29 baseline observations of Ms. Ayala’s ELA class, 37 associated instructional materials, and 90 pieces of student work. Analysis of these data revealed two important themes. First, although Ms. Ayala often drew from a range of UDL access level strategies in an effort to increase students’ comprehension and engagement, observations revealed that she was not currently offering alternatives to the printed novels students read in class. This reliance on one format seemed to pose a barrier to her students and contrasted with the array of alternatives to text that Ms. Ayala described using in the past during our initial interview, a contrast that will be explored below. Second, although there were some glimpses of connections to disciplinary thinking, the majority of Ms. Ayala’s instruction focused on reading comprehension. This focus aligned to Ms. Ayala’s commitment to develop her students’ foundational reading skills but also seemed to inhibit opportunities to dig deeper into the practices and habits of mind of the discipline of ELA. Below, I offer a lesson that illustrates these two themes. I describe the strengths that I observed with regard to UDL and disciplinary thinking that Ms. Ayala and I could leverage during our collaborative phase. And I also describe the areas for further development. As noted in the case studies of Ms. Edwards and Ms. Oliver, this description is certainly not meant to evaluate Ms. Ayala’s practice, especially since she began this study with limited knowledge of UDL and disciplinary thinking. Instead, this description is meant to highlight alternative and potentially more effective practices that Ms. Ayala and I would explore as we moved into the collaborative phase.
Table 10. Data Collected in Ms. Ayala’s Class in Phase 1 of the Study.

<table>
<thead>
<tr>
<th>Phase of study</th>
<th>Observations</th>
<th>Instructional materials</th>
<th>Student artifacts</th>
<th>Interviews</th>
<th>Working meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>29 (24 hours)</td>
<td>37</td>
<td>90</td>
<td>1</td>
<td>n/a</td>
</tr>
</tbody>
</table>

An illustrative example: Exploring chapters 3 and 4 of Alvarez’s *Before We Were Free*. Ms. Ayala’s lesson in mid-October on chapters 3 and 4 of Julia Alvarez’s (2002) novel *Before We Were Free* is reflective of these two findings. *Before We Were Free* tells the story of young girl named Anita and the experiences that she and her family had while living in the Dominican Republic in the early 1960s under Rafael Trujillo’s dictatorship. Prior to beginning the novel, students watched *In the Time of the Butterflies*, a movie based on another novel by Alvarez that also took place during Trujillo’s rule. Students then began reading paper-based versions of *Before We Were Free* together in class, and Ms. Ayala assigned specific chapters for homework along with related comprehension questions. For each chapter, students were also tasked with completing a “concept card” to document the following information: “Name, date, title of book, pages/chapter, character, four sentences summarizing important info from pages read.”

I arrived at Ms. Ayala’s classroom a few minutes early on the day of the chapters 3 and 4 lesson, and Ms. Ayala expressed her concern that students were not doing their homework and were not keeping up with the reading. She explained that they were “way behind” Mr. Wells’s class and stated exasperatedly, “They’re just not motivated to read! Today, it’s all about getting them motivated to read!”

The objective for the day was posted on Ms. Ayala’s whiteboard: “Apply reading strategies during shared reading and synthesize using concept card.”
Students had read chapter 3 as a class the previous day and were asked to read chapter 4 for homework. Ms. Ayala began the class by asking students to complete the following “Do Now”: “Write about your thoughts or opinions from Chaps 3&4.” After a few moments, the class discussed their responses. Several students mentioned a passage in the book when parents’ decided to cancel the Secret Santa gift exchange at Anita’s school. Mateo explained, “They canceled it because some of the parents were complaining.” Adele added hesitantly, “They didn’t like the idea of it. They thought it was too much . . . on the kids, I think?” Ms. Ayala continued to prompt students to identify the reasons for canceling, but students struggled to articulate the source of the parents’ concerns. Students’ confusion coupled with the number of students who did not complete the comprehension questions or the concept card signaled to Ms. Ayala that students had not done the assigned reading. She suggested to the class that they read chapter 4 together “although we were supposed to do it already.” Ms. Ayala also reminded students of the importance of completing concept cards. Pointing to the “Concept Card” poster hanging at the front of the room (Appendix AA) she stated, “It’s for memory. We leave it in the last page that we just read . . . so you are summarizing by identifying the important details.”

Sitting in a circle on a rug in the corner of the classroom, Ms. Ayala and the students took turns reading chapter 4 aloud. Ms. Ayala paused frequently to ask questions that aligned to the reading strategies. For example, after reading a paragraph explaining how Anita overhears “little snatches” (Alvarez, 2002, p. 43) of a private conversation between her father and two U.S. ambassadors, Ms. Ayala asked, “Thinking about what we’ve read and what we’ve seen [In the Time of the Butterflies], what do you think is happening? Do you have any ideas?”
Students made suggestions such as “That there’s going to be a new president” and “Oh, the CIA is after the Butterflies.” Further, after reading Anita use the phrase “jefe” [boss] to describe Trujillo, Ms. Ayala asked, “What is she talking about ‘jefe’?” Angelina responded, “They’re talking about jefe as like the big boss . . . and how nobody really runs against him because he’s the big, big boss and he’s scary and stuff.” Mateo then asked, “Is it still like that?” and Ms. Ayala, whose family is from the Dominican Republic, explained how the current political structure is different today. Finally, toward the end of the chapter, Ms. Ayala stopped to summarize another paragraph that described all of the questions that Anita had during this time of secrecy and her parents’ reluctance to provide answers:

Ms. Ayala: So Anita goes around asking questions, and what does mom and dad do?

Bianca: They don’t answer.

Ms. Ayala: They don’t answer! They say, “Go ask your mom, go ask your dad.” Do you get that at home?

Students: Yes!

Ms. Ayala: I think I do that to my kids all the time. “Go ask your dad,” and then they come back to me—“Oh, dad said to ask you,” and I’m like, “Go ask somebody else!” . . . So when you do that it means that you don’t want to answer, right? You don’t want to answer their questions at all.

With five minutes before the end of class, Ms. Ayala asked students to fill out their concept cards. As students packed up to move to their next class, she reminded students to continue with chapter 4 and to finish the comprehension questions for homework.
**Strengths to leverage.** In this exploration of chapters 3 and 4, Ms. Ayala applied some specific instructional moves that aligned with UDL. Her use of the concept card served as a scaffold to support students‘ processing of the text (checkpoints 3.3 “Guide information processing, visualization, and manipulation” and 6.3 “Facilitate managing information and resources”). Further, her explicit reminder for students to think back to “what they had seen” (the movie *In the Time of the Butterflies*) connects to Ms. Ayala’s use of the movie to provide background on the historical context and to pique students’ interest in the topic (checkpoints 3.1 “Activate or supply background knowledge” and 7.2 “Optimize relevance, value, and authenticity”). Finally, Ms. Ayala’s prompting as they read chapter 4—prompts that connected to the reading strategies—also aligned with checkpoint 3.3 “Guide information processing, visualization, and manipulation.” In these moments, she encouraged students to predict and infer the significance of the private conversation and the meaning of “jefe”; to question and make connections to the current political context in the Dominican; and to make connections between Anita’s interactions with her parents and the interactions that students have with their own parents.

**Areas for further growth.** This lesson is also reflective of several areas to further develop. First, as Ms. Ayala shared prior to the start of this class, the majority of students were not keeping up with the reading. The students’ struggle to complete the assigned reading was consistent across the baseline observations and signaled that printed text posed access and engagement barriers to students, especially given that all of Ms. Ayala’s students were either students labeled with language-based disabilities or labeled as “struggling readers.” It is true that Ms. Ayala’s strategy to read the novel aloud during class
time offered an alternative representation; yet, asking students to read may have also triggered students to feel anxious and self-conscious. For example, during the chapter 3 and 4 lesson, one student declined to read when it was her turn. As described above, Ms. Ayala explained that she typically used a range of alternatives to printed text in our initial interview; observations revealed, however, that alternatives were not being offered to students in this current class. My observations, coupled with Ms. Ayala’s own concern regarding the lack of reading among her students highlighted an urgent need to address as we moved into our collaborative phase.

Second, Ms. Ayala’s focus on reading strategies and the use of comprehension questions and concept cards supported students to develop an understanding of the plot; however, students were not yet supported to delve into the discipline-specific kind of reading that moves beyond a basic level of comprehension and encourages students to engage with text at a deeper level. This finding was consistent across the baseline observations and also resonated with the commitment to foundational reading skills that Ms. Ayala described in our initial meetings. As I looked ahead to our collaborative phase, working with Ms. Ayala to support her students to comprehend as well as to engage the practices of the discipline seemed like an important area to explore.

In sum, our initial meeting and interview as well as the three months of baseline observation allowed me to begin to develop a sense of Ms. Ayala’s existing understandings, beliefs, and practice. This “baseline” revealed promising opportunities to work with Ms. Ayala to build on her strengths and to further develop her application of UDL and disciplinary thinking as we moved into the collaborative phase.
Overarching Goals of Our Collaborative Intervention

After completing the baseline observations, Ms. Ayala and I held a series of meetings to brainstorm the goals of our collaboration. We reviewed classroom video and analyzed student work to reflect on unintentional barriers in her classroom as well as the kinds of UDL and disciplinary thinking that were and were not taking place. We also considered which disciplinary themes resonated most with Ms. Ayala’s goals for upcoming units and the barriers that might prevent students from engaging with these themes. Three overarching goals surfaced.

First, Ms. Ayala hoped that our collaboration would support her to stay aligned with Mr. Wells’s general education ELA class. As noted above, Ms. Ayala saw this restructuring as a positive change to reduce “the division” between the two classes. In this meeting she elaborated, “I think it’s a good thing because you’ll hear them [her students] having these discussions with the other 7th graders . . . I think they feel confident that they are reading the same books . . . ”

Yet, Ms. Ayala noted the challenges associated with the new structure as well. She explained, “Normally, I would go on my own and do texts that are less, I want to say, heavy.” She continued, “Normally, I am working with the kids, and we are doing reading strategies . . . This year it’s more, ‘All right, we are going to do nonfiction, fiction, poetry.’” Ms. Ayala wanted to explore ways to balance staying on track in terms of pace and content while still supporting her students to develop reading strategies and to have discussions. She explained, I think maybe I might need more time to work with them [her students] for specific readings. Or, [Mr. Wells] can go more into the close read and
go more into the setting. So we’re doing the same thing, but also giving my students more time to kind of process the reading.

Similar to the hesitations that emerged during our initial interview, this meeting surfaced Ms. Ayala’s questions and concerns regarding appropriate expectations for her students. She seemed to wrestle with a tension between providing students with strong reading comprehension skills and providing students with opportunities to engage with the same challenging content as their general education peers. This tension marked fertile ground to explore as we moved into our collaborative phase.

Second, Ms. Ayala wanted to better support her students to access the novels that they read in class and to increase their motivation as readers. As we reflected on the baseline observations, Ms. Ayala continued to express her concern that students were not completing the reading for homework. As described above, books were only offered in paper-based format, and I asked Ms. Ayala if this singular mode might be affecting students’ motivation and ability to keep up with the reading. She reflected, “They do, they do struggle. And I think . . . I should definitely get some kind of way to help them with that reading part of it.” Ms. Ayala then provided insight as to the contrast between her description of offering a range of accessible formats in her initial interview and the reliance on paper-based formats observed during the baseline: this year she needed to find all new accessible versions now that she was teaching the same books as Mr. Wells, and she was not having much success. She explained how she typically obtained digital formats via BookShare, an online accessible library for students
with print disabilities; however, her license had expired, and her current students did not qualify. She also described using Kurzweil, text-to-speech reader software, but that the program was unfortunately incompatible with the Chrome books that were used throughout the school. Finally, Ms. Ayala revealed how she had started to experiment with the free audiobooks from Amazon’s audible.com, but that “a lot of the kids complain about the speech” and that the free versions were not high quality. Ms. Ayala’s concern about her students encountering barriers to text and her frustration with finding accessible formats resonated with the baseline findings and revealed a critical area to address as we began our collaborative phase.

Third, our discussion of disciplinary themes revealed Ms. Ayala’s somewhat cautious interest in supporting students to read and write “like writers.” Ms. Ayala explained that Windsor’s current instructional initiative focused on “writing about reading,” and she was eager to explore the connection between this initiative and these two themes. She pointed to a resource that I developed for us—a two-column table that listed the five themes on one side and a description of each theme on the other (Appendix U). Ms. Ayala pointed to “reading like a writer” and “writing like a writer” and stated, “Yeah, this is where our goal is. I think the kids can make it—from here on is where the challenge begins.” She then elaborated on this “challenge,” explaining how her students often “get stuck” at figuring out “how this author writes.” Pointing to

---

22 See Bookshare for more information about qualifying “print disabilities”: https://www.bookshare.org/cms/bookshare-me/who-qualifies
23 https://www.kurzweiledu.com/default.html
24 As described in Ms. Oliver’s case in Chapter 4, I had created this table to use as a reference with the teachers as we discussed specific disciplinary themes that we might like to explore, and it was not meant to imply any sort of hierarchy.
the table again, she stated, “So I feel like they need to still—we’re still here
[reading for meaning] . . . and after reading more, we might be able to identify
the author’s craft and how we can change it to our own or use it.” Ms. Ayala
continued to articulate why “reading like a writer” is challenging for her learners
and revealed, “It’s difficult, because we have struggling readers, and that kind of
goes hand in hand, and if we’re struggling and we are just trying to figure out
what they are actually telling us, then it’s hard to see the words they are using.”
She described how she typically supported students to focus on imagery and to
“visualize what type of words” authors use. Yet she explained how students
“can’t kind of like transfer it over—it’s like, it’s not done naturally. We still have
to redirect in that way.” She concluded, “So, I mean, definitely I want to work on
the last two [reading like a writer, writing like a writer], but I feel like there’s still
stuff missing before I can just throw them in there.”

Ms. Ayala’s honest reflections during this meeting surfaced important
questions and concerns that would guide our work together. The tension she
experienced between wanting to provide students with strong foundational
reading skills and wanting to provide students with access to the general
education curriculum; her concern about students’ lack of reading and her
frustration with finding accessible formats; and her questions surrounding the
readiness of her “struggling readers” to engage in disciplinary thinking all
pointed to critical and complex areas to explore together. Ms. Ayala seemed to be
wrestling with questions surrounding access and expectations, questions that
resonate with the literature and the voices of many of the teachers with whom I
have worked in the past. Thus, similar to the stories of Ms. Edwards and Ms.
Oliver, Ms. Ayala’s story represents our unique journey, and at the same time,
represents the concerns and challenges that arise for many special educators today.

The Collaborative Intervention

During our five months of collaboration, Ms. Ayala and I met in person six times and exchanged emails to brainstorm, design, refine, and reflect on four different ideas to “try out” in her class. Unfortunately, I did not have as much access to Ms. Ayala as I did with Ms. Oliver and Ms. Edwards. Ms. Ayala’s role on numerous students’ IEP teams, her responsibility to administer accommodations to students with disabilities during PARCC testing, and an unprecedented number of snow days prevented Ms. Ayala from devoting as much time to our collaboration as she had anticipated. Yet, despite this relatively limited face-to-face meeting time, we were able to experiment with applying UDL to reduce barriers to text and to begin experimenting with encouraging more disciplinary thinking among her students. As revealed in Table 11, I collected a range of data throughout the implementation of the four co-developed scaffolds/assignments: 28 classroom observations, 31 instructional materials, 126 pieces of student work, and 2 interviews.

Table 11. Data Collected in Ms. Ayala’s Class Throughout the Study.

<table>
<thead>
<tr>
<th>Phase of study</th>
<th>Observations</th>
<th>Instructional materials</th>
<th>Student artifacts</th>
<th>Interviews</th>
<th>Working meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>29 (24 hours)</td>
<td>37</td>
<td>90</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td>Phase 2</td>
<td>28 (23 hours)</td>
<td>31</td>
<td>126</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Phase 3</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td>Total</td>
<td>57 (47 hours)</td>
<td>68</td>
<td>216</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>
Below, I highlight the illustrative moments in our journey, a journey that differs somewhat from the stories of Ms. Edwards and Ms. Oliver described in previous chapters. Instead of focusing all of our attention on the intersection of UDL and disciplinary thinking, Ms. Ayala and I sought to first address the critical need of reducing barriers to text. This effort took up the bulk of our collaborative effort as we engaged in the cyclical process of designing, implementing, reflecting, and refining. Yet, alongside this crucial work, we were also able to briefly explore ways to support Ms. Ayala’s students to begin engaging in disciplinary thinking through less intensive experiments. Below, I trace the key moments in our work together. Seeing evidence of the benefit of accessible formats and seeing her students begin to think beyond basic comprehension and engage in the practices of the discipline supported Ms. Ayala to see her practice and her students in new ways. She began to more fully value the importance of multiple means of representation and, although just in the emerging stages, she began to recognize that all students are capable of engaging in the sophisticated practices and habits of mind of the discipline. Woven into these key moments, I also uncover the feelings of hesitation and doubt that surfaced for Ms. Ayala during our collaboration, feelings that also contributed to our learning process.

**Addressing a Critical Need, Part I: Breaking Down Barriers to *The Giver***

*Our motivation and design.* Given the urgency of the concerns revealed in the baseline observations and in our meetings, Ms. Ayala and I began our collaborative intervention by experimenting with ways to reduce the barriers that stood in the way of students being able to access text. As described above,
Ms. Ayala had experienced difficulty seeking out digital versions of the new novels that were aligned to Mr. Wells’s general education class. This frustration was most evident when she exclaimed to me in a meeting, “At this point, if I don’t get the audio for my next unit, I might just do it myself. Like just record it myself.” The Alvarez unit was coming to a close, and although Mr. Wells hadn’t identified which novel would be next, I suggested that, when we knew, we work together to hunt down accessible versions. The relief in Ms. Ayala’s voice was almost tangible: “That’s good. Thank you. That would be very helpful.”

Lois Lowry’s (1993) *The Giver*, a novel about a twelve-year old boy named Jonas living in a utopian/dystopian community, proved to be the next novel. Coincidentally, CAST had created a Thinking Reader™ version of *The Giver* in partnership with Tom Snyder Productions. Thinking Reader versions were developed for several popular young adult novels and included UDL features such as human narration with synchronized highlighting, background music, embedded prompts, and a contextual glossary (Appendix BB). The Thinking Reader version of *The Giver* was no longer available to the public given its outdated CD format; yet former colleagues at CAST generously gave Ms. Ayala and me a copy of the software.²⁵ Ms. Ayala had heard of Thinking Reader and had even tried, without success, to purchase a version of a different novel last year. Thus, she was eager to try *The Giver* version in her classroom.

Ms. Ayala and I unfortunately encountered several technological barriers to successfully running Thinking Reader on our computers; yet, after a week of collaborative troubleshooting, we had the software working. We also spent time

²⁵ I am grateful to colleagues at CAST for their generosity with providing Ms. Ayala and me this software free of charge.
brainstorming how we wanted to use the software during class. Since we had only one version to run from one computer, Ms. Ayala envisioned projecting Thinking Reader from her laptop and augmenting the audio through speakers. She was also interested in focusing on particular passages to “reinforce using the [reading] strategies”; she saw Thinking Reader as another opportunity to develop students’ understanding of the reading strategies and “to see if they are capable of using them.” Thus, our plan drew from several UDL access guidelines. The human narration and synchronized highlighting offered an alternative to the paper-based format of the novel (checkpoints 1.2 “Offer alternatives for auditory information,” 1.3 “Offer alternatives for visual information,” and 2.3 “Support decoding of text, mathematical notation, and symbols”). And we also hoped that providing students with an accessible version would reduce the threats associated with reading printed text and increase students’ motivation (checkpoint 7.3 “Minimize threats and distractions.”) Given that this was one of our early collaborative efforts, this experiment focused solely on providing students with enhanced access. I wanted to address Ms. Ayala’s (and my own) immediate concerns, and I hoped that we would be able to explore how UDL might be further leveraged to begin engaging her students in more challenging, disciplinary-specific ways of thinking once we addressed this critical barrier and had established more of a rapport (Appendix CC for a summary of the ways in which UDL were leveraged).

**Implementation.** After several weeks of troubleshooting and planning, we introduced the Thinking Reader version of The Giver to students in early February 2015. Unfortunately, by this time, students were more than halfway through the novel, but we wanted to experiment with this alternative format nonetheless.
Prior to playing the Thinking Reader version, Ms. Ayala reminded students of the importance of reading with strategies. She referred to the “Good Reader” strategies, another set of strategies similar to the reading strategies described above. As a class, they reviewed the five things that “good readers can stop and think and jot about”: “1) Images they created [in their minds], 2) Questions they have, 3) Connections they have (text-to-text, text-to-self, text-to-world), 4) Prediction[s] they might have, and 5) And what you think/feel about the book” (See Appendix DD for the Good Reader poster). Ms. Ayala also reminded students to fill out their concept cards. Then she projected chapter 17 on a screen at the side of the classroom and told students, “We are going to try this Think[ing] Reader program because I like the way they read it out loud.”

Eerie background music began playing, an animated narrator’s voice followed, and the synchronous highlighting started highlighting each word as it was spoken. Every so often Ms. Ayala paused, asking questions such as “So what’s going on” and “So what are some of the things that are upsetting him [Jonas]?” At the end of the chapter, Ms. Ayala asked students about their use of the “Good Reader “strategies. Mateo explained how he was able to “visualize” and how he had “seen, like, all the fights on the field” when the narrator described Jonas observing the other children playing a game of “good guys and bad guys” (Lowry, 1993, p. 133). When Ms. Ayala asked for predictions, a number of students offered their ideas. For example, Victor offered, “He’s [Jonas’s] gonna tell . . . Fiona that he likes her,” and students hypothesized whether or not Fiona would like Jonas back. Students continued listening and following along with the Thinking Reader version of The Giver until the end of the class. As they packed up their bags, Ms. Ayala called out, “Oh, and what do you
guys think? Do you like the guy, the way he does it?” Students responded with a resounding “Yes!”

**Emerging student learning: Students’ reactions to Thinking Reader.** After witnessing students’ engagement on the first day of using *Thinking Reader*, Ms. Ayala and I decided to more directly seek out students’ reactions. Ms. Ayala began each class with a “Do Now,” and we brainstormed how we could use this activity to gain insight into students’ experiences. About one week after launching *Thinking Reader*, Ms. Ayala posted the following “Do Now”: “How did you like using the computer version of *The Giver*? What did you like about it? What didn’t you like about it?” All but one student in the class described a positive experience, and two themes emerged from their responses. First, many of the students commented on the engaging nature of the narrator’s voice. For example, Mateo stated, “Yes i like it because the way he was talking and the way he pernse [pronounced] the words. another thing i like it was Because he was like discribing [describing] the colors of the filds [fields].” Zara explained, “I like it because how it sounds like more action and exiteing [exciting].” Second, many students commented on how *Thinking Reader* helped them to better understand the story. For example, Angelina stated, “I liked the computer vesron [sic] of the giver because it made me understand it to myself because it made me visualize [sic] the story better.” Michael explained, “I liked using the computer version of the Giver it’s easier I think. We should use it more. There’s really nothing I didn’t like about it but it was good.” And Adele stated, “I liked it because we got to listen to it and why because we didn’t have to read it by are self.” Finally, Bianca was the one student who did not like *Thinking Reader*; she described it as “too confusing” and explained, “I just like to read it to myself.”
**Emerging teacher learning: Ms. Ayala’s reactions to Thinking Reader.**

When reflecting on trying *Thinking Reader* in the classroom, Ms. Ayala was pleased that so many students had a positive experience. She was especially struck by Zara’s reaction. Ms. Ayala explained how Zara would become “overwhelmed” just looking at a printed novel. Yet, as described in Zara’s “Do Now” response above, Zara found that *Thinking Reader* gave “more action” and made the story “exciting.” Ms. Ayala described how Zara became “super engaged” and reflected, “I had kids who were the strugglers, like [Zara], who was, like, one of those who would give me a hard time. And she enjoyed [it], and I think it was more of a storytelling way, like the way the person sounds.” Ms. Ayala later hypothesized that she thought Zara connected with the music and the way the narrator “would literally get into character.”

Ms. Ayala also believed this alternative version served to reduce the barriers to comprehension that her students experienced when reading the printed version, and also gave her the freedom to do more during class time. She explained,

> I think they were able to understand it more . . . It also gives me the chance to do something different as opposed to always doing read out louds. I think, in order for us to stay part of, you know, part of the gen ed world, we need to be able to branch out. Not only just read the book, but also do the extra activities. And most of the time, I would just have to limit it only to the reading part of it.

Thus, this *Thinking Reader* experiment was beginning to change Ms. Ayala’s beliefs in two ways. First, Ms. Ayala was beginning to more fully see what can happen to student engagement and understanding when barriers to text are
reduced. Second, Ms. Ayala was beginning to see how accessible formats were key to staying aligned with Mr. Wells’s class and the “gen ed world”; with barriers to comprehension reduced, Ms. Ayala was recognizing how opportunities for “branching out” and engaging in “extra activities” could emerge—opportunities that could potentially support her students to move beyond basic levels of understanding.

**Reflections and ideas for refinements.** As noted above, this experimentation with *Thinking Reader* was unfortunately brief as students were more than halfway through the novel by the time we launched the software. Thus, Ms. Ayala and I were eager to continue to explore alternatives to printed text as we moved forward with our collaboration. Further, Ms. Ayala’s focus on supporting students to use the “Good Reader” strategies while reading in the *Thinking Reader* environment was another reminder of her strong commitment to foundational reading skills, and I was also eager to support her to explore how she might develop these skills among her students in concert with the disciplinary practices that would challenge her students to go deeper into text.

**Addressing a Critical Need, Part II: Breaking Down Barriers to Gifted Hands**

**Our motivation and design.** Given the initial success with an alternative to the printed version of *The Giver*, Ms. Ayala wanted to continue to experiment with alternative formats as the class began reading Ben Carson’s (1996) autobiography *Gifted Hands: The Ben Carson Story* as part of a unit on argumentative writing. Before we even met to brainstorm ways that I could support her, Ms. Ayala had already begun experimenting with audiobook

---

26 This book was selected prior to Dr. Carson announcing his candidacy for presidency.
versions of *Gifted Hands* from Amazon’s audible.com—this time purchasing them in hopes that they might be of higher quality than the free versions that she tried with students in the past. As I walked into her class in early March, she was at the whiteboard, adding to a list of names of students who wanted to download a copy to their iPhones during lunchtime. After class, Ms. Ayala explained to me how she also wanted to purchase a CD format of the novel “just in case, for those kids who don’t have anything to download it on.” We agreed that this would be an important second option, and I offered to use funds from my data collection grant to make the purchase.

During a planning meeting later that day, Ms. Ayala and I discussed other ways that I might offer support during this unit. She was pleased that several students jumped at the chance to try the audiobook when she introduced the option the day before; the prior experience with *Thinking Reader* seemed to have generated an enthusiasm for alternative formats. Ms. Ayala revealed that Zara was “the first one” to sign up, explaining, “Oh, I need it because it’s very hard for me to sit down and read.” Ms. Ayala also described Victor’s excitement: “[He] was like, ‘This is just what I need!’” Ms. Ayala stated with a laugh, “I love when they are like, ‘I totally know who I am as a learner!’”

Yet, Ms. Ayala also expressed her disappointment that not all students were as enthusiastic. Some of the students whom she felt needed an audio version the most due to the difficulties that they typically experienced with accessing text were “the ones who *don’t* want to use it.” Ms. Ayala referred to Bianca, an English Language learner labeled with a language-based disability, and explained how she was not interested in an audio version because she thinks they go “too fast.” As described above, Bianca did not have a positive experience
with *Thinking Reader*, and Ms. Ayala explained how she attempted to encourage Bianca to give the audiobook a try. She told Bianca that the narrator of *Gifted Hands* (Carson himself) is “not a fast reader” and that “it’s more of like a movie way.” Ms. Ayala continued to explain her attempts to persuade Bianca: “I was saying to her, ‘You can pause it and catch up to it . . . And you’re still trying to learn English, and this will help you learn new words in English. And you’re not wasting so much time trying to, like, decode this word.’” Yet, despite this encouragement, Bianca remained skeptical.

Ms. Ayala described another student, Tameka, who was also uninterested in the audio version. Ms. Ayala explained that Tameka’s “listening comprehension is very low and her reading comprehension is low,” and Ms. Ayala felt that having an audio version to accompany the printed text would be helpful. Ms. Ayala explained that she tried to highlight the benefits to Tameka: “I said, ‘Listen, this unit of study, it’s not about yes or no, it’s about yes because . . . you know? You are going to have to tell me reasons why and prove it to me . . .’” Yet, Tameka remained unwilling.

I asked Ms. Ayala if she felt as though students’ disinterest stemmed from the fact that they had faced so many barriers to accessing printed text in the past and that this had caused them to develop a negative orientation toward reading. Ms. Ayala explained, “It’s hard . . . I know they struggle. Their struggles are real . . . I think they see books, and they get scared by it.” Ms. Ayala also revealed how she believed some of her students perceived a stigma associated with the audio version—that the audio version sends the message of “I can’t read very well” and that students felt, “Oh I don’t want to feel like I need to have it in order to understand the reading.” Ms. Ayala expressed the urgency that she felt in terms
of encouraging more students to try the audio versions. She felt strongly that “all will benefit” from the audio versions, and she expressed: “I mean, I just need them to read . . . I would say I’m desperate.”

We used the rest of our planning meeting to discuss ways that we might be able to encourage more students to try audio formats and to reduce this apparent stigma among her students. Ms. Ayala explained her current strategy of “hoping to promote it in class” and discussing questions such as “Hey, when you used it, how did you like it?” She described how she shared her own positive experience of using audio versions and wished that students would do the same. She explained how she hoped the “higher readers” who were already using the audio forms would encourage other students who were more hesitant. She explained, “I’m trying to promote it with the higher readers to, you know, to just say [to the other kids in the class] ‘Oh, it was so cool because all I did was read along,’ or ‘On the train I was listening to it, and then I was able to do my homework.’” Along with these classroom conversations, we also planned to do another “Do Now” aimed at obtaining students’ experiences with using audio versions as opposed to printed text; we hoped that hearing peers’ positive experiences might help to convince other peers who were still reluctant.

Coupled with the audiobooks, Ms. Ayala also expressed a desire to offer more modes of representation. She asked me to help her to look for any online videos that might offer interviews with Carson, and she explained, “There’s the movie that we can watch as well. So there’s a lot of ways to go with this.” Via
email I shared ideas for resources such as the trailer to the movie\(^{27}\) as well as an interview with Carson conducted by a teen who had read the autobiography.\(^{28}\)

Thus, this plan to continue exploring with multiple representations of text drew from a range of UDL access guidelines. Similar to our experimentation with the Thinking Reader version of The Giver, we hoped that the multiple formats of Gifted Hands (a human narrated audiobook or CD and following along with the printed text) would not only serve to increase students’ access to the autobiography but also serve to reduce the threats associated with reading printed text. Relatedly, we hoped that having peers share their experiences using audio versions might reduce any perceived threats or stigmas about the format itself (checkpoints 7.3 “Minimize threats and distractions” and 9.3 “Encourage self-assessment and reflection”). Finally, Ms. Ayala’s desire to incorporate video added to the multiple layers of representation as students would be able to develop an understanding of Gifted Hands through a range of modalities (checkpoint 2.5 “Illustrate through multiple media”). There were numerous other ways in which Ms. Ayala and I could have more fully applied UDL to support students to engage in more challenging kinds of thinking; yet, as noted above in the description of the Thinking Reader experiment, I used this collaboration on Gifted Hands as another way to focus solely on the critical task of reducing barriers and increasing access to text (Appendix EE for a summary of the ways in which UDL were leveraged). As described below, Ms. Ayala and I were also able

\(^{27}\) https://www.youtube.com/watch?v=31kep9XRHeU

\(^{28}\) https://www.youtube.com/watch?v=Xd0jQGSaaN8
to begin initial exploration into how to leverage UDL to engage her students in disciplinary thinking through other aspects of our collaboration.

**Implementation.** I was eager to see how students were experiencing the audio formats of *Gifted Hands* and how Ms. Ayala might incorporate other formats when she launched the first lesson on chapter 1 in mid-March. As I walked into her classroom, I overheard Zara explaining to Ms. Ayala that she discovered an audiobook version of chapter 1 on YouTube and that she found the chapter to be “really emotional.” Zara’s resourcefulness and engagement with the chapter served to pique my interest even more.

The objective for the lesson was posted on the whiteboard: “Identify important details from Chap 1. Watch a clip from Gifted Hands to help identify their own perspectives to answer the question.” And the well-established “Do Now” was listed as: “Identify two important details from Chap 1 of Gifted Hands.” After providing time for the “Do Now,” Ms. Ayala asked students to “tell me the important details” of chapter 1. Zara immediately responded with “Benny’s dad left him”; Mateo explained that “the mom said that his dad did very bad things”; and Michael followed up with, “The dad had another wife and kids.” Zara then added, “They were poor . . . and the mom needed to go to court for the child support.” When Ms. Ayala asked the class if there was anyone else in Benny’s family, several students said, “There’s a brother,” and when Ms. Ayala asked his name, a number of students replied in unison, “Curtis.” Ms. Ayala beamed, “Wow, a lot of people read it! I’m very impressed. I’m happy. Good job!” Ms. Ayala then asked, “I put in the audibles in your phone, and I

---

29 Here is the video that Zara found: https://www.youtube.com/watch?v=QrF5h50tNB8
heard that [Zara] said she just went on YouTube to listen as well. Did it benefit from you listening that way?” Several students nodded yes; Michael stated that he “just read it”; and Mateo explained that he had difficulty getting the audio version to work on his phone. Ms. Ayala reviewed how to use the audiobooks again and reminded students to come during lunch if they needed to download a version.

The second half of the class was focused on a statement posted on the whiteboard: “Who I am is shaped by many influences. For example, family friends, experiences, and the world around me.” She asked students to think about whether they “agreed” or “disagreed” with this statement, and told them they were going to watch a video that might help them to make a decision. She explained, “Today we’re focusing more on writing our thoughts. Thinking about the stuff that we’ve read. How we feel as a person.” Ms. Ayala explained to the class how Zara reflected, “It was very emotional for me. It just makes me sad,” and Ms. Ayala emphasized that she wanted other students to reflect on their responses to the chapter as well. She stated with a smile, “I don’t want this to make you sad, but I want you to have feelings towards it!”

Ms. Ayala then showed the trailer to the movie “Gifted Hands,” a link that I had shared with her earlier in her search for more representations to add to her Gifted Hands lessons. The trailer depicts Ben as a young boy being teased by his peers and the encouragement that he received from his mother to work hard and to get good grades. It then fast-forwards to Ben’s apparent elementary school graduation, and shows a woman, most likely the school’s principal, telling the white students in the class that they should “be ashamed” that they did not do better than “a boy of color” who “has no father in his life” and who has
“tremendous disadvantages.” The trailer concludes showing a look of shock and indignation on Ben’s mother’s face.

As soon as the trailer was over, students expressed confusion over the meaning behind the graduation scene. After re-watching the trailer, Michael offered, “She [the principal figure] said he was a boy of color and he had no father and he came to it with disabilities . . . disadvantages.” Ms. Ayala then asked, “And who should be ashamed?” Victor wondered, “Bullying?” and Michael offered, “That they should have done better than him or something?” Ms. Ayala then clarified,

Yes. That they should have done better than him. Because he is a boy of color. Because he is a boy who has no father. That he is a boy that has many disadvantages. And they should have done much better than him. It’s not that they should have been ashamed of bullying him because the teacher was kind of doing that right there. Isn’t that a horrible thing to say? Vinny then quietly gasped, “Oh my god. So, the teacher was basically saying that they should have done better because they got, like, worser grades than a black kid?” Students laughed uncomfortably as the clarity of the moment surfaced.

Victor then pointed to the paused video and stated, “Look at his mother’s face,” and the class began to reflect about how that statement made her feel.

Ms. Ayala then directed students back to the statement on the board, and students placed their names under “agree” or “disagree.” Students then shared the reasoning behind their decisions. Zara agreed because “you know, when you have a struggle or something happens, or you got nobody, like they [family friends] help you with stuff like that, take care of things,” and Angelina shared, “They [family friends] make me be a better person.” Mateo and Eduardo were
the only two who disagreed, but they explained that they didn’t understand the question. After more discussion, Ms. Ayala then asked students to take ten minutes to respond to the question in their notebooks. The class ended with students explaining whether the principal figure’s comment at the end of the trailer proved to shape Ben “in a good or bad way.” Zara predicted “bad” because “now he’s smarter than other kids now, probably the teacher’s gonna do bad stuff now,” while Bianca predicted “good” because “it will make him believe more.” At the conclusion of class, Ms. Ayala passed out comprehension questions for chapter 1, and asked students, “Try to listen to chapter 2 next. And if you need help, during lunchtime you can come see me and I can help you with the audible part.”

**Exploring student thinking.** In this lesson, the multiple ways in which students were able to engage with chapter 1 and the book’s overarching themes—the paper-based text, an audio version, the trailer, and even Zara’s own discovery of the YouTube video—allowed students to better access Carson’s autobiography. The level of detail that students were able to provide during the summary of chapter 1 was a clear contrast to the level of detail included in past discussions of paper-based texts, as noted by the praise Ms. Ayala offered to the class. Further, this increased comprehension among students allowed Ms. Ayala to spend less time reviewing chapter 1 and more time digging into deeper themes and topics, a positive outcome that she began to see when reflecting on the benefits of Thinking Reader. Instead of spending valuable class time on summarizing the details of the plot, Ms. Ayala was able to focus “on writing our thoughts. Thinking about the stuff that we’ve read. How we feel as a person.” With this freedom, there were glimpses of students moving beyond basic
comprehension and engaging in the disciplinary practices of “reading for meaning” as they began to dig into issues of race and class and to form opinions about the factors that influenced them as individuals.

Unfortunately, the exciting changes that began to unfold through this experimentation with multiple representations of *Gifted Hands* were left as a cliffhanger. PARCC testing began the day after this lesson, and Ms. Ayala was responsible for administering accommodations to all middle school students with disabilities—a task that unexpectedly took more than a month. Ms. Ayala asked students to continue to read *Gifted Hands* via the audiobook or CD version on their own; however, Ms. Ayala held no formal ELA classes to observe during this time, and we were unable to formally solicit students’ reflections through a “Do Now.” Yet, even this one lesson gave Ms. Ayala a glimpse into the kinds of teaching and student thinking that were possible when barriers to text were reduced. And our follow-up meeting revealed that this glimpse, combined with the progress she saw students make independently, was enough to begin to change Ms. Ayala’s practice and beliefs.

*Emerging teacher learning: Continuing to see the importance of reducing barriers.* During our next meeting about a month later, we were able to debrief the lesson as well as students’ experience of reading *Gifted Hands* independently. First, Ms. Ayala reflected on Zara’s experience. She explained how Zara continued to find alternative versions online and how “there was only one chapter that she couldn’t find.” Along with audio versions on YouTube, Ms. Ayala reported that Zara also found resources such as audio versions with embedded pictures from the movie, a timeline, and a story map; Ms. Ayala remarked that Zara “became the researcher” for the class.
As described above, Ms. Ayala had expressed concern for Zara since the beginning of the study. She explained how Zara struggled with reading and “falls through the cracks because . . . she doesn’t have any confidence.” She characterized Zara as “the kid who’s like, ‘I can’t do it,’ and she would shut down. And then it would take us a long time to like crack open her shell and like get her to do it again.” Yet, this lesson seemed to mark a turning point for Zara.

As noted in the opening vignette, Ms. Ayala believed the exposure to accessible versions empowered Zara to find formats that “opened up a lot of doors” for her and allowed her to “fly away.” Ms. Ayala recalled one especially poignant day, reflecting, “. . . I think I was having a really bad day ‘cause she [Zara] came in and was like, ‘Oh look Ms. [A], I found one more thing! And I just hugged her . . . I was like, ‘That’s so good to hear!’”

Second, Ms. Ayala was also pleased to report that Zara successfully encouraged other students in the class to begin using the audiobooks as well. She explained, “[Zara] would go find it and then call [Adele] and then say, ‘Listen I found it.’ And then it’s like half of them already were reading it even though, you know, I was either testing or doing something, they were staying on track with the reading.” As Ms. Ayala had hoped, seeing their peers experience success with an alternative version began to break down some of the hesitancy among students to try the audio as well as some of the stigma attached to this alternative. Ms. Ayala stated,

And the best part was . . . Because she [Zara] was the one who came with this information [the YouTube versions], she got half the kids to do it . . . she got a lot of the kids that were like . . . struggling. [Bianca] totally needs that kind of reading, [Adele], [Tameka]—she got a big chunk of them to
use that information. That was the most amazing part. She was like, “I
gave it—I called [Adele], and then I spoke to [Bianca]—I texted it to her.
And we all did it.” This was without us here! No one was here to help
them. On their own! So I thought that was really cool.

Interestingly, in these reflections, Ms. Ayala’s reference to “that kind of reading”
suggests a changed view of what reading can be—that reading can encompass
multiple formats, not just printed text.

Ms. Ayala then reported that other students started to hunt down other
accessible versions. She explained, “They took that initiative . . . they would
come in and be like, ‘Oh, Ms. [Ayala], I found this really good—for like another
book. These are all the lists of books.’ So they were even helping me to write my
lessons at that point!” Ms. Ayala reflected that she was thrilled that Zara not only
found a format that was accessible to her, but that she was able to take
“initiative” and to assume a “leadership role” to support her peers to do the
same. Ms. Ayala had originally predicted that it would be some of the “higher
readers” who could sway students’ opinions, and Ms. Ayala was pleased that
Zara emerged as the leader. Ms. Ayala reported, “I was [like], ‘See, you can do
this, and you can get everyone else to follow you along! Fabulous!’”

**Reflection and ideas for refinement.** As noted above, Ms. Ayala had
experimented with alternative versions in the years prior to our collaboration.
Yet, Ms. Ayala stated, “I think this study kind of made me look into it more.” In
our final meeting, she explained how she got an Audible membership so that she
could continue exploring audiobooks after our study concluded. She explained
how “all the kids were listening to it” and that she was noticing “a higher rate of
kids reading it [assigned reading] than in the past.” She described our efforts to
provide alternative versions as “the best part” of our collaboration and explained how she wanted to offer students even more options in the future, “so they won’t feel stuck.” Ms. Ayala reflected on how the audiobooks seemed to break down barriers to text but also the barriers between her class and Mr. Wells’s general education ELA class. She explained, “I noticed that it was a success when kids from Mr. [Wells’s] class were like, ‘Hey, can you let me use that account?’ . . . So I mean, it became useful to everyone. So I will definitely continue doing that part.”

Our collaborative efforts to offer multiple representations of The Giver and Gifted Hands supported Ms. Ayala to see the power of applying UDL to reduce barriers to text. Although these efforts took up the bulk of our work, Ms. Ayala and I also had time to begin exploring the heart of this study—the intersection of UDL and disciplinary thinking and the kinds of thinking that can emerge among all students when they are supported to engage in discipline-specific practices and habits. The following section illustrates the work that we did to begin breaking down barriers to disciplinary thinking as well.

**Book Reviews with UDL BookBuilder: Early Experimentation with Reading and Writing “Like Writers”**

Ms. Ayala and I had time to explore the disciplinary themes of reading and writing “like writers” through two different collaborative efforts, and our experience designing, implementing, and reflecting on a Book Review assignment using CAST’s UDL BookBuilder\(^{30}\) is illustrative of the student and

\(^{30}\) As described in Ms. Edwards’s case study, UDL BookBuilder is a free tool created by CAST that allows students and teachers to create their own digital books that include a range of UDL options and supports: text-to-speech; Spanish language translation; a multimedia glossary; images with accessible descriptions; student response areas; and coaches that can be scripted to offer readers background information or some other specific insight.
teacher learning that was generated. This assignment allowed us to explore both Ms. Ayala’s interest in these disciplinary themes as well as her hesitation that disciplinary thinking was too challenging for her students. Unfortunately, the design phase of this assignment occurred amidst snow days, IEP meetings, and February vacation. Thus, our time was cut short, and we were only able to design a relatively simple assignment. Nevertheless, this simple assignment provided us with an opportunity to at least begin to explore how to use the UDL features in BookBuilder as a way to engage Ms. Ayala’s students disciplinary thinking.

Our motivation and design. I first introduced Ms. Ayala to BookBuilder in January of 2015 when she was describing an upcoming writing unit; I suggested that it could offer varied modes of expression to her students. Similar to the reactions of Ms. Edwards and Ms. Oliver, Ms. Ayala was immediately intrigued. She initially wanted to use the tool as the mode of expression for the culminating assignment for The Giver unit: a five-paragraph research paper on a related topic of students’ choosing. It was important to me to follow Ms. Ayala’s lead and work to infuse UDL and disciplinary thinking into upcoming lessons and projects that felt relevant to her; yet, it was challenging for me to think about how we might dig into disciplinary themes with a traditional research paper. We began to explore how to use the coach feature to prompt students’ disciplinary thinking; yet, the following weeks brought an unprecedented amount of snowfall. The many snow days forced Ms. Ayala to end the research paper while students were still in the midst of researching and drafting, and there was no time to incorporate BookBuilder. However, Ms. Ayala remained curious about the tool. Students were currently developing book reviews of The Giver, and she
suggested that students use BookBuilder as the mode of expression for their final product.

For the book review assignment, students were filling out a “Book Review Template” that asked them to consider the following prompts: “1) Introduce the book, 2) Tell about the book, but don’t give away the ending, 3) Tell about your favorite part of the book or make a connection, and 4) Give a recommendation” (Appendix FF). Instead of developing their reviews into a Word document, Ms. Ayala thought that students could use BookBuilder as an alternative, potentially more engaging mode of expression.

Students were already in the midst of completing the “Book Review Templates”; thus, Ms. Ayala and I needed to work quickly to determine how we could use this assignment to experiment with UDL and the disciplinary themes of reading and writing “like writers” that she previously identified. BookBuilder’s unique mode of expression would provide students with an engaging way to express their reviews; yet, I encouraged Ms. Ayala to consider the UDL features that might facilitate students’ disciplinary thinking. As I did with Ms. Edwards and Ms. Oliver, I suggested that the flexibility of the coach offered a potential point of leverage. We decided that students would create their own BookBuilder books, and each page would address each of the four prompts of the “Book Review Template.” Further, on each page, students would script a coach to respond to a prompt designed to encourage them to read The Giver “like a writer” by reflecting on Lowry’s techniques. For example, for the “Introduce the book” prompt, students would create a page with their introduction and also script a coach to explain how Lowry first hooked their interest. We also added a fifth page—“YOU as a writer”—as a way to begin thinking about “writing like a
writer.” This page asked students to reflect on whether or not *The Giver* gave them any ideas for their own writing. Thus, we expanded on the original goals for the book review by leveraging UDL to engage students in more challenging, discipline-specific ways of thinking. Finally, we developed a scaffold to support students’ executive function. As I did with Ms. Edwards and Ms. Oliver, I shared with Ms. Ayala a planning template used by the co-teachers in my pilot study to support students’ in “storyboarding” prior to creating digital books. This scaffold intrigued Ms. Ayala, and we developed a similar “BookBuilder Planning Template” to support students in mapping out the pages of their reviews (Appendix GG).

The design of this BookBuilder assignment leveraged a range of UDL strategies through a discipline-specific lens to encourage students to “read like a writer” as well as to begin thinking about “writing like a writer.” First, the planning template drew from checkpoint 6.2 “Support planning and strategy development” to support students with organizing their pages and engaging in the same organizational process of expert writers. Second, we were intentional about applying UDL to develop the task of scripting the coaches; we leveraged checkpoint 3.2. “Highlight patterns, critical features, big ideas, and relationships” from a disciplinary perspective as students would uncover and reflect on the strategies and “critical features” of Lowry’s writing. And in order to explicitly support this task, we drew from checkpoint 3.3 “Guide information processing, visualization, and manipulation” and embedded prompts and examples into the planning template. Third, to support the task of responding to the fifth “YOU as a writer” page, we drew from checkpoints 6.1 “Guide appropriate goal-setting” and 6.2 “Support planning and strategy development.” We embedded several
prompts to support students to begin thinking about “writing like writers” and to reflect on ideas for their own writing. Finally, we discussed options for access.

In terms of representation, we would project the planning template, read the prompts aloud to students, and encourage students to work together. In terms of expression, students would use BookBuilder on Chrome books in their classroom, and the Chrome books were also available for students to draft their ideas for the “Book Review Template” as well the planning template (See Appendix HH for a summary of how UDL was leveraged).

Since this was one of our first ventures into exploring the intersection of UDL and disciplinary thinking, I played a more active role in the design process and sought to support Ms. Ayala by offering ideas and models. I was surprised and encouraged by her eagerness to experiment with the notions of reading and writing “like writers” given the hesitancy she expressed regarding these themes in earlier meetings. At the same time, I worried that the frenetic pace of designing this assignment did not provide space for Ms. Ayala to voice her concerns. Thankfully, we were able to explore her beliefs, concerns, and shifts in thinking as we reflected on this assignment during a later meeting.

**Implementation.** Just one week after coming up with the new idea, we launched the “additions” to their book review assignment in early March. To my surprise, Ms. Ayala first introduced the assignment on a day that I was not observing—a signal that she felt confident and eager to begin the project. I then facilitated a mini-lesson the next day, sharing an example BookBuilder book with the students and modeling how to create and edit pages. Students took to using the interface right away; after this one mini-lesson, they were working with independence. Although we developed this quick assignment more as a way to
test out possibilities, the following sections illustrate the disciplinary thinking that nonetheless began to emerge among all learners throughout this assignment, and the initial changes in Ms. Ayala’s thinking that began to emerge as well.

**Emerging student thinking: The beginnings of reading and writing “like a writer.”** An analysis of the students’ planning templates, the final BookBuilder books, and the conversations with students as they were engaged in the creation process reveals that this assignment supported Ms. Ayala’s students to begin reading and writing “like writers.” As designed, the use of the coach proved to be a useful way to prompt students to reflect on the specific strategies and techniques that Lowery used in her novel. The following examples of student work are representative of the reflection that students were able to engage in while developing their BookBuilder books.

In her book review, Bianca’s use of the coach shows her developing ability to “read like a writer.” For example, on her “Tell about the book page” (Figure 17) she wrote, “The perfect world is about a world that has a lot of rules but the bad thing about that perfect world is that they don’t have feelings and they don’t see the colors.” On this page, students were asked to script the coach to describe some of the strategies that Lowry used to sustain their interest. Bianca scripted her coach to say: “She writes a lot of words that describe what Jonas received from the Giver and she used suspense.” On her recommendation page, Bianca wrote, “I recommend this book to i person that likes to read intersan [interesting] book.” On this page, students were asked to script the coach to reflect on Lowry’s intended audience. Bianca did not address this prompt but did script her coach to again offer insight into her perception of Lowry’s strategies: “i like how she used a lot of world [words] that get [you] in to the
book and you can’t stop read it cuz that world [words] she used are so suspense.” Through these coaches, Bianca’s engagement in disciplinary thinking is revealed: she is considering Lowry’s use of description and suspense and the impact that these strategies had on her as a reader.

Figure 17. Bianca’s “Tell about the book” BookBuilder page.

In his book review, Michael also showed signs of beginning to read “like a writer.” For example, on his “Tell about the book” page, he wrote, “Jones is a boy in a perfect world and at the community thing he got skip. After all the 12s went they said ‘oh we have skip u’ than they said sorry.” On this page, students were asked to script the coach to describe the ways that Lowry sought to sustain their interest. On this page, Michael scripted the coach to say, “strategies yes i liked what she did with the dreams and just about the whole book, I liked when Jones went down the sled in the dream and that’s some strategies.” Further, on his “Tell about your favorite part of the book or make a connection” page (Figure
18), he wrote, “My favorite part of the book is when the Giver and Jones meet for the first time.” On this page, students were asked to script the coach to describe why this was their favorite part, and Michael scripted two coaches: “I could see it in my head, I make a connection to the book, but I saw things in my head like the books, the bed and the Giver in it” and “I could see in my head all the things in the room and I could see what the Giver looks like.” Through his coaches, Michael’s initial engagement with “reading like a writer” is evident: he is reflecting on Lowry’s use of imagery when describing the dreams that were passed on to Jonas in his role as “The Receiver” of the community’s memories, and he is contemplating the impact that this imagery had on him as a reader when he reveals that he was able to “see things in my head.”

Figure 18. Michael’s “Tell about your favorite part of the book” BookBuilder page.
In his book review, Vinny also showed signs of beginning to “read like a writer.” For example, on his “Introduce the book” page (Figure 19), he wrote, “The Giver is a book about a kid named Jonas who has the special power to see beyond, and he is chosen to be the receiver of memory, which is when The ‘Giver’ gives Jonas memories of certain things like color.” On this page, students were asked to script the coach to describe how Lowry sustained their interest, and Vinny scripted the coach to say, “She used suspense, like where do people go elsewhere to, which made me want to read the book even more.” Interestingly, the process of scripting the coaches also supported Vinny to revise his own work. When listening to one of his coaches, he noticed that some of his words were misspelled because the coach was mispronouncing them (e.g. “recievier” for “receiver” and “certian” for “certain”). Hearing these mispronunciations prompted Vinny to find the correct spelling and revealed how the task of scripting the coach supported him in the editing process as well.
Finally, students’ responses to the “YOU as a writer” page also revealed evidence of students beginning to think about “writing like writers.” For example, several students explained how they wanted to experiment with Lowry’s use of imagery. Adele explained, “I will use imagery so when people read my story they can see what I am talking about and what it looks like.” And Mateo responded, “Yes I would like to use imagery because I like to see images in my mind.” Other students described how they wanted to try out Lowry’s use of suspense. Bianca stated, “The Giver did give me ideas to try my on writing because i think how she made the book so introsten [interesting] if all that quuestin [questions] and then in the end of the book she gave all the answer[s], I
think that makes that book more interesting. Vinny responded, “I wrote a comic once after I read the book and I used suspense in the comic.”

**Emerging teacher learning: Seeing the potential of UDL and new potential in her students.** Exploring this evidence of students beginning to read and write “like writers” caused Ms. Ayala to make some small shifts in her thinking. As described above, she wondered if her students were ready to engage in disciplinary thinking given that all of her students were students labeled with language-based learning disabilities or as “struggling readers.” Yet, this project provided initial evidence to Ms. Ayala that her students were capable of engaging in the practices of the disciplines. She shared what she characterized as a surprising conversation with Ramon, a student whom she described as often attempting “to become invisible within the class.” She stated,

So, I mean—from the weirdest kids—I think [Ramon] was the one . . . who said to me, “You know what, I really like the way she described things because I was able to see it. Like, I knew when he [Jonas] was getting a memory and if it was a good or bad memory.” And . . . he said, “I wish I could write like that.” So it was something that they reflected on, and it was really good to hear . . . So, even though they’re not there yet, but, they’re thinking about it. And that’s what we want, is for that to start happening.

Ms. Ayala was also pleased to see how the “YOU as a writer” question seemed to spark not only interesting responses in students’ BookBuilder books, but interesting class discussion as well. She reflected,

A lot of the kids were very reflective on it. They were like, “You know, what were some things that we found that she did? What did she create?
Would you want to be able to do that?” And a lot of the kids were like, “Yeah, I like the way she described the setting and when he [Jonas] was in a different place and things that were happening to him” . . . So we had a good conversation about that last question.

Further, this assignment also supported Ms. Ayala to begin to see how developing foundational reading skills and engaging students in disciplinary thinking were not at odds. When reviewing students’ BookBuilder reviews, Ms. Ayala picked up on how many students’ identified Lowry’s strategy of “visualize” in their coaches. This led Ms. Ayala to reflect on how many of the strategies that Lowry used—strategies such as imagery and description that students wrote about in their book reviews—were the very same reading strategies that she hoped to develop among her students. She reflected that Lowry’s strategies were “their reading strategies” and that now her students can “see how they can use them with their writing.” She continued, “So I think, when they visualize the words that she’s [Lowry’s] using, she’s using describing words to create that image. It’s a good thing. Because I want them to transfer that over into their writing.” In previous meetings, Ms. Ayala characterized student learning in a linear way: that her students were not fully ready to move on to disciplinary thinking because they did not yet have a mastery of reading comprehension. Yet, in these reflections, Ms. Ayala is beginning to see how engaging in reading and writing “like writers” can serve to reinforce the reading strategies that she finds so important.

When reflecting on the BookBuilder assignment as a whole, Ms. Ayala expressed the progress as well as the challenge of engaging her students in reading and writing “like writers.” It was in these moments that Ms. Ayala’s
initial hesitation with regard to engaging her students in disciplinary thinking resurfaced. She expressed,

I think that they are closer to where I want them to be right now. But, I mean, they’re not there yet. I think a lot of the times, because reading is so difficult for them, I think it’s very challenging for them. But, then when we have those discussions, and they were like, ‘Yeah, I did like that,’’ then they’re able to see that [ideas to try in their own writing].

In this reflection, Ms. Ayala still seems to be wrestling with the expectations that she has for her students. Her characterization of students “not being there yet” and her emphasis on reading being “so difficult” for students harkens back to the linear orientation toward learning that she expressed in our initial meetings about “wanting to work on” reading and writing “like writers” but feeling like there is “still stuff missing before I can just throw them in there.” This linear approach is common among individuals who work with students with disabilities and will be explored in the following cross-case analysis chapter. Yet, also inherent in this comment is the realization that her students did in fact begin to engage in the kind of thinking that she feared was too challenging. And Ms. Ayala’s recognition of the ways reading strategies and reading and writing “like writers” can reinforce one another is also a step forward. Thus, although the evidence of student thinking gathered from the BookBuilder assignment did not fundamentally alter Ms. Ayala’s beliefs, it did seem to support her to begin to realize that more sophisticated kinds of thinking were possible among her students.

**Reflections and ideas for the future.** When reflecting on the strengths and weaknesses of the BookBuilder project, Ms. Ayala also expressed new insights.
First, Ms. Ayala saw evidence of the importance of applying the UDL principle “Provide multiple means of engagement” to motivate learners. Ms. Ayala referred to students’ level of engagement as they worked in BookBuilder and stated, “Just watching them, I know they liked it. They [were] having fun.” She explained how students “were really into” the text-to-speech option and the coaches, and that students “kind of dig” these functions. Ms. Ayala reflected on the importance of bringing in engaging tools, especially with her students who have struggled with reading. She stated, “You have to, like, spruce up things, vary things around. Because I feel like in the gen ed world, they can do things . . . with repetition, the same kind of order, [and] the kids kind of find their own joy in it. With these kids, you have to promote the happiness in it.” Although Ms. Ayala continued to differentiate “her kids” from the “gen ed world,” the assignment nonetheless seemed to have reaffirmed for her the important role engagement plays in learning.

Ms. Ayala’s reflections about the coach and the prompts embedded into the “Book Review Planning Template” also resonated with this focus on the importance of engagement. She explained how some students “got stuck” on prompts that assumed their engagement with The Giver. She explained, “When I said, ‘How did you stay engaged in the book? Like what [made you] continue?’ some of the kids don’t like to read. So, they we’re like, ‘Oh, because I had to read it.’” Ms. Ayala reported that she reframed some of the prompts and her own questions when facilitating discussion to acknowledge that not all her students enjoyed The Giver or even reading in general. She revealed that she would ask, “Even though you didn’t want to [read it], what are some things that you liked about it?” She explained, “So I had to word it in that way, because they kind of
see that, like, literally, like, we just did it because it was assigned.” These reflections again underscored Ms. Ayala’s growing awareness of supporting her students’ engagement with text.

Ms. Ayala also reflected how she wished we could have had more time to push students’ thinking even more. She reflected, “I think it made them think more about what was happening in the story . . . so I think we did push them to the next level. [But] I would have liked . . . to do more, more into that. Give them more time and be able to support them throughout it.” Ms. Ayala felt as though the hectic schedule and the many snow days made the project “stay kind of limited.” She revealed, “I think we got them to think outside of just, like, ‘Yes I like it, no I don’t like it.’ They were able to give me details and kind of support that with what the author did to create that. So I think, could have done better, but it did make them think a little bit more.” Ms. Ayala also wished that there had been more time to allow students to share their reviews with one another and to engage in peer editing. She explained how “the discussion piece could have benefitted them” and allowed them to “fix” their books and “build another one.” Further, it is worth noting that while this assignment encouraged students to think about “writing like a writer”—to consider the strategies and techniques that they might like to try out—it did not offer students the opportunity to actually experiment with these strategies and techniques in their own writing. Additional time might have also allowed us to support students to more fully delve into this disciplinary theme.

These reflections on the strengths and weaknesses of the BookBuilder assignment also show signs of Ms. Ayala’s growth. The assignment was a reminder to her of the important role that engagement played in students’
learning, and her wish that we could have supported students “to do more” is a signal that she was no longer thinking of engaging in reading and writing “like writers” as beyond students’ reach.

Concluding Thoughts

As Ms. Ayala and I continue our final interview on that hot July morning, our voices float from her classroom into the empty hallways; our reflections on the different ideas that we tried out over the past school year and the student learning that emerged bring life back to the unusual stillness of Windsor. After reflecting on the success of our efforts to provide accessible versions of texts, I guide our conversation into exploring our attempts to engage her students in disciplinary thinking. A knot forms in my stomach as we shift to this topic, an aspect of our collaboration that pushed against some of Ms. Ayala’s expectations and beliefs with regard to student learning. I remind Ms. Ayala of the hesitation that she expressed in our initial interview and meetings and her concern that the disciplinary themes of reading and writing “like writers” might be too challenging for her students. I ask her what she thinks about this initial hesitation now.

Ms. Ayala does not answer my question directly; instead, to my surprise, she launches into describing some of the ways that she continued to explore these themes with her students after our study concluded in April. She explains, “After the April break . . . we were just doing author’s craft and spent the rest of—most of—the school year on that part.” She describes a poetry unit as well as a five-paragraph essay assignment that drew from the notions of reading and writing “like writers.” She explains how they focused on “the way the author would write” and that “a lot of the kids were good at that.” Yet, she reveals that incorporating authors’ strategies into their own writing caused students to “stall a little bit.” In an attempt to better support students with the five-paragraph essay
assignment, she explains how she decided to focus just on the introductory paragraph. She states that she told students, “We’re going to do small parts . . . These are all the authors we read. Let’s read little snippets . . . And then . . . ‘as a writer’ . . . you are going to now try it on your own. Just in your intro.” Ms. Ayala then reflects on students’ success with these introductions and reveals,

I felt, yes, it wasn’t a five-paragraph essay, but I think that first paragraph and giving that background knowledge and that story that they can tell, they did really well with that. I cannot think of any student who struggled with that . . . And the kids kind of took off . . . So I mean, we were not completely there, but we did touch down on maybe the small parts.

As Ms. Ayala describes this continued experimentation to me, I scribble excitedly next to the disciplinary thinking prompt on the interview protocol, “Tried this on own!”

When Ms. Ayala agreed to participate in this study back in April of 2014, she had little background knowledge of the notions of UDL and disciplinary thinking in ELA. After observing her classroom and exploring her goals and beliefs, Ms. Ayala and I focused our collaboration on increasing students’ access to text and—somewhat cautiously on Ms. Ayala’s part—engaging her students in the themes of reading and writing “like writers.” Our efforts produced success in applying UDL to reduce the barriers in her classroom; yet, our progress in supporting Ms. Ayala to see her students’ potential to engage in disciplinary thinking was not as dramatic, given our limited time and the complex work of changing understandings and beliefs. Despite these challenges, Ms. Ayala’s report of her practice and her reflections on the “small parts” of progress that her students were able to make after our collaborative phase concluded revealed she was inspired to continue to experiment with disciplinary themes in her
classroom. Thus, this study seemed to leave Ms. Ayala with a new dedication to finding various accessible formats to “open doors” for students as well as a new motivation to experiment with “opening doors” to the rich practices and habits of mind of the discipline as well.
Chapter 6: Looking Across the Teachers’ Stories

Thus far, this dissertation has shared the stories of my collaboration with three individual teachers—Ms. Edwards, Ms. Oliver, and Ms. Ayala—to shed light on the overarching research question: *For three teachers who are new to the framework of UDL, how, and in what ways, can a co-developed intervention support them to apply UDL to encourage disciplinary thinking in ELA among diverse learners?*

Each of the teachers’ case studies offers a detailed window into our work together and explores the kinds of teacher learning and student disciplinary thinking that did and did not emerge, as well as the successes and challenges that we encountered along the way.

Analyzing these teachers’ journeys individually is useful as it uncovers “the particularity and complexity” (Stake, 1995, p. xi) of each teacher’s personal learning trajectory; yet, this analysis can also be limiting given the specificity of each case study. Additional insights can be uncovered by looking across “the particularity and complexity” of Ms. Edwards, Ms. Oliver, and Ms. Ayala’s stories to examine their learning trajectories in relation to one another as well as in relation to relevant literature and theories of teacher change. Thus, this chapter uses a cross-case analytic approach (Stake, 2013) to identify the factors and conditions that contributed to the teachers’ growth in terms of leveraging UDL for discipline-specific aims. Drawing from Coburn’s (2004) typology of teachers’ responses to institutional pressures as a frame, I explore why the teachers’ practice and beliefs with regard to UDL and disciplinary thinking did and did not evolve over the course of our work together. While this typology is valuable in that it uncovers the complex role that preexisting “worldviews and assumptions” (p. 224) play in teacher learning, I argue that its usefulness is
limited with regard to exploring the specific factors of the interventions that aimed to support teacher change. Thus, in the second section of this chapter, I build on Coburn’s work to explore the particular features of the collaborative interventions that led each teacher to new understandings about her practice and her students. Drawing from the UDL framework itself, I offer a fine-grained look at the mechanisms that were most useful in supporting Ms. Edwards, Ms. Oliver, and Ms. Ayala. As described in Chapter 1, the existing body of research on professional learning has done much to describe the features that support teacher growth—features such as being sustained, contextualized, collaborative, subject-based, etc. Yet my findings reveal that this current literature does not fully attend to the interplay between these features and how teachers’ thinking develops over time. This discussion of the mechanisms that supported Ms. Edwards, Ms. Oliver, and Ms. Ayala uncovers the process by which the specific features of our collaborative intervention facilitated teacher learning and serves to extend existing conversations surrounding teacher change.

**Exploring the Evolution of Teachers’ Practice and Beliefs**

Ms. Edwards, Ms. Oliver, and Ms. Ayala came into this study relatively unfamiliar with UDL or notions of disciplinary thinking. While all three teachers developed emerging commitments to these frameworks by the end of our collaboration, they developed these commitments to varying degrees. Of all the teachers, Ms. Edwards took up the work of this study most readily. From the outset of our collaborative intervention, she began engaging with disciplinary themes and exploring how we might apply UDL to expand learning opportunities in her classroom. While she had some initial reservations with
regard to extending options for expression to all of her learners, our collaborative intervention supported her to develop a deep commitment to the notion of disciplinary thinking and to begin to see UDL as a framework for all learners.

Ms. Oliver expressed more hesitation with the notion of disciplinary thinking and UDL, wondering if her “lower students” would be ready to engage in the practices of the discipline and questioning the value of offering options for student expression. While Ms. Oliver did not develop as strong a commitment to disciplinary thinking, our collaboration led her to new ways of thinking about the capabilities of her students and the importance of UDL in reducing barriers to student expression. Finally, like Ms. Oliver, Ms. Ayala also expressed hesitation about engaging her students in disciplinary thinking, and this hesitation was more pronounced given her strong commitment to developing her students’ basic reading comprehension skills. While Ms. Ayala made strides in terms of breaking down barriers to text, her ability to break down barriers to disciplinary thinking was only just beginning.

This section explores the factors that influenced these varying responses to our collaboration. Building from Coburn’s (2004) typology of teacher responses to institutional pressures and the associated factors that influence these responses, I offer a window into the constellation of contexts and preexisting beliefs that contributed to the successes, tensions, and challenges of my work with Ms. Edwards, Ms. Oliver, and Ms. Ayala.

---

31 Coburn’s use of the term “institutional pressures”—“pressures from the environment” / “messages from the environment”—seems broad enough that the collaborative interventions designed to support teachers to apply UDL in ways that encourage disciplinary thinking can fall under this umbrella term.
Coburn’s typology of teachers’ responses to institutional pressures.

Coburn (2004)—as well as other scholars who study teacher learning (Cohen, 1990; Cohen & Ball, 1990; Spillane, 1999)—emphasizes how teachers react and respond to new approaches and reforms based on their preexisting practices and beliefs. In her study of teachers’ responses to a novel approach to reading instruction in California, Coburn reveals how “teachers drew on their tacit worldviews and assumptions to construct their understanding of the content and implications of messages” (p. 224). As I describe in Chapter 1, she outlines the following five teacher responses to instructional pressures: 1) rejection, when teachers reject a pressure; 2) decoupling/symbolic response, when teachers respond symbolically as opposed to making fundamental changes to practice; 3) parallel structures, when teachers respond by creating a “parallel approach” that corresponds with the pressure while still maintaining the existing approach; 4) assimilation, when teachers alter the message to align with preexisting beliefs; and 5) accommodation, when teachers respond by fundamentally shifting their practice and beliefs (pp. 223-225). Further, Coburn outlines four factors that influence these responses: 1) the “degree of congruence” between the teachers’ preexisting beliefs and practice and the institutional pressure; 2) the “degree of intensity,” in terms of teachers’ engagement “with a message in sustained, iterative ways” (p. 229); 3) the “degree of pervasiveness,” in terms of teachers’ connection to “particular sets of pressures or messages in multiple, interlocking, and overlapping ways” (p. 231) and 4) the “degree of voluntariness,” in terms of the teachers’ role in choosing to make a change to their practice (pp. 229-232). Exploring Ms. Edwards, Ms. Oliver, and Ms. Ayala’s responses to the “messages” of our collaborative interventions through these frames offers new
insight into these teachers’ journeys. Specifically, the lenses of assimilation and accommodation provide a more complex understanding as to why aspects of their practice and beliefs did and did not evolve.

Ms. Edwards, Ms. Oliver, and Ms. Ayala through the lens of assimilation. Coburn reveals how the teachers in her study “often interpreted and enacted messages in ways that transformed them to fit their underlying assumptions” (p. 224). She draws from theories of cognition and learning, to characterize this response as “assimilation” given that teachers “assimilated new knowledge or experiences into existing schemas or ways of doing things” (p. 224). Like the teachers in Coburn’s study, Ms. Edwards, Ms. Oliver, and Ms. Ayala saw and enacted the goals of our intervention through their own “tacit worldviews and assumptions” and began assimilating specific aspects of our collaborative work.

Assimilating disciplinary thinking. Ms. Edwards’s response to the notion of disciplinary thinking aligns most with “assimilating.” Interestingly, while Coburn suggests that an assimilation response can lead teachers “to understand messages in ways that differed, at times substantially, from what was intended by the policy maker, publisher, or reformer” (p. 224), Ms. Edwards’s assimilation of disciplinary thinking proved quite productive. Ms. Edwards’s assimilation process supported her to develop a strong commitment to engaging her students in the practices and habits of mind of ELA. As described in Chapter 3, Ms. Edwards began this study with a strong background in ELA. In the school where she taught prior to coming to Windsor, she served on the school’s Instructional Leadership Team as the “lead literacy teacher,” a role that afforded her “a lot of extra time” with the school’s literacy coach and the opportunity to take ELA
professional development courses. And this strong background in ELA was evidenced throughout the baseline observational period. During this time, I observed numerous lessons that aligned with disciplinary thinking, particularly with the themes of reading and writing “like writers” as Ms. Edwards supported students to identify authors’ strategies in model texts and to apply these strategies to their own writing. Thus, there was a high “degree of congruence” between the disciplinary goals of this study and the goals that Ms. Edwards had for her students; the seeds of disciplinary thinking were already present in Ms. Edwards’s preexisting practice and beliefs, and our collaboration allowed us to nurture these seeds.

Given this high degree of congruence, Ms. Edwards was poised to jump into our collaborative endeavor. As described in her case study, she began experimenting with disciplinary language from the outset, integrating the themes of reading and writing “like a writer” into objectives and conversations with students. Further, another clear sign of her assimilation response was the fact that she coined her own phrase of “reading and writing like readers,” a theme that was not included among the five themes of disciplinary thinking that make up the conceptual framework for this study but that further aligned with Ms. Edwards’s ELA goals for her students. Toward the end of our collaboration Ms. Edwards’ reflected on her developing commitment to disciplinary thinking and the themes themselves and wondered, “I think back and I think, how did I ever teach writing without that? Without that vocabulary?” Further, as revealed in the concluding vignette of her case study, Ms. Edwards reflected:

It’s [the notion of disciplinary thinking] changed my practice, in just using that language. Like, we talk about ourselves as readers and as writers all
the time . . . and that is something that I’ve really never—that’s language
I’ve never used with my students before this year.

Interestingly, Ms. Edwards’s reflection on “vocabulary” and “language” in these insights provides more evidence as to her assimilation process. Due to the high degree of congruence between the disciplinary themes of this study and Ms. Edwards’s own ELA goals for her students, our collaboration did not fundamentally shift her practice or her conceptualization of her ELA goals. Instead, our collaboration helped to sharpen and clarify her goals by giving her the “vocabulary” and the “language” to make what she was already striving to do in her ELA classroom more powerful and precise. This finding resonates with Coburn’s finding that

. . . although the teachers were more likely to respond to messages with a higher degree of congruence by making changes in their practice, they were also more likely to incorporate the messages by assimilating them into their preexisting practice, rather than by making more substantive adjustments (p. 227).

Thus, while Coburn found that an assimilation response can oftentimes lead teachers to a significantly different conception of the intended message, the findings from this study reveal that Ms. Edwards’s assimilation of the disciplinary notions of this study was quite productive. Interestingly, her assimilation of UDL was not as productive, and this response will be described in the following section.

In contrast, both Ms. Oliver and Ms. Ayala came to this study with very different sets of preexisting beliefs and experiences compared to those of Ms. Edwards. While Ms. Edwards was well-positioned with her ELA background,
Ms. Oliver did not bring extensive ELA experience to our study. In our first interview, she admitted feeling somewhat anxious about her new 5th grade teaching position at Windsor revealing, “I never really stood in front of the room and been the lead teacher for ELA”; she voiced her relief that her colleague Ms. Lynch was so willing to offer support. In her final interview, Ms. Oliver further underscored her limited background in ELA and her initial unfamiliarity with the notion of disciplinary thinking in ELA when she explained,

I taught sub-separate for years before this. And I taught inclusion in somebody else’s ELA class, and the inclusion model looked very different. So, these are just even words that I hadn’t thought of . . . the first year I taught ELA was when I was on maternity leave. So these are just things that were completely new to me . . .

Ms. Ayala’s preexisting practice and beliefs with regard to ELA also differed when compared to those of Ms. Edwards. In our first interview, Ms. Ayala expressed goals that did not align with the notion of disciplinary thinking in ELA. As revealed in her case study, when asked about the particular habits of mind that she hoped to support her students to develop, Ms. Ayala explained, “When I think of habits of mind, I think for my students—if you speak to [Mr. Wells], he has possibly another—because my kids, they struggle with reading so much, so for me, it’s just to be able to understand what you are reading.” This commitment to developing her students’ basic reading and comprehension skills was also evidenced throughout the baseline observations. Ms. Ayala’s focus on reading strategies supported students to comprehend text; yet, students were not supported to delve into the discipline-specific kind of reading that moves beyond this basic level of comprehension and encourages students to engage with text at
a deeper level. Thus, unlike Ms. Edwards, there was not a high degree of congruence between Ms. Oliver and Ms. Ayala’s preexisting ELA practice and beliefs and the disciplinary goals of this study.

This lower “degree of congruence” led Ms. Oliver and Ms. Ayala to assimilate disciplinary thinking into their practice but did not result in the deep commitment to this notion expressed and evidenced by Ms. Edwards. This finding aligns with Coburn’s assertion that “the greater the congruence of institutional pressures with the teachers’ preexisting beliefs and practices, the more likely the teachers were to incorporate new approaches and influences into their classroom practice in some manner” (p. 227). As described in Chapter 4, Ms. Oliver began interpreting the notion of disciplinary thinking and finding a place for it in her classroom. For example, in the early Out of the Dust lessons, Ms. Oliver supported students to analyze the poems for main idea and evidence; yet, over the course of our work together, Ms. Oliver began prompting her students to consider “why” the poet chose to use particular poetic devices and the impact these choices had on the reader. Interestingly, however, Ms. Oliver explained that her decision to introduce this consistent prompting was based on her beliefs and practices associated with standardized testing. She attributed her newfound emphasis on “reading like a writer” and on understanding the poet’s intentionality not to our collaborative intervention, but to a data meeting in which she and her colleagues analyzed student test scores. She stated, “We decided through our [standardized test] scores that they [the students] weren’t getting it, they weren’t getting the author questions.” She went on to explain that the timing of implementing one of our co-designs to support students to “read like a writer” —the figurative language column—was “right along the same time
we had this data meeting” and that her focus on the poet’s choices stemmed from the need to develop a plan to address students’ test scores. Ms. Oliver also communicated this message to students—that this focus on “why” and the poet’s intentionality was “something we struggled with in our testing.” Thus, in these moments, Ms. Oliver was interpreting and enacting disciplinary thinking through the lenses of her own beliefs and motivation to increase students’ test scores as well as through the accountability pressures of her environment—a finding that underscores the indirect role external pressures can play in creating the conditions for teacher growth.

Ms. Ayala also showed signs of assimilating disciplinary thinking, but again, not as enthusiastically as Ms. Edwards. As illustrated in Chapter 5, our experimentation with the BookBuilder project prompted Ms. Ayala to reflect on how many of the strategies that Lowry used in The Giver—strategies to help the reader visualize, for example—aligned with the foundational reading strategies that she hoped to develop among her students. She reflected that Lowry’s strategies were “their reading strategies” and that now her students can “see how they can use them with their writing.” She continued, “So I think, when they visualize the words that she’s [Lowry’s] using, she’s using describing words to create that image. It’s a good thing. Because I want them to transfer that over into their writing.” These comments reflect how Ms. Ayala began to interpret disciplinary thinking through her preexisting practices and beliefs that placed such a strong emphasis on reading strategies. This process of assimilation supported her to begin to recognize that disciplinary thinking was not at odds with her goal of developing her students’ comprehension.
**Assimilating UDL.** Ms. Edwards also seemed to assimilate the notion of UDL into her own “tacit assumptions and worldviews”; yet, because there was not as high a degree of congruence between her existing practice and the UDL framework, this assimilation response was not as productive as the way she interpreted disciplinary thinking. As described in Chapter 3, Ms. Edwards began the study with a strong awareness of students’ varying strengths, weaknesses, and abilities. Throughout the initial interview and baseline observations, she revealed that she attempted to address this student diversity through a differentiated approach, customizing learning opportunities for individual students. However, this approach differs from a UDL approach that suggests embedding a range of options and supports in the curricula for all learners. As our collaborative intervention unfolded, Ms. Edwards came to realize the benefit of UDL for all learners. Our BookBuilder project was a particularly pivotal moment in developing this realization: she saw how the coach served as a “friendly reminder” to her “reluctant writers” to engage in disciplinary practices independently and also served as a way to further challenge “excellent writers” such as Marco. Yet, when reflecting in her final interview, a combination of this new understanding as well as her preexisting differentiated approach surfaced. Ms. Edwards reflected that the study helped her to see that UDL is “not just for the kids that I would normally differentiate tasks for, it’s for everyone . . . it’s definitely opened up my eyes to all the other kids in the classroom.” She continued, “I will say, like, for me, I feel like it’s just a deeper differentiation.” And, interestingly, she then commented to me, “Is that—like, I hope that’s not offensive for you to hear?” In these reflections, Ms. Edwards’ understanding of UDL is assimilated into her preexisting practice of differentiating; she is thinking
about UDL for all learners but continues to use the frame of “differentiation” to describe its benefits. Her aside to me—“I hope that’s not offensive for you to hear”—is particularly interesting to analyze through the lens of assimilation. In this moment, it is almost as if Ms. Edwards is aware of her process of assimilating UDL into her preexisting beliefs and characterizing UDL as something that is not particularly novel. Her interpretation of UDL through this “differentiation” lens and her sense that this interpretation may differ from my own resonates with the interpretations of other teachers with whom I have collaborated in the past. Teachers who are new to UDL oftentimes have questions regarding the similarities and differences between a UDL and a differentiated approach and wonder how, if at all, the two are distinct (CAST, 2013). As described in Chapter 1, UDL emphasizes the importance of designing instruction with a range of embedded options and scaffolds from the very beginning of the lesson planning process (National Center on UDL, 2015), while Differentiated Instruction (DI) emphasizes the importance of making on-going, personalized adjustments according to students’ individual needs (Tomlinson, 1999). Ms. Edwards’s interpretation suggests that she, like many other teachers, is still grappling with this distinction, and is illustrative of the way that she is assimilating UDL into the differentiated approach that she used prior to the start of our collaboration.

In contrast, the high degree of congruence between Ms. Ayala’s preexisting beliefs and UDL poised her to readily take up notions of breaking down barriers to text. As described in Chapter 5, the goal of providing students with accessible versions of text was not new to Ms. Ayala: she described obtaining digital formats through BookShare, Kurzweil, and Amazon’s
audible.com in previous years. This prior experience combined with the frustration of obtaining accessible formats that she was experiencing as our study began positioned her to embrace our collaborative efforts to increase access to text. Thus, although our experimentations with the Thinking Reader version of *The Giver* and the audio versions of *Gifted Hands* were a successful aspect of our work together—an aspect that Ms. Ayala considered “the best part”—this was not an aspect of our collaboration that caused Ms. Ayala to radically change her practices or beliefs. Instead, this work gave Ms. Ayala a more diverse range of tools and resources from which to draw and further emphasized the critical importance of providing students with accessible versions. Thus, as with Ms. Edwards’s experience assimilating disciplinary thinking, the high degree of congruence supported Ms. Ayala to further develop her repertoire with regard to multiple means of representation but did not lead to any kind of fundamental shifts.

In sum, applying Coburn’s notion of assimilation to the teachers’ experiences begins to reveal why the teachers did and did not make changes to their beliefs and practices and underscores the important role that congruence played in the teachers’ journeys. Yet, missing from this analysis is an understanding of how the interventions themselves supported the teachers to begin to grow and change. In the second section of this chapter, I build off of Coburn’s typology to identify specific features and processes of our collaborations that supported the teachers’ growth.

**Ms. Oliver and Ms. Ayala through the lens of accommodation.** In Coburn’s study, a small number of teachers responded to the new approach to reading instruction “in ways that caused them [teachers] to restructure their
fundamental assumptions about the nature of reading instruction or students’ learning . . .” (p. 225). Again drawing from theories of cognition and learning, she characterizes this response as “accommodation” as teachers “transformed their preexisting knowledge structures to accommodate new information or experiences” (p. 225). Coburn notes how this response is rare, given the time and support needed to make such radical alterations to beliefs and practice. Yet, there were moments when Ms. Oliver and Ms. Ayala seemed to be accommodating aspects of this study. These moments may not be fully representative of accommodation as defined by Coburn, but certainly show emerging signs of this response.

*Accommodating beliefs of students’ capabilities to engage in disciplinary thinking.* As described in Chapters 4 and 5, there was not a high “degree of congruence” between Ms. Oliver and Ms. Ayala’s preexisting beliefs about the capabilities of students with disabilities and the beliefs about the capabilities of students with disabilities that undergird this study. In contrast to Ms. Edwards, Ms. Oliver and Ms. Ayala expressed initial hesitation with regard to disciplinary thinking, as exhibited by the questions they had about their students’ readiness to engage in this kind of sophisticated cognitive work. Interestingly, both Ms. Oliver and Ms. Ayala interpreted the resource that I had developed—a two-column table that listed the five themes on one side and a description of each theme on the other (Appendix U)—as implying a hierarchy to the disciplinary themes. Ms. Oliver wondered,

*Because I think if you even go down [down the two column table starting with “Identity as a reader” and ending with “Write like a writer”], you’d have to be here [“Identity as a reader”] before you could be here [“Write*
like a writer”]. If you were connecting reading and writing or writing about reading, wouldn’t you have to first be able to read it? And then “identify as a writer” about that? . . . but this . . . I don’t know, I just thought—in thinking of those lower kids, like, where do they have to start to get to where they need to be?

Ms. Ayala also expressed hesitation when looking at the resource and stated, “So, I mean, definitely I want to work on the last two [reading like a writer, writing like a writer], but I feel like there’s still stuff missing before I can just throw them in there.” Ms. Ayala’s hesitation was also influenced by her reflections about goals for “her students” as opposed to Mr. Wells’s general education students and her emphasis on basic comprehension and reading strategies.

Ms. Oliver and Ms. Ayala’s questions and concerns with regard to disciplinary thinking and tacit beliefs about the capabilities of students with disabilities—that there is “stuff missing” from what “their” students need in order to engage in disciplinary thinking—resonate with the concerns of other educators found in the literature. Oftentimes, educators assume a hierarchical orientation toward learning and believe that students need to master certain skills before they are ready to move on to more challenging work. This orientation toward learning is particularly prevalent among special educators. Brown (1987) characterizes this problem as “pre means never”: students with disabilities get stuck working to develop “pre” skills—“pre-language,” “pre-reading,” etc.—without ever having the opportunity to move on to engage with more sophisticated kinds of thinking and doing. Further, Ms. Oliver and Ms. Ayala’s concerns resonate with the culture of limiting beliefs into which many
special educators are socialized (Causton-Theoharis, Theoharis, Orsati, & Cosier, 2011; Gartner & Lipsky, 1987; Hehir, 2002; Peterson, 2010). Hehir (2002) asserts, “The education of students with disabilities has been plagued by low expectations” (p. 18), and these low expectations are especially prevalent among special educators working in self-contained settings like Ms. Oliver did prior to coming to Windsor and like Ms. Ayala’s position at Windsor at the time of this study (Causton-Theoharis, Theoharis, Orsati, & Cosier, 2011). Further, data suggests that these self-contained settings lead to poorer outcomes for students with disabilities when compared to students with disabilities placed in inclusive settings as measured by factors such as reading and math performance, standardized assessment scores, and post-secondary outcomes (Blackorby, Knokey, Wagner, Levine, Schiller, & Sumi, 2007; Hehir, Grindal, & Eidelman, 2012; Newman, Wagner, Cameto, Knokey, & Shaver, 2010).

Yet, it was this lower “degree of congruence” between Ms. Oliver and Ms. Ayala’s preexisting beliefs about students’ capability and the goals of this study that positioned them to develop new insights about their students’ capabilities. As described in their case studies, seeing evidence of their students with disabilities beginning to engage in disciplinary thinking led them to see their students in new ways. For example, Ms. Oliver had characterized Brianna as one of her “lower students” who had difficulty organizing and communicating her thoughts. Yet, exploring Brianna’s “Mosquito” poem allowed Ms. Oliver to come to a new realization regarding Brianna’s potential. When exploring the poem, Ms. Oliver was stunned by the sophistication, explaining how the poem “was awesome” and how “[Brianna] came out of nowhere!” Exploring Brianna’s final product in BookBuilder later in our work together led Ms. Oliver to continue to
reflect on the richness of Brianna’s thinking and the way in which Brianna incorporated so much self-awareness into her poem, the coach, and the glossary entries. Ms. Oliver explained how Brianna had been working to develop strategies to manage her anger and reflected, “Um, so that’s why, when I read this, I was like ‘Wow, she’s doing some serious self-reflecting here.’”

Further, the BookBuilder book review project provided initial evidence to Ms. Ayala that her students were capable of engaging in the practices of the disciplines. Ms. Ayala’s reflection on what she characterized as a surprising conversation with Ramon is reflective of a shift in her beliefs. As revealed in Chapter 5, she had described Ramon as a student who attempts “to become invisible within the class”; yet, she reflected,

So, I mean—from the weirdest kids—I think [Ramon] was the one . . . who said to me, “You know what, I really like the way she [Lowry] described things because I was able to see it. Like, I knew when he [Jonas] was getting a memory and if it was a good or bad memory.” And . . . he said, “I wish I could write like that.” So it was something that they reflected on, and it was really good to hear . . . So, even though they’re not there yet, but, they’re thinking about it. And that’s what we want, is for that to start happening.

Ms. Ayala was also pleased to see how the “YOU as a writer” question seemed to spark not only interesting responses in students’ BookBuilder books, but interesting class discussion as well. She revealed,

A lot of the kids were very reflective on it. They were like, “You know, what were some things that we found that she [Lowry] did? What did she create? Would you want to be able to do that?” And a lot of the kids were
like “Yeah, I like the way she described the setting and when he [Jonas] was in a different place and things that were happening to him” . . . So we had a good conversation about that last question.

Thus, the lower degree of congruence between Ms. Oliver and Ms. Ayala’s preexisting beliefs with regard to students’ ability to engage in disciplinary thinking and the core beliefs of this study spurred Ms. Oliver and Ms. Ayala to new insights about their students. This finding resonates with Coburn’s finding that

. . . although the teachers were less likely to respond to messages with a low or medium degree of congruence by incorporating them into their classrooms, when they did, they were more likely to do so in ways that pushed their thinking or caused them to reorganize their practice in more substantial ways (pp. 227-228).

Although Ms. Oliver and Ms. Ayala’s new insights are not fully reflective of radically “restructur[ing] their fundamental assumptions,” there are signs that our work together did “push their thinking” and supported them to begin restructuring their beliefs. Further, the important role that examining students’ thinking played in supporting the teachers to come to these new understandings and beliefs will be explored below.

**Accommodating UDL.** In contrast to Ms. Edwards and Ms. Ayala’s assimilation response to UDL, Ms. Oliver did begin to make some fundamental shifts with regard to the framework. She was introduced to UDL through a professional development workshop held at her previous school two years before the start of this study. She explained that this workshop did not help her to see UDL as particularly novel or compelling from her perspective as a special
educator. As part of our collaborative intervention, Ms. Oliver wanted to explore her questions surrounding the UDL principle of multiple means of action and expression; specifically, she wondered about a lesson’s goal and when offering an alternative to paper and pencil would be appropriate. Ms. Oliver was able to come to some clarity on these questions through our experimentation with the use of a scribe during the BookBuilder project. As described in the opening vignette of her case study, scribing for Brianna during the planning template lesson offered Ms. Oliver convincing evidence as to the potential of using multiple modes of expression to uncover students’ ideas: Ms. Oliver exclaimed, “So that’s the UDL! It’s like the writing is what stops her. Scribing lets us see what she’s thinking.” And, once the BookBuilder project had ended, Ms. Oliver’s case study illustrates continued evidence of her changing beliefs. For example, she reflected,

I think you can see that the lower kids, by you scribing, you’re getting their thinking. And a lot of times, we don’t get to their thinking because they are so limited with their writing. So there is that, that barrier . . . I really enjoyed seeing that. And learning that strategy. It’s so obvious and easy, but as teachers you can sometimes forget that scribing for a 5th grader can be so important, you know?

These shifts in thinking were also apparent in our final interview. For example, as described in the closing vignette of her case study, Ms. Oliver reflected,

. . . when you came in I was like “Oh yeah, I’ve heard of that, I’ve had a training.” And thought about when I got the first training, I really sat in the room thinking, like, “How was this any different than teaching special ed? Like making modifications?” But then having you in the classroom
and . . . you know, really thinking about the goals of the lesson and is the goal of the lesson to see what [uses Eric as an example] can write? Or is the goal of the lesson to see what [Eric] knows and understands about this? And that helped me a lot.

Ms. Oliver’s change in beliefs with regard to UDL and specifically options for expression provide evidence that she was beginning to accommodate aspects of our study as she “restructured” some of her “fundamental assumptions” about her students and the ways for them to express what they know.

Similar to exploring the teachers’ journeys through the lens of assimilation, this lens of accommodation also underscores the ways in which teachers’ preexisting beliefs and practices—and the congruence of these preexisting beliefs and practices with the goals of the study—influenced teachers’ growth. Yet, other factors and conditions were also at play. Below, I discuss the additional factors that Coburn highlights; and, in the second section of this chapter, I expand on Coburn’s work to examine the factors that were embedded into the design of the interventions themselves.

**Exploring other factors that influence teachers’ response.** As described above, the degree of congruence between teachers’ preexisting beliefs and the study’s goals played a central role in better understanding the ways in which Ms. Edwards, Ms. Oliver, and Ms. Ayala responded to this project. Yet, it is also worth briefly considering the other factors that Coburn highlights as influencing teachers’ responses to new instructional messages—degree of intensity, degree of pervasiveness, and degree of voluntariness—to gain an even greater understanding. With regard to the “degree of intensity,” Coburn explains that teachers were more likely to incorporate a new approach the more they “had
opportunities to engage with a message in sustained, iterative ways” (p. 229). This finding also resonates with the findings from this study. As described above, Ms. Edwards was the most receptive to the goals of the study, and she was also the teacher to whom I had the most access. Ms. Edwards and I held thirteen meetings over a span of five months to brainstorm, design, refine, and reflect on six different scaffolds/lessons/projects to “try out” in her class. Ms. Edwards made our collaboration priority, often sacrificing her lunch to make herself available. In contrast, I had the least amount of access to Ms. Ayala, and we were able to just begin to explore disciplinary thinking and UDL. As described in her case study, Ms. Ayala’s role on numerous students’ IEP teams, her responsibility to administer accommodations to students with disabilities during PARCC testing, and an unprecedented number of snow days prevented her from devoting as much time to our collaboration as she had anticipated. Given this influence of intensity, one cannot help but wonder what more learning might have been generated had Ms. Edwards, Ms. Oliver, and Ms. Ayala and I had more time to continue our work together. At the same time, it is also worth considering the potential interactions between the “degree of congruence” and the “degree of intensity”—interactions that Coburn does not explicitly explore. It is challenging to tease apart whether the “degree of congruence” influenced teachers’ willingness to meet, thus influencing the “degree of intensity.” Or, conversely, perhaps it was the “degree of intensity” that influenced teachers’ opportunities to perceive the “degree of congruence” between the goals of the study and their own practice and beliefs.

With regard to the “degree of pervasiveness,” Coburn explains that teachers were more likely to respond favorably when they experienced the
message “in multiple, interlocking, and overlapping ways” (p. 231). Viewing the study through this lens offers an interesting contextual dimension. When selecting the disciplinary themes to explore through our collaboration, Ms. Oliver and Ms. Ayala mentioned that they saw a loose connection between reading and writing “like writers” and Windsor’s instructional focus on “writing about reading” at the time of our study. Further, the teachers made connections between the goals of this study and standardized testing: all three teachers were receptive to exploring alternative modes of expression given the upcoming administration of PARCC computer-based testing, and Ms. Oliver recognized certain overlaps between the disciplinary themes explored in this study and specific testing standards. Yet, the teachers were not receiving consistent, explicit messages regarding the value of UDL and disciplinary thinking outside of our study. It is interesting to consider how the teachers’ reactions to this study may have differed had the goals of this study aligned with Windsor’s school-wide goals. Finally, the “degree of voluntariness” is not relevant to this particular study as participation was voluntary. As described in their case studies, all three teachers joined based on their interest in exploring the intersection of UDL and disciplinary thinking and their desire to improve their practice.

In sum, exploring all three teachers’ journeys using Coburn’s typology helps to more fully understand why the teachers’ practice and beliefs with regard to UDL and disciplinary thinking did and did not evolve over the course of our work together. This analysis highlights the varied ways in which the teachers’ preexisting “worldviews and assumptions” led them to assimilate—and in some instances begin to accommodate—different aspects of our goals. Thus, examining the teachers’ work through the lenses of assimilation and accommodation
(Coburn, 2004) not only paints a more complex picture of Ms. Edwards, Ms. Oliver, and Ms. Ayala’s journeys but also underscores the importance of providing educators space to acknowledge, explore, and wrestle with their preexisting practices and beliefs when designing professional learning opportunities. This finding will be considered below and in the concluding chapter.

Yet, as noted above, Coburn’s typology does not offer a way to more fully consider the specific features—as well as the specific processes and conditions—of the interventions that proved to promote a change in the teachers’ practice and beliefs. Considering the teachers’ responses through Coburn’s four factors begins to shed some light on why they began to assimilate and accommodate certain aspects of this study, especially with respect to the “degree of congruence.” However, emphasizing Ms. Edwards, Ms. Oliver, and Ms. Ayala’s preexisting “worldviews and assumptions” and the notion of congruence is just one thread in a complicated web of factors that influenced their experience. Like the UDL framework itself, the generality of Coburn’s theory is at the same time beneficial and limiting. As noted in Chapter 1, the effort to make the UDL Guidelines applicable to any domain meant that specificity in terms of how to apply the Guidelines to achieve particular disciplinary ways of thinking was sacrificed. The same is true for Coburn’s theory: it can be useful at a general level to better understanding teachers’ responses to instructional pressures, but this generality does not help to uncover specific aspects of the instructional pressure itself. Thus, in order to more fully understand how and why the teachers’ practice and beliefs with regard to UDL and disciplinary thinking began to develop over the course of our work together, an analysis of the interventions themselves is also needed.
The Usefulness of the Interventions with Regard to Developing Teachers’ Practice and Beliefs

Throughout this study, the teachers and I experimented with applying UDL in order to support their diverse students to engage in disciplinary thinking. Yet, the UDL framework was being leveraged in another way as well—to support the learning of the teachers themselves. Embedded within Ms. Edwards, Ms. Oliver, and Ms. Ayala’s collaborative interventions were a range of options and supports designed to scaffold their growth along a trajectory of applying UDL for disciplinary aims (See Appendix II for summary). This section highlights those options and supports that appeared to be most useful by drawing from the teachers’ perspectives, by incorporating my own perspective in my dual role as a researcher/collaborator, and by contributing to existing literature in an effort to begin positing how to support teacher change. As revealed in Chapter 1, the current literature describes a range of factors that support teacher change. Yet, the findings from this study go a step farther and attend to the developmental nature of teacher learning: not only do the data reveal the factors that supported the teachers’ growth but the process by which these factors contributed to the development of teachers’ thinking. Thus, this discussion adds a layer of depth and nuance in order to more fully understand Ms. Edwards, Ms. Oliver, and Ms. Ayala’s learning trajectories over the course of our collaborations. In sharing these findings, I use the UDL framework as an organizing structure in order to highlight the ways in which UDL was embedded into the interventions.

Multiple means of representation: “Seeing” evidence to support teacher growth. Throughout the three collaborative interventions, Ms. Edwards, Ms.
Oliver, and Ms. Ayala and I explored both video and student work to reflect on students’ disciplinary thinking. The literature emphasizes the importance of an “active learning” approach to professional development (Ball & Cohen, 1999; Desimone et al., 2002; Garet et al., 2001; Stein, Smith, & Silver, 1999) and underscores the valuable role that exploring student work (Ball & Cohen, 1999; Lampert & Ball, 1998; Stein, Smith, & Silver, 1999) and exploring video footage of a teacher’s own practice (Ball & Cohen, 1999; Lampert & Ball, 1998; McCullagh, 2012; Roth, 2007; Sherin & Han, 2004) can play in scaffolding teacher learning.

As explained in Chapter 2, these features were embedded into the design of the study. I videotaped all 155 observations of teachers’ ELA blocks and collected approximately 650 pieces of student work across the teachers’ classrooms. This aspect of data collection allowed the teachers and me to draw from a wealth of data in order to explore the kinds of disciplinary thinking that were and were not taking place among students and to inform the design and refinements of the ideas that we tried out in teachers’ classrooms. This process of seeing multiple forms of evidence of student thinking proved to be a powerful aspect of our collaborative interventions, from both the teachers’ perspectives as well as my own: this feature supported teachers to develop new understandings regarding their practice and their students. Interestingly, Ms. Ayala foreshadowed the importance of “seeing” evidence in our first meeting when she explained that she most looked forward to the opportunity to view and discuss video of her practice. She stated, “... if I am being recorded and I am videoed, I feel like, I can see it. We can talk about it. We can figure things out, and do it in a different way.”

As described in the teachers’ case studies, Ms. Edwards, Ms. Oliver, Ms.
Ayala, and I used the meetings throughout the collaborative phase to explore student thinking by analyzing students’ work products and students’ questions and comments on the classroom video, and this exploration often led teachers to reflect on their practice and see their students in new ways. Examples of these moments are woven throughout the teachers’ case stories in the three previous chapters. For example, in Ms. Edwards’s case study, viewing the video clip of Stella, Laura, and Claire’s exploration of the three model conclusions and the ideas these models gave them for their own conclusions was a powerful learning moment for Ms. Edwards. Toward the end of the clip, Laura explained, “Like in the first one, it was about endangered animals. It’s like telling us how we can help the environment. And, we can relate that to phobias, like how to overcome because you can’t just stay in your house and overcome it.” While viewing the video together, Ms. Edwards expressed her surprise that Laura, a student whom Ms. Edwards’s had characterized as a having a “really hard time expressing her thoughts in a comprehensive, sequential manner,” was able to make this shift between the topic of the model and the topic of her own report. She exclaimed, “Wow! [Laura]! I am impressed with her!” Ms. Edwards then explained how she had mistakenly thought that “[Stella] had come to that decision and everyone else around her had just kind of piggy-backed off of what she was saying” and that she was “so happy that [Laura] was able to come to that conclusion and relate it to her own topic.” In this moment, viewing the video led Ms. Edwards to new understanding about Laura and her ability to engage in reading and writing “like a writer.”

Ms. Oliver’s reflections on the level of sophistication that she saw in Brianna’s BookBuilder poem is another moment that underscores the usefulness
of exploring evidence of student thinking. Analyzing the richness of Brianna’s thinking—the ways in which Brianna was able to “write like a writer” and to embed such sophisticated self-awareness into her poem, the coach, and the glossary entries—supported Ms. Oliver to develop new insights regarding the potential of UDL as well as the potential within Brianna. Further, Ms. Ayala’s reflections on the emerging disciplinary thinking that was demonstrated in students’ BookBuilder book reviews of *The Giver* is another example of the usefulness of exploring evidence of student thinking. As described in her case study, Ms. Ayala was hesitant to engage her students in disciplinary thinking given that all of her students were students labeled with language-based learning disabilities or as “struggling readers.” She characterized student learning in a linear way and felt as though her students were not fully ready to move on to disciplinary thinking because they did not yet have a mastery of reading comprehension. Yet, after exploring students’ BookBuilder book reviews, she made some small shifts in her thinking and began to see how engaging in reading and writing “like writers” can reinforce the reading strategies that she finds so important.

When we discussed the use of exploring video and student work in the final interviews, all three teachers articulated the importance of this aspect of the interventions. For example, in our final interview, Ms. Edwards reflected on the important role that the video played in our work together: it provided her with understandings about her students that she otherwise may have missed. She explained,

> What was helpful for me is when you would sit with a group and just video their interactions when I was with a different group. Because it
really provided me insight as to like, “What are they carrying over from the mini lesson?” and “What conversation are they then able to have independently?” . . . So I felt like that was really meaningful.

Ms. Ayala also highlighted the benefit of video in her final interview stating, “Looking at my videos is very good for me. Because it’s kind of like, ‘What can I do better?’” She explained that other than our work together, she did not typically have time built into her day to sit and thoughtfully analyze video. She stated that she and her instructional aide, Ms. Newbury, typically had conversations to consider questions such as “Where do you think we should go next?” and that administrators and teachers would come together to analyze students’ assessment data on standardized tests. Yet, she explained that outside of our work together, she did not have the opportunity of “just looking at, like, just the task itself—I mean, the work itself.” These examples of the new insights that were generated while exploring students’ comments on video and students’ work as well as the teachers’ own reflections highlight the value of this aspect of our collaborative interventions: “seeing” the evidence allowed teachers to arrive at new ways of thinking about their students and their practice.

This notion of evidence changing beliefs has been well-documented in the literature on theories of teacher and organizational change (Crandall, 1983; Guskey, 2002; Mezirow, 1981), with roots dating back to 19th century psychologists William James and Carl Lange who posited that a change in emotion follows a change in context (Guskey, 2002). Guskey’s (2002) “Model of Teacher Change” is especially relevant when analyzing Ms. Edwards, Ms. Oliver, and Ms. Ayala’s experience with “seeing” evidence of their students thinking. As described in Chapter 1, the model underscores the importance of seeing evidence
and how it can contribute to teacher learning. Guskey reveals that traditional professional development models often seek to change teachers’ practice and beliefs through the event itself and “presume that such changes in teachers’ attitudes and beliefs will lead to specific changes in their classroom behaviors and practices, which in turn will result in improved student learning” (p. 382). Yet, Guskey contends that this “assumption that change in attitudes and beliefs comes first” is flawed (p. 383). His model offers an alternative sequence and asserts that “significant change in teachers’ attitude and beliefs occurs primarily after they gain evidence of improvement in student learning” (p. 383). He emphasizes “. . . the key element in significant change in teachers’ attitudes and beliefs is clear evidence of improvement in the learning outcomes of their students” (pp. 383-384). Thus, Ms. Edwards, Ms. Oliver, and Ms. Ayala’s experiences give support to Guskey’s model: the “clear evidence” of their students beginning to engage in disciplinary thinking led them to new beliefs about their students and their own practice. Yet, while the findings from this study resonate with Guskey’s model, the data also suggest opportunities for expansion.

*The process of learning “to see”: Reducing anxiety and developing disciplinary lenses.* As described in the teachers’ case studies, my collaboration with Ms. Edwards, Ms. Oliver, and Ms. Ayala underscored the considerable time it took the three teachers to develop the ability to “see” their students’ thinking through a disciplinary perspective. Thus, the findings suggest that drawing from both a developmental and a disciplinary perspective could augment Guskey’s model. When discussing the implications of his “Model for Teacher Change,” Guskey emphasizes the need to “recognize that change is a gradual and difficult
process for teachers” and underscores that making changes in the classroom “requires both time and effort” (p. 386). Yet, Guskey’s recommendation is in reference to the long process of successful implementation of a new approach in general and does not refer specifically to the process by which teachers develop the lenses to be able to think deeply about their students’ thinking. Thus, Ms. Edwards, Ms. Oliver, and Ms. Ayala’s journeys uncover new insights into the process by which teachers learn to “see” evidence needed to support them in coming to new realizations about their practice and beliefs.

First, while classroom video footage proved to be a powerful element in teachers’ coming to new realizations about their practice and beliefs, it took time for teachers to become comfortable with viewing their classroom—particularly themselves—on video. In our first collaborative meeting, I shared with Ms. Edwards a clip from the “Hook” lesson that I observed during the baseline. Just prior to playing the clip, Ms. Edwards admitted, “I cringe when I watch it [video].” This sentiment was shared by Ms. Oliver. In our first collaborative meeting when I told her that I brought some clips of the “Take a Closer Look” lesson that I observed during her baseline, she exclaimed with a laugh, “Oh god. I have to see myself on film?” Ms. Ayala also reflected on her hesitation when learning that video was part of the study. She remembered with a smile, “I was like, ‘Oh god, they are going to record me?’” Fortunately, because viewing video clips became so ingrained in our work together, teachers’ hesitations eased as our work progressed. Further, I was careful in my role as a collaborator/researcher to emphasize the purpose of viewing the video: to explore students’ thinking and not to judge teachers’ practice. This emphasis assuaged teachers’ concerns, and at the same time, supported teachers to focus more on student thinking, a strategy
that proved central to developing teachers’ ability to attend to students’ ideas and is described below (Sherin & Han, 2004). When reflecting on the use of video in the final interview, Ms. Edwards admitted that viewing herself still felt “cringe-worthy,” but she explained, “I was more interested in what they [her students] were doing.” These feelings of initial anxiety regarding the use of video are echoed in the literature (Sherin & Han, 2004; van Es, 2012; Zhang, Lundeberg, Koehler, & Eberhardt, 2011). Thus, the findings from the study coupled with the literature underscore the need to support teachers in managing their anxiety around seeing themselves on video in order to support them to “see” the evidence needed to improve their practice and add nuance to Guskey’s “Model of Teacher Change.”

Second, this study highlights the time it takes for teachers to develop the lenses needed to “see” their students’ thinking. Guskey emphasizes the importance of providing teachers with “continued follow-up, support, and pressure” in order to facilitate teachers’ growth (p. 388). Yet, again, these recommendations are at a general level and are not connected to the idea of supporting teachers to “see” particular kinds of evidence of student thinking for themselves. I realized early into the study that reflecting on the students’ thinking in the video and in their work products from a disciplinary perspective was a skill that needed to be supported and developed, which is especially understandable since all three teachers were new to notions of disciplinary

---

32 For example, in Sherin and Han’s (2004) study of a video club of four mathematics teachers, two teachers decided not to share footage from their classrooms “citing that they were ‘self-conscious about being videotaped’” (p. 166). Further, in their study of 26 science teachers’ experience with using video, Zhang, Lundeberg, Koehler, and Eberhardt, (2011) also found that several of the teachers were initially hesitant and that “teachers’ initial anxiety about videotaping could be reduced by their actual experience” (p. 459).
thinking prior to this study. For example, when reflecting on the “What do you see/What do you notice” T-chart that we co-designed for her poetry unit, Ms. Oliver and I considered one of the haikus that Jake created: “The streets were mountains/The air felt like a freezer/I just stayed inside.” Ms. Oliver initially reacted to his poem by exclaiming, “Oh yeah, that’s cool.” It took more explicit prompting during this meeting to support her to consider the ways in which Jake was beginning to read and write poetry “like a writer,” a signal to me that viewing student thinking through a disciplinary lens at this early stage in our work was just emerging. Thus, as a researcher/collaborator, I took steps to scaffold this type of analytical thinking by modeling and offering prompts to guide teachers to focus from a disciplinary perspective. Further, as noted above when describing the steps I took to help teachers to feel more comfortable viewing video footage, my emphasis on the students as opposed to the teachers themselves also supported teachers to more carefully attend to the complexity of students’ thinking. In hindsight, I wish that I had been more attuned to the fact that teachers’ ability to analyze from a disciplinary perspective would need to grow over time and that I had been more intentional about developing this scaffolded approach from the outset of our collaborations. Yet, because exploring student thinking through work products and video became such an engrained part of our iterative collaboration, teachers soon became more adept at analyzing evidence of their students’ thinking.

While Guskey’s model does not specifically address this challenge of developing the expertise to analyze evidence of student thinking, this challenge is emphasized in other areas of the literature (Borko, Koellner, Jacobs, & Seago, 2011; Santagata, 2009; Sherin & Han, 2004; van Es, 2012). For example, Sherin and
Han (2004) reveal that the complexity of teachers’ analysis of classroom video evolved over time. They found that the “discourse in the video clubs shifted from a primary focus on the teacher to increased attention to students’ actions and ideas” and that “discussions of student thinking moved from simple restatements of students’ ideas to detailed analyses of student thinking” (p. 163). Thus, the findings from my collaboration with Ms. Edwards, Ms. Oliver, and Ms. Ayala coupled with this relevant research point to ways to further develop Guskey’s model. Creating opportunities for teachers to “see” evidence of student work alone may not be enough to support teacher learning; teachers may not immediately be ready to reflect on the evidence that may lead to a shift in practice or beliefs. Coupled with this promising feature of “seeing evidence,” this study reveals the need to recognize that developing the lenses to thoughtfully analyze the substance of students’ ideas is a process that takes time and discipline-specific support to develop.

**Multiple means of action and expression: Leveraging tools to support teacher growth.** My collaboration with Ms. Edwards, Ms. Oliver, and Ms. Ayala also underscores the important role that adaptable tools can play in supporting teacher growth. Literature from cognitive science (Hutchins, 1995; Sutton, 2006; Vygotsky, 1981), the learning sciences (Stroupe, 2016), and teacher and organizational change (Putnam & Borko, 2000; Spillane, 2015) emphasizes the ways in which tools and artifacts can structure and mediate cognition. The findings from this study complement this literature and further underscore how a specific tool—in this case CAST’s UDL BookBuilder—can be used to support teacher change and growth. Across all three teachers’ collaborative interventions, we used BookBuilder to explore the intersection of UDL and disciplinary
thinking. As described in the teachers’ case studies, the teachers and I worked to leverage the tool through a discipline-specific lens: we optimized BookBuilder’s features in particular ways to create opportunities for students to engage in specific disciplinary practices. Ms. Edwards came up with the idea of asking students to script the coach to describe how they “were showing not telling” the emotions of their protagonists. This use of the coach ultimately led students to begin reading and writing “like writers,” and to our surprise, “identifying as writers” as well. Ms. Oliver and I decided to use the coach as a way for students to reflect on the kind of mood, imagery, or rhythm that students sought to create in their poems and how they worked to develop them. Also, building on an idea that Ms. Oliver’s 5th grade colleague offered, we used the glossary feature as a way for students to define the poetic devices in their poems and to reflect on their decision to incorporate these devices. Finally, Ms. Ayala and I sought to elevate the book review assignment by designing the coach to prompt students to read *The Giver* “like a writer” by reflecting on Lowry’s techniques. Leveraging the flexibility of the coach feature—and in Ms. Oliver’s case, the glossary feature as well—proved to be a rich opportunity to work in the intersection of UDL and disciplinary thinking. As described in the teachers’ case studies and the discussion above, the data reveal that our use of BookBuilder supported students to engage in the rich practices of the discipline and supported the teachers to begin to “see” their practice and their students in new ways.

This experience of using BookBuilder in the classroom motivated all three teachers to continue incorporating this tool into their practice. By the end of our collaborations all three teachers had either used or stated their plans to use the tool in the future. For example, when planning the mini-lesson that I would
facilitate to introduce students to the tool, Ms. Oliver expressed her interest in the mini-lesson as well, stating, “I’d like to see anything that it’s capable of doing, not for this year but for something that I could add in.” By our final interview, Ms. Oliver felt even more convinced that she wanted to use BookBuilder in the future and explained her plans to incorporate the tool into next year’s poetry unit. And Ms. Ayala even began using BookBuilder—albeit in a different form—on her own toward the end of our collaboration on a lesson that we did not co-design. After exploring the model books in BookBuilder’s public library, she was inspired to search for books on poetry that she might use to help launch her upcoming poetry unit. She explained, “I was just thinking—maybe someone did something. I wanted them [her students] to see a product of a student that has identified the elements and the way they did their final product.” Further, in one of our last meetings, Ms. Ayala reflected on how she wished she had the time to incorporate students’ use of BookBuilder into her current poetry unit, but explained, “…For our next unit we’re going to do fables and short stories, so we can definitely embed that in there.”

Interestingly, this enthusiasm for BookBuilder began to spread around Windsor. As I demonstrated the features to Ms. Edwards in an early planning meeting, she asked several specific questions about the features and explained, “I’m asking because I want to be able to walk [Ms. Young, the 4th grade general education teacher and Ms. Dolan, the 4th grade special education teacher] through this. This is really cool.” Once Ms. Young learned about our BookBuilder

33 This is the BookBuilder book that Ms. Ayala found: http://bookbuilder.cast.org/view.php?op=view&book=72815&page=5
plans, she decided that she wanted her students to turn their “Lizzie Goes to Camp” and “Immigration” narratives into BookBuilder books as well. Ms. Edwards and I worked out a plan for her students to share their accounts with Ms. Young’s class, and Ms. Edwards provided Ms. Young with the support that she needed to launch the project in her own classroom. Interest continued to grow for BookBuilder as the project unfolded. The school’s computer teacher asked me for information about BookBuilder when she saw Ms. Edwards’ students creating their BookBuilder narratives in the computer lab, and Ms. Edwards’ instructional aide also asked me for the link as she wanted to build a BookBuilder book with her granddaughter. The contagious effect of BookBuilder was also seen in the fifth grade. As mentioned in Chapter 4, Ms. Oliver shared BookBuilder with her 5th grade colleague Ms. Lynch, and Ms. Lynch generated the idea for the glossary feature that we ultimately expanded and embedded into our design. Thus, the experience of exploring BookBuilder clearly struck a chord with Ms. Edwards, Ms. Oliver, and Ms. Ayala: it served to pique their interest—and the interest of colleagues as well—and inspired them to brainstorm ways to incorporate BookBuilder into their practice in the future. While these findings shed light on the importance of working with engaging, flexible tools in order to generate sophisticated disciplinary thinking among students and in order to motivate teacher learning, an examination of the process by which the teachers and I co-designed the BookBuilder projects reveals even more about a tool’s potential to support teacher growth.

The process of learning to leverage tools for specific purposes. Similar to the process of learning to “see” evidence, teachers also engaged in a process of learning to leverage BookBuilder to achieve our disciplinary goals. Prior to
beginning the interventions, I was hopeful that teachers might be interested in experimenting with this UDL tool as it offers a great deal of flexibility—flexibility that I anticipated the teachers and I might be able to harness in order to facilitate students’ disciplinary thinking. Yet, it took time for teachers to recognize how BookBuilder’s features could be used specifically to support disciplinary thinking. When I first introduced BookBuilder to Ms. Edwards, Ms. Oliver, and Ms. Ayala, all three teachers were immediately attracted to the engaging, easy-to-use nature of the tool. For example, Ms. Edwards explained how she was taken by the intuitive design of the tool, stating, “I love it. This is so easy. I am definitely going to be using this every year . . . like, sold!” And Ms. Oliver first reacted to the tool by stating, “They [her students] are going to love this!”

Further, as described in previous chapters, all three teachers were also initially intrigued by the tool, given their perceptions of BookBuilder as a way for students to “practice those typing skills” in order to prepare for the upcoming online PARCC assessment. Thus, it took time and support for teachers to transition from these initial reactions to more focused reflection on how the tool might be used to support students’ disciplinary thinking. As described in the teachers’ case studies, we engaged in a series of brainstorming meetings over a sustained period of time in order to develop the coach feature—and in Ms. Oliver’s case, the glossary feature as well. Throughout this collaborative, iterative process, the teachers had the space to experiment with ideas as I offered prompts to guide them to consider our overarching goal of supporting students to engage in disciplinary practices. Thus, these findings highlight our process of determining how we might harness the flexibility of BookBuilder and emphasize the value of providing teachers with the time and support to learn to use new
tools in purposeful and powerful ways.

The success of our focused, discipline-specific process of co-designing the BookBuilder projects connects to existing literature. With more and more technology being used in today’s classrooms, researchers and practitioners underscore the importance of using technology according to particular disciplinary aims. Mishra and Koehler (2006) assert, “Merely introducing technology into the educational process is not enough” and that greater attention needs to be paid to “how the technology is used” (p. 1018). Drawing from Shulman’s “pedagogical content knowledge” (PCK), the authors introduce the framework of “Technological Pedagogical Content Knowledge” (TPCK) and underscore the importance of incorporating technology in ways that serve particular subject-specific goals. They contend that “knowledge of technology is often considered to be separate from knowledge of pedagogy and content” (Mishra & Koehler, 2006, p. 1024) and offer their framework to highlight “the complex interplay of these three bodies of knowledge” (p. 1025). When co-designing the BookBuilder projects, the teachers and I worked amidst this “complex interplay” as we leveraged particular technological features to engage students in the practices of the discipline. It is interesting to note, however, that Mishra and Koehler tend to emphasize the TPCK framework in terms of presenting content to students. They assert, “Quality teaching requires developing a nuanced understanding of the complex relationships between technology, content, and pedagogy, and using this understanding to develop appropriate, context-specific strategies and representations” (p. 1029). Yet, the findings from our collaborations show how we leveraged the “complex interplay” among technology, pedagogy, and content knowledge to support students to produce
and to actually do the discipline of ELA, an aspect that does not seem explicitly emphasized in Mishra and Koehler’s framework.

Researchers also emphasize the need to support teachers’ ability to implement technology according to content-specific goals (Heitink, Voogt, Verplanken, van Braak, & Fisser, 2016; Hughes, 2005; Mishra & Koehler, 2006; Niess, 2005). Hughes (2005) asserts the value of “collaborative, subject-specific technology inquiry groups” in supporting teachers to implement technology according to disciplinary goals (p. 299). Yet, she contends that these opportunities are not the norm as “few teachers have access to quality professional development opportunities that offer thoughtful, subject-matter-based technology use” (p. 280). Thus, our approach to co-designing the BookBuilder projects adds to the literature on the kinds of teacher learning that can take place as a result of “thoughtful, subject-matter-based” support.

Interestingly, both Ms. Edwards and Ms. Oliver acknowledged this support in their final interviews. When reflecting on the aspects of the intervention that were most useful to her, Ms. Edwards shared,

... obviously, BookBuilder. I was so happy that you were able to walk me through that. I think like without you physically here, I wouldn’t have been as eager to like go and do it myself. But, now that you were physically here to like walk me through it, and help me with the glitches, it is something that I will like 100% use in the future.

Further, when describing her plans to use BookBuilder in a poetry unit next year, Ms. Oliver said with a laugh, “We’re doing our poetry unit in December, so it should fall right after that. So I may reach out to you that time of year. Maybe we will have a guest appearance!”
In sum, BookBuilder proved to be a valuable aspect of our collaborations. The flexibility of the tool allowed the teachers and me to work at the intersection of UDL and disciplinary thinking, prompting students to begin engaging in the practices of the discipline and prompting teachers to begin seeing their practice and their students in new ways. The teachers’ positive experience motivated them to continue using BookBuilder in the future and to share their enthusiasm for the tool with their colleagues. Further, the findings emphasize not just the importance of the tool itself, but the importance of supporting teachers to learn how to successfully harness the promise of this tool through a collaborative, cyclical, discipline-specific process.

**Multiple means of engagement: Engaging teachers in the complicated process of change.** Ms. Edwards, Ms. Oliver, and Ms. Ayala’s journeys reveal how developing new understandings, practices, and beliefs can be a messy, uncertain, and challenging process (Bryk & Schneider, 2002); thus, attending to the affective nature of learning proved to be another important feature of our collaborations. The teachers’ perceptions and my own observations revealed the value of building trust and credibility as well as embracing teachers’ own problems of practice. Uncovering these features complement as well as augment the existing literature on supporting teacher growth.

**Building trust.** Cultivating trusting relationships with Ms. Edwards, Ms. Oliver, and Ms. Ayala proved foundational to the collaborative interventions, from the teachers’ perspectives as well as my own. I entered into the study with an acute awareness as to the need to develop strong relationships; given the goals of our collaborative intervention, I anticipated that my journeys with the three teachers would lead into tense and uncertain territory as we explored their
practice and beliefs. Throughout the eleven months of observing and supporting each of the teachers, I sought to maintain an awareness of how my identity as a doctoral student as well as my former role as a researcher at CAST and a participant in the development of CAST’s UDL Guidelines might influence our relationships (Peshkin, 1988). From the very outset of our work, I was careful to position myself as a “collaborator” as opposed to an outside expert, making sure to refer to “our work” and “our goals” as a way to “challenge the ‘researcher’ and ‘researched’ paradigm” (Vakil, McKinney de Royston, Nasir, & Kirshner, 2016, p. 194).

Coupled with this emphasis on developing trust, I took care to embed ways to establish my credibility as a researcher into the design of the study itself. As described in Chapter 2, I spent the first three months observing in each teacher’s classroom three times a week. During this time, I conducted 22 observations of Ms. Edwards’ class (21 hours), 25 observations of Ms. Oliver’s class (23 hours), and 29 observations of Ms. Ayala’s class (24 hours). This consistent face-to-face time not only allowed me to develop a sense of teachers’ current practice with regard to UDL and disciplinary thinking, but also allowed me to begin to develop the authentic relationships that would be needed to begin exploring students’ thinking and teachers’ practice and beliefs as we moved into the collaborative phase.

Signs of our developing trusting relationships emerged during the brainstorming meetings that were held at the beginning of each teacher’s collaborative phase. As illustrated in the teachers’ case studies, teachers were willing to share thoughtful and honest reflections in these meetings. Ms. Edwards voiced her hesitations about multiple means of expression, wondering
who “needs” alternative modes of expression and worrying that “writing would go out the window.” Ms. Oliver surfaced her concern regarding the appropriateness of offering options for expression and her questions surrounding her “lower kids” and “where they have to start” in order to be able to engage in disciplinary thinking. Finally, Ms. Ayala expressed the tension she experienced between providing students with strong foundational reading skills and providing students with access to the general education curriculum, her concern about her students’ lack of reading, and her questions surrounding the readiness of her “struggling readers” to engage in the practices of the discipline. These questions and concerns did not fully surface in our initial interviews, suggesting that our developing relationships encouraged teachers to voice these honest reflections.

Yet, developing these trusting relationships was not without its challenges. Ms. Edwards and Ms. Oliver expressed to me that they were initially hesitant to have me in their classrooms, worrying that my observations would be more of an evaluation of their practice. Ms. Edwards explained, “I thought it was going to be, ‘Sit and look at your video.’ Like, ‘These are all the things you shouldn’t do.’” And Ms. Oliver expressed a similar hesitancy as well as a feeling of suspicion. In our final interview, she stated with a laugh,

Part of me was kind of like, “Are they [school administrators] putting this person into the room to observe?” I didn’t know if you had worked for [Windsor]. Like, I didn’t know what was going on . . . “Does she work for [the school’s principal]? There’s somebody in my room, like, analyzing? Oh my god!”

Thankfully, given my awareness of the critical need to establish trust and given
Ms. Edwards, Ms. Oliver, and Ms. Ayala’s openness, we were able to develop the trusting partnerships that proved so central to this study.

As described in Chapter 1, the research emphasizes the critical role that trust plays when supporting teacher learning (Bryk & Schneider, 2002; Stein, Smith, & Silver, 1999; Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009). Zech, Gause-Vega, Bray, Secules, and Goldman (2010) underscore the need to develop “a platform of trust so that assumptions and evidence can be held up to critical examination” (p. 214). Yet, the stakes in developing this “platform of trust” for this particular study were even higher, given the design-based research approach; strong relationships were needed not only due to my role as a “coach” but also due to my role as a collaborator. Vakil, McKinney de Royston, Nasir, and Kirshner (2016) emphasize the “relational work” that is inherently part of design-based research and that “being ‘good’ at this work entails learning how to construct and navigate positive relations with community members and study participants” (p. 196). Thus, this study serves to complement the existing research by revealing the importance of developing trust from both a methodological and professional development perspective.

**Embracing teachers’ problems of practice.** Across all three collaborative interventions, I attempted to use the goals, dilemmas, curiosities, and “to do” items that teachers brought to our meetings as avenues to explore our overarching goal of leveraging UDL for disciplinary aims. We developed a routine of teachers identifying an upcoming lesson or unit that they might like to work on, and moving forward from there. For example, as described in Ms. Edwards’s case study, she came to me for suggestions on an upcoming lesson on nonfiction conclusions and that led us to co-design a lesson using the “What I
Notice/What Ideas Does this Give You” scaffold to encourage students to read and write “like writers.” Ms. Edwards reflected on the usefulness of this routine in her final interview:

I felt like I could present a problem and say, like, “I really want to be able to teach this,” and you just had a really great idea, you weren’t pushy. It was more so just, like, “Oh, this is something that I have done in the past,” and then we adapted it together, and it just like happened. It was just like—I felt like it was seamless.

This strategy of attending to teachers’ priorities was evident across all three of our co-designed BookBuilder projects. As described above, Ms. Edwards, Ms. Oliver, and Ms. Ayala were not immediately interested in using BookBuilder as a way to engage in the intersection of UDL and disciplinary thinking. Instead, the teachers were drawn to the tool because they perceived it as a potential solution to problems of practice that they were seeking to address: exploring engaging alternatives to paper and pencil and preparing for an upcoming online assessment. I worked to support the teachers to consider how the UDL features of BookBuilder might be used to address these goals and how we might also leverage the tool to work toward our overarching goal of supporting students to engage in disciplinary practices. This strategy of weaving the teachers’ goals for the tool into our overarching collaborative goals of the study proved valuable: teachers witnessed students engage with a unique and “fun” alternative form of expression; students acquired time to practice and feel comfortable working in an online environment; and, at the same time, I was able to scaffold teachers to work at the intersection of UDL and disciplinary thinking and to successfully leverage BookBuilder’s features to engage their students in
The literature emphasizes the importance of contextualizing professional learning opportunities to teachers’ own needs and priorities (Ball & Cohen, 1999; Darling-Hammond & McLaughlin, 2011; Elmore, 2004; Fullan, 2007; Garet, et al., 2001; Little, 1993). Gallimore, Ermeling, Saunders, and Goldenberg (2009) highlight the critical role that relevance plays in teacher learning. In their study of school-based inquiry teams, the authors emphasize the value of exploring “a common task immediately relevant to each teacher’s own classroom” in order to successfully encourage teacher growth (p. 548). Further, Cohen and Mehta (in press) reveal how teachers are drawn toward new approaches or reforms that they perceive as useful in solving their own problems of practice. The authors argue that successful educational reforms “offered solutions to problems that the people who worked in or around education knew that they had and wanted to solve; these reforms met felt needs for the people who would implement them” (p. 2). Thus, the findings from this study complement the existing literature and further emphasize the importance of creating professional learning opportunities that are authentic, relevant, and meaningful to teachers.

The process of developing the readiness to engage. Just as learning to “see” evidence of students’ disciplinary thinking and learning to harness BookBuilder for disciplinary aims took time, my collaborations with Ms. Edwards, Ms. Oliver, and Ms. Ayala revealed that developing the readiness to engage with the study’s goals took time as well. Once the teachers and I entered into the collaborative phase, I proceeded with caution, not wanting to push too hard or to impose my own beliefs at this early stage in our work together. I sought to follow the teachers’ leads as to their readiness to explore the intersection of UDL and
disciplinary thinking. As described above, the high degree of congruence between Ms. Edwards’s ELA background and the disciplinary goals of this study positioned her to want to dive right in. However, with Ms. Oliver and Ms. Ayala, our beginnings were more incremental as we began by experimenting with ideas only loosely connected to the goals of the study. Further, as noted in the previous chapters, an interesting progression emerged across all three interventions. We started small by targeting one or two specific UDL Guidelines to begin engaging students in disciplinary thinking. We then worked up to leveraging UDL more intentionally to further engage students in disciplinary thinking. And our collaborative interventions culminated with the BookBuilder projects that more fully embraced the intersection of UDL and disciplinary thinking. Beginning our collaborations with focused “experiments” and gradually leveraging more and more aspects of UDL to encourage deeper disciplinary thinking among students seemed to work well and helped to reduce any hesitations about our work together. Further, this gradual strategy seemed to work well from a developmental perspective as well. As described above, it took time for teachers to develop the expertise to “see” evidence of students’ disciplinary thinking. Had the teachers and I jumped right into co-designing the BookBuilder projects—the most intensive of our efforts—the teachers would most likely not yet have developed their trust in me nor the disciplinary lenses that ultimately supported them in coming to new ways of thinking about their students and their practice. Interestingly, while the literature on supporting teacher change certainly underscores the importance of sustained learning opportunities (Ball & Cohen, 1999; Darling-Hammond & McLaughlin, 2011; Elmore, 2004; Fullan, 2007), this incremental perspective is not explicit. Thus, the findings not only confirm the
importance of continuous support but also offer insight as to the kind of progression or trajectory this continuous support could assume.

**My growth as a researcher/collaborator.** These three useful mechanisms of our collaborative interventions—developing lenses to “see” evidence of student thinking, learning to leverage tools for disciplinary aims, and attending to teachers’ readiness to engage—align with the UDL framework itself, reinforcing UDL as a framework not only to support student learning but to support teacher learning as well. And along with the student and teacher learning that developed throughout this study, my learning as a researcher developed as well. Cobb, Confrey, diSessa, Lehrer, and Schauble (2003) reveal, “One of the distinctive characteristics of the design experiment methodology is that the research team deepens its understanding of the phenomenon under investigation while the experiment is in progress” (p. 12), and this characteristic most certainly played out in this study. Just as Ms. Edwards, Ms. Oliver, and Ms. Ayala’s ability to analyze student thinking from a disciplinary lens developed over time, so too did my own ability. Poring over the vast archives of video footage and artifacts of student work across all three teachers’ classrooms allowed me to sharpen my ability to attend to the substance of students’ ideas and the ways in which these ideas resonated with the disciplinary themes in this study. I even found myself becoming more adept at using the video camera to capture this thinking, methodically circulating around the classroom to ensure that students’ questions and comments were documented for the teachers and me to explore in future meetings. My developing attention to students’ disciplinary thinking allowed me to better support teachers to do the same, as I
grew more skillful at posing questions that prompted teachers to more fully engage with the substance of students’ ideas.

Further, the experience of co-designing the BookBuilder projects with the teachers served to deepen my understanding of the potential of this tool. I played a role in the development of BookBuilder when I worked at CAST, and it was originally conceived of as a tool for teachers to use to create accessible books for their students.\(^{34}\) It was invigorating for me to collaborate with Ms. Edwards, Ms. Oliver, and Ms. Ayala to consider how this tool could be used not as a way to present content to students but as a way for students to generate their own content and to engage in the practices of the discipline of ELA. More specifically, supporting the teachers to leverage the flexibility of the coach feature pushed my thinking: I too moved away from focusing on the engaging nature of a talking, pop-up character and instead challenged myself to apply a disciplinary lens to reflect on how this seemingly simple feature might be utilized to prompt rich insight among learners. Thus, I developed new understandings of BookBuilder alongside the teachers, making our process of co-designing the projects an authentically collaborative experience that seemed to strengthen our rapport.

Finally, my efforts to develop and nurture trusting relationships with Ms. Edwards, Ms. Oliver, and Ms. Ayala have helped me to further define who I am as a researcher. Exploring research questions through partnerships with practitioners resonates with my background as a special educator and with my respect for the teaching profession. It was energizing for me to be back in the classroom once again, building relationships with teachers and students and

---

\(^{34}\) Although BookBuilder was first conceived of as a tool for teachers, the shared public library now contains more than 6,000 books created by teachers and students alike.
engaging in the fascinating, complex work of supporting student learning. Yet, at the same time, this work forced me outside of my comfort zone as the teachers and I ventured into the sensitive realm of personal beliefs with regard to student capability. It was challenging for me to achieve the delicate balance of creating space for teachers to wrestle with these tensions in ways that felt nonthreatening; yet, I pushed myself not to back away from these opportunities. Thus, navigating these somewhat tense moments facilitated both the teachers’ growth as well as my own. Overall, this study supported me to learn more about myself as a scholar. The dual role of researcher/collaborator that I assumed over the course of eleven months was a role that felt right—a role that felt at once familiar and challenging and a role that I am eager to continue to assume and develop in my work ahead.

**Concluding Thoughts**

This cross-case view of my collaborations with Ms. Edwards, Ms. Oliver, and Ms. Ayala offers new insight to the field. The analysis highlights the varied ways in which the teachers’ preexisting “worldviews and assumptions” led them to assimilate and begin to accommodate different aspects of our goals. Further, the analysis builds on the notion of preexisting beliefs and practices and explores the specific mechanisms of the interventions themselves that served to promote teacher growth: not just “seeing” evidence, but supporting teachers to develop disciplinary lenses to “see” over time; not just using flexible tools, but supporting teachers to learn to leverage tools for disciplinary aims; and not just recruiting teachers’ engagement, but attending to teachers’ readiness to engage over time. These findings offer a fine-grained look into the mechanisms that played a role in
Ms. Edwards, Ms. Oliver, and Ms. Ayala’s learning trajectories and contribute to the conversations surrounding teacher change more broadly by underscoring the process of teacher change. Our design-based research approach of designing, implementing, reflecting, and refining provided the time and the scaffolding for teachers’ learning to take shape. Over the five months of our collaborative interventions, the teachers and I were able to dig deeper and deeper into the ways in which we could apply UDL to encourage all learners to engage in the rich practices of the discipline. The implications of these findings and the new lines of research to which they point are discussed next in the final chapter.
Chapter 7: Implications and Conclusions

As described in the Introduction, two fifth grade co-teachers and their diverse group of students were a source of inspiration for this dissertation. After witnessing the ways in which these co-teachers leveraged UDL to encourage disciplinary thinking and the sophisticated thinking that emerged among all of their students, I was motivated to reflect on the implications of what I had observed. A burning question emerged for me—a question that ultimately developed into the topic of this dissertation and led me to explore how to support other teachers to apply UDL in these same powerful ways. And now, after spending almost an entire school year with Ms. Edwards, Ms. Oliver, and Ms. Ayala, and after analyzing and reflecting on the vast amount of data I collected, these teachers and their students have also inspired me. Observing the growth among students and teachers alike, as well as the challenges and tensions associated with this growth, has motivated me to reflect on new implications and has led me to new burning questions. Thus, this final chapter offers insight into the theoretical, methodological, and practice-based implications of this study and suggests important questions for future research.35

Theoretical Contributions

A start at further concretizing what it means to engage in disciplinary thinking in ELA. As described in the literature review in Chapter 1, both researchers and educators emphasize the need to support students to engage in disciplinary thinking; developing the unique practices and habits of mind of a

35 Given the considerable overlap between my Qualifying Paper and my dissertation, I have built upon several of the contributions outlined in my Qualifying paper.
particular discipline is the means by which students can actually learn and make sense of that discipline (Buchmann, 1984; Moje, 2008; Schwab, 1964; Shanahan & Shanahan, 2008; Shanahan & Shanahan, 2012). Interestingly, however, there is little consistency as to what it means to engage in the discipline of ELA; a “dearth of collective coherence” has prevailed in the domain (Donald, 2002, p. 237). Recently, Rainey (2016) offered a start at articulating the foundational practices of ELA by identifying “a set of six shared literary literacy practices that scholars use in their work with literature” (p. 1). While these practices are an important contribution to the field of ELA, Rainey’s work does not directly attend to what these practices might look like in the classroom.

The five themes that make up the theoretical framework of this dissertation—identifying as a reader, identifying as a writer, reading for meaning, reading like a writer, and writing like a writer—offer another initial conceptualization of disciplinary thinking in ELA. And the descriptions of students engaging in these themes throughout the three case studies begin to uncover ways to codify what it looks like when students engage in the discipline of ELA. Chapter 1 notes that these themes are not meant to suggest that they are the only practices, habits of mind, or epistemological commitments in ELA, but instead are meant to initiate a conversation as to what it means to engage in disciplinary thinking in ELA. As described in Chapter 3, Ms. Edwards already began contributing to this conversation with her conceptualization of a sixth theme—“reading and writing like a reader,” the notion of reading and writing with the reader’s reaction and experience in mind. As more and more researchers, ELA scholars, and educators join this conversation, the field will be
closer to developing the “collective coherence” that is needed in order to more fully support teachers to engage students in these rich ways of thinking.

**Expanding notions of who can engage in disciplinary thinking.** As described in previous chapters, this study also pushes against commonly held beliefs asserted in the literature as well as among the teachers in this study as to who is capable of engaging in disciplinary thinking. Aspects of each of the interventions that Ms. Edwards, Ms. Oliver, Ms. Ayala, and I co-designed generated evidence of a diversity of learners with and without disabilities engaging in the sophisticated practices of ELA. These findings resonate with the findings from my pilot study in Ms. Nichols and Ms. Reynolds’s classroom: these co-teachers also supported all of their students, including students with significant intellectual disabilities who have historically been denied challenging learning opportunities, to begin to develop disciplinary practices in ELA.

Research described in Chapter 1 reveals that educators often focus on functional skills without challenging students with disabilities to engage in meaningful learning within a content area (Causton-Theoharis, Theoharis, Orsati, & Cosier, 2011; Jorgensen, 1998; Koppenhaver, Pierce-Coleman, Kalman, & Yoder, 1991). Further, as described in previous chapters, there is a tendency among educators, particularly special educators, to adhere to a linear orientation toward learning, a belief that students must master specific foundational skills prior to moving on to deeper, more meaningful ways of thinking. The data presented in this study, coupled with the findings from my pilot study, suggest that all learners can and should be challenged to engage in deep disciplinary thinking. The influence of this theoretical contribution on supporting teacher learning is considered below.
in the discussions of both practice-based implications and areas for future research.

**Methodological Contributions**

This study also underscores the promise of Design-based Research (DBR) as a methodological approach to not only build theory but to also support teacher learning. As described in Ms. Edwards, Ms. Oliver, and Ms. Ayala’s case studies as well as the cross-case chapter, the cyclical process of designing, implementing, reflecting on, and refining the varied lessons, scaffolds, and projects that were a part of the three teachers’ interventions provided teachers with the time to develop new understandings of their practice and their students. With each new cycle, the process of teacher learning began to take shape as the teachers and I were able to dig deeper and deeper into the intersection of UDL and disciplinary thinking. Recently, researchers have expanded on DBR and developed Design-based Implementation Research (DBIR). This emerging approach is similar to DBR but emphasizes the value of more fully supporting collaborating practitioners from a systems-level perspective (Fishman, Penuel, Allen, Cheng, & Sabelli, 2013; Penuel, Fishman, Cheng, & Sabelli, 2011). Fishman, Penuel, Allen, Cheng, and Sabelli (2013) explain that DBIR aims to reconfigure the roles of researchers and practitioners in bringing about systemic change in ways that make it more likely that practitioners can adapt innovations productively to meet the needs of diverse students and that durable research-practice partnerships can sustain innovations that make a difference (p. 137).
The findings from this study underscore DBR—and possibly DBIR given its even stronger focus on supporting educators—as potentially rich sources of professional learning. Viewing these findings in concert with the findings from my previous research using action research reveals the promise of collaborative, “teacher-driven” processes to support teachers in exploring the intersection of UDL and disciplinary thinking.

**Practice-based Implications**

**Supporting teachers to leverage the intersection of UDL and disciplinary thinking.** The findings of this study uncover the often-untapped synergy between UDL and disciplinary thinking. Evidence of the rich student thinking that can emerge when UDL is leveraged in ways to encourage disciplinary thinking in ELA is demonstrated across all three teachers’ case studies. By applying the UDL framework through a discipline-specific lens, students with and without disabilities were able to begin engaging in the practices that allowed them to actually do the discipline of ELA. Thus, these findings have potential to inform leaders in schools and districts who seek to challenge all learners to develop the sophisticated practices, habits of mind, and epistemological commitments of the discipline.

Further, this study uncovers promising features and processes to support teachers to leverage UDL for discipline-specific aims—findings that have potential to inform not only leaders who are interested in supporting teachers to leverage UDL for disciplinary aims but leaders who are interested in teacher growth more broadly. First, the findings reveal the influence of teachers’ preexisting practices and beliefs on their learning trajectories. The data highlight
the need to create space for teachers to acknowledge, explore, and wrestle with the commitments, understandings, and tensions that they bring to a new learning opportunity. Second, the study goes beyond the articulation of factors that support teachers’ growth and uncovers the process by which these factors contributed to teacher learning. The findings reveal the importance of providing opportunities for teachers to “see” evidence of student thinking as well as the importance of supporting teachers to develop the disciplinary lenses needed to see this thinking. The findings also emphasize the potential of using flexible tools such as BookBuilder as well as the need to scaffold this use through a collaborative, discipline-specific process. Finally, the findings underscore the importance of recruiting teachers’ engagement by building trust and enhancing relevance as well as the importance of attending to teachers’ readiness to engage over time.

**Further developing CAST’s UDL Guidelines.** This study also surfaces implications for CAST’s UDL Guidelines. In 2009, “version 1.0” was offered to the field in response to a call from educators and curriculum developers to make the three principles of UDL more concrete. In 2011, “version 2.0” was launched to more fully align with new research as well as with feedback from educators and curriculum developers (CAST, 2011). The findings from this study, coupled with the findings from my pilot study, have the potential to inform a third generation of the Guidelines, a version that could be more useful to educators by more fully capturing the particular use of specific strategies that promote disciplinary thinking within specific domains. Throughout my collaborations with the three teachers, we were intentionally applying UDL through the discipline-specific lens of ELA as we leveraged certain guidelines to begin
supporting students to read and write “like writers.” Yet, the pilot study findings were all we had to guide our development in this process. Without these findings as well as my own background in UDL, it would have been challenging for Ms. Edwards, Ms. Oliver, Ms. Ayala, and me to engage in this work of exploring the intersection of UDL and disciplinary thinking. Further, it would have been especially challenging for the teachers—all of whom were new to UDL and notions of disciplinary thinking—to set out on this important work alone.

This challenge highlights the need to develop adaptations of the UDL Guidelines through discipline-specific lenses. Convening learning scientists, disciplinary experts, and educators from a range of domains to articulate the discipline-specific ways in which the Guidelines could be most successfully applied to encourage disciplinary thinking among learners as well as the discipline-specific strategies that are currently missing would offer tremendous support to the field. The Guidelines began as a set of strategies to support educators in addressing the needs of diverse learners, and a next generation of the Guidelines presents the opportunity to more fully support educators not only with diversity among learners but with diversity among disciplines (D. Rose, personal communication, August 22, 2013). As CAST looks ahead to the tenth anniversary of the development of the UDL Guidelines, offering more discipline-specific support to the field could be a valuable way to commemorate this milestone.

Areas for Future Research

Questions regarding support for preservice teachers. Ms. Edwards, Ms. Oliver, and Ms. Ayala were largely unfamiliar with UDL prior to joining this
study. All three teachers were certified in special education, with Ms. Edwards being certified in both general and special education; yet they did not recall a focus on UDL in their preparation programs. The teachers’ unfamiliarity with UDL underscores the need to embed opportunities for future teachers to gain knowledge about UDL. Although the 2008 Higher Education Opportunity Act emphasizes “that pre-service training through teacher education programs incorporate instruction on strategies consistent with UDL” (CAST, 2016), many preservice teachers like Ms. Edwards, Ms. Oliver, and Ms. Ayala graduate from their programs with little awareness of the framework. Although some institutions of higher education such as Boston College and the California State University System have developed UDL initiatives to promote the application of UDL to course design (UDL on Campus, 2016), increased opportunities for preservice teachers to learn about UDL are needed.

Further, despite the renewed focus among educators and researchers on engaging students in the practices of the discipline, the notion of disciplinary thinking was new to the teachers prior to this study. Rainey and Moje (2012) underscore the need to support preservice teachers to explore the practices and habits of mind unique to the disciplines. They offer an example of an innovative teacher education program at the University of Michigan in which teacher education students are grouped into “disciplinary cohorts beginning with their first-semester foundations of literacy course” (p. 86). With this model, Rainey and Moje assert that “there is great potential for deep consideration of discursive literacy demands of each discipline and collaboration across courses and experience in the program and across disciplinary majors” (p. 86). The three teachers’ limited knowledge of disciplinary thinking as well as their combination
of interest and hesitation with respect to these themes highlight the potential of programs that center on disciplinary practice. Thus, this study points to new questions concerning teacher preparation: How might we support preservice teachers to develop the understanding and the confidence needed to experiment with applying UDL, disciplinary thinking, and the intersection of the two in their future classrooms?

**Questions regarding the exploration of teachers’ preexisting beliefs and orientations toward learning.** As emphasized above, this study reveals the need to acknowledge, explore, and wrestle with teachers’ preexisting practices and beliefs when engaging in professional learning opportunities. While Windsor School was not a full inclusion school, this research site was striving toward inclusive practices in the elementary grades. Yet, as with so many educational institutions, linear orientations toward learning and questions about the capabilities of students with disabilities still persist. How might the nature of supporting teacher learning at the intersection of UDL and disciplinary thinking need to change in schools where inclusion is not embraced and where deficit orientations are more entrenched? What kinds of learning opportunities are needed to support teachers to confront cultures of low expectations (Causton-Theoharis, Theoharis, Orsati, & Cosier, 2011; Gartner & Lipsky, 1987; Hehir, 2002) and to develop a belief in the need to challenge all learners? This study illustrates the importance of designing flexible professional learning opportunities with space and support to confront and grapple with views surrounding students’ capabilities, and continued research would shed even more light on the messy and complicated processes of changing attitudes and beliefs (Bryk & Schneider, 2002). Further, Chapter 6 revealed how Ms. Edwards’s
preexisting beliefs and practices positioned her to be highly receptive at the outset of our collaborative work, whereas Ms. Oliver and Ms. Ayala’s preexisting beliefs and practices positioned them to be more cautious. How might UDL be leveraged to support groups of teachers who enter into professional learning opportunities at these dissimilar places?

**Questions regarding the use of classroom video to support teacher learning.** This study adds confirmation to the potential of viewing evidence of student thinking as a way to support teachers—particularly through the process of analyzing students’ questions and comments via classroom video (Ball & Cohen, 1999; Lampert & Ball, 1998; McCullagh, 2012; Roth, 2007; Sherin & Han, 2004). The findings also underscore the need to support teachers to feel comfortable viewing footage from their own classrooms as well as the importance of supporting teachers’ in attending to and analyzing student thinking through a disciplinary lens. How might video be more fully harnessed to support teachers to explore the intersection of UDL? What options, scaffolds, and supports can develop the trust and the discipline-specific analytical lenses needed to make this work productive? Exploring the use of new video technologies that allow educators to upload classroom footage, mark-up specific moments, and share with colleagues for analysis offers a promising way to begin studying these questions.

**Questions regarding feasibility.** The design of this study afforded me the opportunity to work individually with Ms. Edwards, Ms. Oliver, and Ms. Ayala for close to one year, with our collaborative phases spanning approximately five months each. During this time we were able to develop relationships, pore over video and student work, explore and leverage relevant resources such as the
Thinking Reader version of The Giver and CAST’s UDL BookBuilder, and spend weeks co-developing lessons and projects. As described in Chapter 1, this sustained, personalized approach to improving practice is rare (Ball & Cohen, 1999; Darling-Hammond & McLaughlin, 2011; Guskey, 2000). How might we be able to support teachers to develop frames to explore notions of disciplinary thinking, UDL, and the intersection of the two in ways that account for the limited time and resources that are the reality in today’s schools?

The call to cultivate deep disciplinary thinking is growing stronger than ever, and UDL can offer a framework for providing diverse learners with opportunities to gain the specific ways of thinking and knowing within particular content areas. Yet, to provide students with these robust learning opportunities, we need to support teachers in using UDL to create these opportunities in the first place. This study reveals the rich student thinking that can emerge at the intersection of UDL and disciplinary thinking and develops hypotheses as to productive ways to support teachers along a trajectory of learning to use UDL to encourage disciplinary thinking. It is my hope that this dissertation brings the field one step closer toward supporting teachers to apply UDL in ways that increase opportunities for all learners to develop deep, discipline-specific practices and epistemological beliefs.

***

The conclusion of Ms. Ayala’s final interview marks the end of my data collection. As we hug goodbye and I make my way through the now familiar hallways of Windsor School one last time, I am filled with a mixture of emotions. There is a part of me that feels a sense of regret. My collaborations with Ms. Edwards, Ms. Oliver, and Ms. Ayala have ended at a time where it seems as though we are really just beginning. Each
teacher’s BookBuilder project came toward the end of our work together, and it was the process of designing, implementing, and reflecting on these projects that proved the most productive in encouraging students to begin to engage in disciplinary thinking—and the most productive in encouraging the teachers to begin to see their practice and their students in new ways. What new learning might we have generated if Ms. Edwards, Ms. Oliver, Ms. Ayala, and I had had the time to build off of this momentum and dig deeper into the intersection of UDL and disciplinary thinking?

At the same time, I feel a sense of hope. While access to Ms. Ayala was challenging at times, all three teachers did their best to make time for this study in the midst of a record number of snow days, the school’s first experience implementing online testing, as well as the typical day-to-day challenges and uncertainties that make teaching such a rewarding yet mentally and physically exhausting profession. All three teachers committed to this project based on their genuine desire to improve their practice and to better support their students. And, all three teachers were willing to reveal and wrestle with their wonderings, hesitations, and concerns as they engaged in this collaborative work. As I walk to find my sister, who has been entertaining my now two-month-old daughters in the cafeteria while I met with Ms. Ayala for this last interview, I reflect on how Ms. Ayala shared that she continued to explore the disciplinary themes of reading and writing “like writers” with her students after our collaboration concluded. This reminds me of my final interview with Ms. Edwards and how she expressed her commitment to exploring disciplinary themes in the upcoming year and my final interview with Ms. Oliver when she revealed her intention to launch a BookBuilder poetry project next January. Just as this study has left me with burning questions to explore as I embark on my post–graduate school career, I am hopeful that this study has
left Ms. Edwards, Ms. Oliver, and Ms. Ayala with their own burning questions to explore with their students in the years to come.
Appendices

Appendix A. CAST’s UDL Guidelines

Universal Design for Learning Guidelines

I. Provide Multiple Means of Representation
1: Provide options for perception
   1.1 Offer ways of customizing the display of information
   1.2 Offer alternatives for auxiliary information
   1.3 Offer alternatives for visual information
2: Provide options for language, mathematical expressions, and symbols
   2.1 Clarify vocabulary and symbols
   2.2 Clarify syntax and structure
   2.3 Support decoding of text, mathematical notation, and symbols
   2.4 Promote understanding across languages
   2.5 Illustrate through multiple media
3: Provide options for comprehension
   3.1 Activate or supply background knowledge
   3.2 Highlight patterns, critical features, big ideas, and relationships
   3.3 Guide information processing, visualization, and manipulation
   3.4 Maximize transfer and generalization

II. Provide Multiple Means of Action and Expression
4: Provide options for physical action
   4.1 Vary the methods for response and navigation
   4.2 Optimize access to tools and assistive technologies
5: Provide options for expression and communication
   5.1 Use multiple media for communication
   5.2 Use multiple tools for construction and composition
   5.3 Build fluencies with graduated levels of support for practice and performance

III. Provide Multiple Means of Engagement
6: Provide options for executive functions
   6.1 Guide appropriate goal-setting
   6.2 Support planning and strategy development
   6.3 Facilitate managing information and resources
   6.4 Enhance capacity for monitoring progress
7: Provide options for recruiting interest
   7.1 Optimize individual choice and autonomy
   7.2 Optimize relevance, value, and authenticity
   7.3 Minimize threats and distractions
8: Provide options for sustaining effort and persistence
   8.1 Heighten salience of goals and objectives
   8.2 Vary demands and resources to optimize challenge
   8.3 Foster collaboration and community
   8.4 Introduce mastery-oriented feedback
9: Provide options for self-regulation
   9.1 Promote expectations and beliefs that optimize motivation
   9.2 Facilitate personal coping skills and strategies
   9.3 Develop self-assessment and reflection

Resourceful, knowledgeable learners
Strategic, goal-directed learners
Purposeful, motivated learners

© 2011 by CAST. All rights reserved. cast.org, www.udlcenter.org
Appendix B: Assessment of Baseline Assignments in Action Research Project

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Number of items that elicited critical thinking\textsuperscript{36} in S.S. according to the rubric that we collaboratively developed</th>
<th>Total number of items</th>
<th>Percentage of items that elicited critical thinking in S.S. according to the rubric that we collaboratively developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quiz on the Incan Civilization</td>
<td>2</td>
<td>21</td>
<td>9.5</td>
</tr>
<tr>
<td>Test on the Indian Subcontinent</td>
<td>1</td>
<td>13</td>
<td>7.7</td>
</tr>
<tr>
<td>Project on the effectiveness of the Incan Government</td>
<td>Project elicited one critical thinking feature</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{36} For this study, I was using the term “critical thinking in Social Studies” to describe the practices and habits of mind unique to the discipline. This study led me to the notion of “disciplinary thinking.”
### Appendix C: Summary of UDL Strategies/Other Strategies Used to Promote Disciplinary Thinking in ELA that were Uncovered in My Qualifying Paper

<table>
<thead>
<tr>
<th>Strategy Used to Promote Disciplinary Thinking</th>
<th>Type of Disciplinary Thinking in ELA</th>
<th>Examples from the QP Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>UDL Checkpoint 9.3: Develop self-assessment and reflection</td>
<td>Identifying as a writer</td>
<td>Poetry Slam reflections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>End of unit blogposts</td>
</tr>
<tr>
<td>UDL Guideline 6: Provide options for executive functions</td>
<td>Reading like a writer</td>
<td>Exploration of peers’ fables and parables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Revising for word choice</td>
</tr>
<tr>
<td>Novel applications of UDL Guideline 3: Provide options for comprehension</td>
<td>Reading for meaning/Reading like a writer</td>
<td>Exploration/analysis of “Camel”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exploration/analysis of limericks</td>
</tr>
<tr>
<td>• Empowering students to actively construct their understanding (Checkpoint 3.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Developing more cognitively challenging goals than “information processing” (Checkpoint 3.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategy not currently reflected in the UDL Guidelines</td>
<td>Writing like a writer</td>
<td>Creation of poetry</td>
</tr>
<tr>
<td>• Opportunities to create and construct</td>
<td></td>
<td>Creation of fables and parables</td>
</tr>
</tbody>
</table>
Appendix D: Windsor School Data

Table D1. Schoolwide Enrollment by Race/Ethnicity (2014–15).

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>% of School</th>
<th>% of District</th>
<th>% of State</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>12</td>
<td>36</td>
<td>9</td>
</tr>
<tr>
<td>Asian</td>
<td>5</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>29</td>
<td>40</td>
<td>16</td>
</tr>
<tr>
<td>Native American</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>White</td>
<td>53</td>
<td>13</td>
<td>66</td>
</tr>
<tr>
<td>Native Hawaiian, Pacific Islander</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Multi-Race, Non-Hispanic</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>


Table D2. Schoolwide Selected Populations (2014–15).

<table>
<thead>
<tr>
<th>Title</th>
<th>% of School</th>
<th>% of District</th>
<th>% of State</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Language Learner</td>
<td>13</td>
<td>31</td>
<td>8</td>
</tr>
<tr>
<td>First Language other than English</td>
<td>23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economically Disadvantaged</td>
<td>25</td>
<td>72</td>
<td>37</td>
</tr>
<tr>
<td>Students with Disabilities</td>
<td>24</td>
<td>20</td>
<td>17</td>
</tr>
</tbody>
</table>


---

These data were retrieved from the State’s Department of Education website. The numbers are rounded to the nearest whole percent and the full citations are not included in order to protect the identity of the school.
## Appendix E: Summary and Timeline of Three Phases

<table>
<thead>
<tr>
<th>Phase</th>
<th>Goal</th>
<th>Approximate timeline</th>
</tr>
</thead>
</table>
| **Phase 1:** Establishing a baseline | 1. Explore teachers’ current understanding of UDL and disciplinary thinking  
                                          2. Explore the ways teachers currently apply UDL and disciplinary teaching to their practice  
                                          3. Explore students’ disciplinary thinking                                                   | August to December 2014          |
| **Phase 2:** Intervention           | 1. Collaborate with teachers to design, implement, and refine an individualized intervention     
                                          2. Explore any initial changes in teachers’ practice  
                                          3. Explore any initial changes in students’ disciplinary thinking  
                                          4. Explore any initial changes in teachers’ perceptions of UDL and disciplinary thinking | December 2014 to April 2015      |
| **Phase 3:** Reflection             | 1. Explore any changes in teachers’ perceptions of UDL and disciplinary thinking                 
                                          2. Explore any changes in teachers’ practice  
                                          3. Explore any changes in students’ thinking  
                                          4. Explore the teachers’ perceptions of the strengths and weaknesses of the supports/lessons/projects that we designed in terms of how successful they were at engaging all learners in disciplinary thinking  
                                          5. Explore teachers’ perceptions of the usefulness of the various supports offered through our work together | June to July 2015                |
Appendix F: Teacher Interview Protocol for Phase 1 Initial Interview

General background questions
- What themes/topics do you teach in ELA?
  - How do you decide on these topics/themes?
  - Why do you think these topics/themes are important for students to learn?
- How do your priorities for topics/themes connect or relate to what you see coming from standards like the Common Core State Standards and the PARCC?
  - Do you see areas of alignment?
  - Misalignment?

Background questions on UDL
- How did you first learn about UDL?
- How do you think of the framework? Is it helpful in your teaching?
- Can you give some examples of ways that you incorporate UDL into your lessons?
- What do you see as the pedagogical benefits of applying UDL?
- What do you see as the drawbacks or challenges of UDL?

Background questions on disciplinary thinking
- What specific practices/habits of mind do you think are important for your students to develop in ELA?
- Why do you think these practices/habits of mind are important?
- How do you know when your students are engaged in developing these practices/habits of mind?
  - What do you look for as evidence?
  - Anecdotes or examples?
- Are you satisfied with your students’ current development of these practices/habits of mind?
- What kinds of challenges do you encounter when trying to encourage students to engage in disciplinary thinking?
- The literature refers to specific practices/habits of mind as “disciplinary thinking.” I have identified five themes of disciplinary thinking in ELA: identifying as a reader, identifying as a writer, reading for meaning, reading like a writer, and writing like a writer [briefly describe each theme].
  - What do you think about these five themes?
  - How do they connect to your ideas?

Background questions on the intersection of UDL and disciplinary thinking
- Are the UDL guidelines explicitly part of your planning process? Why/why not?
  - Anecdotes or examples?
- Do you currently use UDL to provide opportunities for your students to engage in the practices/habits of mind unique to ELA?
- If so, why? How?
- If so, why? How?
Appendix G: Teacher Interview Protocol for Phase 2 Initial Interview

Reflect on the understandings and perceptions that were considered in the initial interview

- How do you think the school year has been going so far? Have you been happy with your students’ progress in ELA?
- Are they engaging in the kinds of habits and practices that you think are important in ELA?
  - Are ALL students able to do this?
- You mentioned that [insert challenge] was a challenge to you in terms of applying UDL. Can you expand more on this idea?
  - What might support you in overcoming this challenge?
- You mentioned that [insert feature] is an important feature of disciplinary thinking in ELA. Can you describe what this feature means to you?
  - What might support you in engaging students in this kind of thinking?

As you know, I’ve been thinking specifically about supporting all learners to engage in the specific practices/habits of mind of ELA

- I have identified five themes of disciplinary thinking in ELA
  - identifying as a reader
  - identifying as a writer
  - reading for meaning
  - reading like a writer
  - writing like a writer
- Do you think your students have been engaging in any of these practices?
  - If so, can you provide specific examples.
  - If not, why?

I’ve selected some student work and video footage to view and discuss:

View Clip X

- What kinds of thinking did you hope this reflection would prompt?
  - Was it realized?
  - If so, what led to success?
  - If not, what were the barriers?
- Do you think that all students were able to engage in this kind of thinking?
  - If yes, what are some of the strategies that you are using that seem to be working?
  - If no, what do you think needs to be improved? Do you see any opportunities to use UDL to encourage more disciplinary thinking from students?

General

Is there one aspect of DT that feels especially relevant to you/that you would want to work on?
# Appendix H: Examples of Supports Used in the Co-Developed Intervention

<table>
<thead>
<tr>
<th>Type of Support</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploration and discussion of articles/books</td>
<td>Teachers and I consistently discussed and explored CAST’s UDL Guidelines.</td>
</tr>
<tr>
<td>(Burbank, Kauchak, &amp; Bates, 2010;</td>
<td></td>
</tr>
<tr>
<td>Explore video footage of teacher’s own practice</td>
<td>Teachers and I explored moments from the video footage collected in Phase 1 and looked for strengths and weaknesses with regard to UDL and disciplinary thinking.</td>
</tr>
<tr>
<td>(Ball &amp; Cohen, 1999; Lampert &amp; Ball, 1998; McCullagh,</td>
<td></td>
</tr>
<tr>
<td>2012; Roth, 2007; Sherin &amp; Han, 2004)</td>
<td>Teachers and I explored moments from the video footage collected during our collaborative phase and analyzed according to strengths and weaknesses with regard to UDL and disciplinary thinking.</td>
</tr>
<tr>
<td>Explore student work</td>
<td>Teachers and I explored student work collected in Phase 1 and looked for strengths and weaknesses with regard to UDL and disciplinary thinking.</td>
</tr>
<tr>
<td>(Ball &amp; Cohen, 1999; Lampert &amp; Ball, 1998; Stein,</td>
<td></td>
</tr>
<tr>
<td>Smith, &amp; Silver, 1999)</td>
<td>Teachers and I explored student work collected during our collaborative phase and looked for strengths and weaknesses with regard to UDL and disciplinary thinking.</td>
</tr>
<tr>
<td>Explore model student work</td>
<td>Teachers and I explored some of the student work from my pilot studies to look for evidence of disciplinary thinking. We also explored the teacher-generated materials that led to the student work (e.g., projects, graphic organizers, etc.)</td>
</tr>
<tr>
<td>(Ball &amp; Cohen, 1999; Garet, Porter, Desimone, Birman,</td>
<td></td>
</tr>
<tr>
<td>&amp; Yoon, 2001)</td>
<td></td>
</tr>
<tr>
<td>Collaboratively analyze and re-design a lesson</td>
<td>Teachers and I worked together to develop, implement, reflect, and refine lessons throughout the collaborative phase.</td>
</tr>
<tr>
<td>(Fernandez, Cannon, &amp; Chokshi, 2003; Guskey, 2000;</td>
<td></td>
</tr>
<tr>
<td>Stein, Smith, &amp; Silver, 1999; Stigler &amp; Hiebert, 2009</td>
<td></td>
</tr>
<tr>
<td>Modeling (Darling-Hammond &amp; McLaughlin, 2011; Garet, Porter, Desimone, Birman, &amp; Yoon, 2001)</td>
<td>I facilitated several mini-lessons to model a certain UDL strategy and to show how it might be used to promote disciplinary thinking.</td>
</tr>
</tbody>
</table>
Appendix I: Sample Conversation Topics during Planning/Debriefing Sessions

Brainstorming/designing a new idea to try in the classroom
- What is our disciplinary goal?
- What are some of the barriers to this goal?
- How might we use UDL to allow students to access and engage with the goal?
- What are the specific things that I can do to support you in the design/implementation phase?

Reflecting on the implementation of one of our ideas
*Sample questions to ask when viewing specific video footage/explored student work*
I’ve selected some student work and video footage to view and discuss:
- What were you thinking when this happened?
- Why did you say what you said?
- Why did you make this decision?
- Was disciplinary thinking intended in this moment and realized?
  - If so, what led to success?
- Was disciplinary thinking intended in this moment but unrealized?
  - If so, what got in the way?
- What do you think led to the success/challenge of this moment?

More general reflection topics
- In general, how do you think this went?
  - Strengths/weaknesses of the idea
- Did you notice students engaging in our disciplinary goal of X? What evidence of students’ thinking can we point to?
- Did UDL help to support all students to engage with this disciplinary goal? What evidence of students’ thinking can we point to?
- What aspects of this idea do we need to refine to more fully support students in reaching the disciplinary goal?
- Has your thinking with regard to UDL changed at all after implementing/reflecting on this idea? If so, how? If no, in what ways has it stayed the same?
- Has your thinking with regard to DT changed at all after implementing/reflecting on this idea? If so, how? If no, in what ways has it stayed the same?

Reflecting on our collaborative partnership
- What changes can we make to the intervention to better support you?
  - What supports should we add in for next week? Why?
  - What supports should we refine? Why? How?
Appendix J: Teacher Interview Protocol for Phase 3 Final Interview

Reflect on any changes in beliefs about UDL and disciplinary thinking

- How do you think your understanding of UDL has changed throughout this process? [Revisit specific statements made in interviews, during debriefing sessions, etc.]
  - What supported this change?
- How do you think your understanding of disciplinary thinking has evolved throughout this process? [Revisit specific statements made in interviews, during debriefing sessions, etc.]
  - What supported this change?

Reflecting on ideas that we tried out in the classroom [Provide a handout that lists all of the lessons we implemented together]

- Which idea do you feel was the most successful in terms of using UDL to encourage disciplinary thinking in ELA?
- Which idea do you feel was the least successful? Why?

Questions to uncover teachers’ perceptions on the effectiveness of the supports offered

- Which supports seemed particularly helpful? Why?
- Which supports seemed particularly unhelpful?
  - Why?
- What challenges do you think you still face in terms of applying UDL to promote disciplinary thinking?
- Do you think you have gained the skills and ways of thinking to keep working on these challenges after this study? Why/why not?
- How do you think your practice has changed as a result of this study?
Appendix K: Data Collection Matrix

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Data collected</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>For three teachers who have begun to apply UDL to their practice, how, and in what ways, can a co-developed intervention support them to apply UDL to encourage disciplinary thinking in ELA among diverse learners?</em></td>
<td></td>
</tr>
<tr>
<td>1. In what ways, if at all, did teachers’ practice change throughout the process?</td>
<td>Phases 1–3</td>
</tr>
<tr>
<td>a. In what ways, if at all, was disciplinary thinking reflected in students’ actions and work? How, if at all, did this change throughout the process?</td>
<td>• Classroom observation/video</td>
</tr>
<tr>
<td></td>
<td>• Instructional materials</td>
</tr>
<tr>
<td></td>
<td>• Student work</td>
</tr>
<tr>
<td></td>
<td>• Planning/debriefing meetings</td>
</tr>
<tr>
<td></td>
<td>• Semi-structured teacher interviews</td>
</tr>
<tr>
<td>2. In what ways, if at all, did teachers’ perceptions of UDL and disciplinary thinking change throughout the process?</td>
<td>Phases 1–3</td>
</tr>
<tr>
<td></td>
<td>• Semi-structured teacher interviews</td>
</tr>
<tr>
<td></td>
<td>• Planning/debriefing meetings</td>
</tr>
<tr>
<td>3. What aspects of the intervention, if any, did teachers self-report as being particularly useful in developing their practice and/or perceptions? Which did they feel were less useful? Why?</td>
<td>Phases 2–3</td>
</tr>
<tr>
<td></td>
<td>• Semi-structured teacher interviews</td>
</tr>
<tr>
<td></td>
<td>• Planning/debriefing meetings</td>
</tr>
</tbody>
</table>
Appendix L: Ms. Edwards’s Introduction to Her Model Nonfiction Report

Where Do Urban Pigeons Live?

Pigeons have not always lived in cities. In fact, they used to be called rock doves because they lived in rocky cliffs on European coasts. However, today, they live in cities all over the United States. It is possible that pigeons live in cities because cities resemble the cliffs and canyons of Europe. According to Bash, "[t]o the pigeon, the city may look like a wilderness full of high cliffs and deep canyons." That is to say, the buildings might look like cliffs, and the streets between the tall buildings might look like canyons.

Pigeons, like other birds, search for roosts. "A roost is a place where birds go for protection when they sleep and for shelter from the rain and cold." To put it another way, a roost is the equivalent of a home for people, except that pigeons can roost outdoors while people find protection indoors. "Pigeons roost under highway overpasses, on window ledges, under building archways, on top of roofs, and under eaves." It's hard not to notice that all of these spots seem rather hidden. In fact, pigeons hide their roosting spots so well that you might walk under them and never know it. For example, in the city of Chicago, train trestles are a favorite spot for pigeons. When you walk under a the elevated trains in Chicago, you might never know you were under a blanket of pigeons . . . except for the blanket of excrement they kindly leave you on the ground under the tracks.

Pigeons find protection in roosts, and many times, they will build their nests in those roosts. Pigeons build nests of twigs and debris in places as diverse as on a ledge, on a windowsill, or "in the curve of a storefront letter." Have you ever seen pigeon nests in the "W" of a Walmart, or the "K" of a K-Mart? In short, pigeons will build nests almost anywhere! They seem like survivors.
## Appendix M: The Quotations/Notes that Ms. Edwards Used to Write Her Introduction

<table>
<thead>
<tr>
<th>Author’s Last Name &amp; Page #</th>
<th>Jot, Paraphrase, or Quote</th>
<th>Thoughts, Comments, Connections, and Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bash, p. 3</td>
<td>Pigeons used to be called rock doves because they lived in rocky cliffs on European coasts, but today, they live in cities all over the United States.</td>
<td>I wonder why they live in cities. I have heard it is because they are dirty, but if that’s true, why do pigeons like dirt?</td>
</tr>
<tr>
<td>Bash, p. 3</td>
<td>“To the pigeon, the city may look like a wilderness full of high cliffs and deep canyons.” Buildings might look like cliffs, and the streets between the tall buildings might look like canyons.</td>
<td>Really? Do pigeons have poor eyesight?</td>
</tr>
<tr>
<td>Bash, p. 4</td>
<td>“A roost is a place where birds go for protection when they sleep and for shelter from the rain and cold.”</td>
<td>This sounds like the equivalent of a home for people, except that pigeons can roost outdoors while people find protection indoors.</td>
</tr>
<tr>
<td>Bash, p. 4</td>
<td>“Pigeons roost under highway overpasses, on window ledges, under building archways, on top of roofs, and under eaves.”</td>
<td>All of these spots seem rather hidden.</td>
</tr>
<tr>
<td>Bash, p. 4</td>
<td>Pigeons hide their roosting spots so well that you might walk under them and never know it . . .</td>
<td>. . . except for the unmistakable white and brown pigeon excrement that tends to fall below where pigeons roost.</td>
</tr>
</tbody>
</table>

Name: ___________________________
**Transitional Words and Phrases**

<table>
<thead>
<tr>
<th>Addition</th>
<th>Time</th>
<th>Summary or Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>• furthermore</td>
<td>• while</td>
<td>• to summarize</td>
</tr>
<tr>
<td>• moreover</td>
<td>• immediately</td>
<td>• in sum</td>
</tr>
<tr>
<td>• too</td>
<td>• never</td>
<td>• in brief</td>
</tr>
<tr>
<td>• also</td>
<td>• after</td>
<td>• to sum up</td>
</tr>
<tr>
<td>• in the second place</td>
<td>• later, earlier</td>
<td>• in short</td>
</tr>
<tr>
<td>• again</td>
<td>• always</td>
<td>• in summary</td>
</tr>
<tr>
<td>• in addition</td>
<td>• when</td>
<td>• in conclusion</td>
</tr>
<tr>
<td>• even more</td>
<td>• soon</td>
<td>• to conclude</td>
</tr>
<tr>
<td>• next</td>
<td>• whenever</td>
<td>• finally</td>
</tr>
<tr>
<td>• further</td>
<td>• meanwhile</td>
<td></td>
</tr>
<tr>
<td>• last, last</td>
<td>• sometimes</td>
<td></td>
</tr>
<tr>
<td>• finally</td>
<td>• in the meantime</td>
<td></td>
</tr>
<tr>
<td>• besides</td>
<td>• during</td>
<td></td>
</tr>
<tr>
<td>• and, or, nor</td>
<td>• afterwards</td>
<td></td>
</tr>
<tr>
<td>• first</td>
<td>• now, until now</td>
<td></td>
</tr>
<tr>
<td>• second, secondly, etc.</td>
<td>• next</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• following</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• once</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• then</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• at length</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• simultaneously</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• so far</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• this time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• subsequently</td>
<td></td>
</tr>
</tbody>
</table>

**Place**

- here
- there
- nearby
- beyond
- wherever
- opposite to
- adjacent to
- neighboring
- on
- above, below
Appendix O: Design of the Revised Nonfiction Introduction Lesson: Leveraging UDL to Encourage Students’ Disciplinary Thinking

<table>
<thead>
<tr>
<th>UDL Principle</th>
<th>UDL “Access Guidelines” to reduce barriers and to increase access to learning goal</th>
<th>UDL to encourage disciplinary thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Means of Representation</td>
<td>Students were provided with Ms. Edwards’ model introduction through a variety of modalities: paper-based, projected on the whiteboard, and read aloud (UDL Guidelines: “Options for perception” and “Options for language and symbols”)</td>
<td>Ms. Edwards’s facilitation of the class discussion prompted students to consider the elements of an effective nonfiction introduction (UDL Guidelines: “Options for Comprehension”) through the disciplinary lens of “Reading like a writer”</td>
</tr>
<tr>
<td>Multiple Means of Action and Expression</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Multiple Means of Engagement</td>
<td>Overarching unit: Students had choice in terms of the topic of their own nonfiction reports (UDL Guideline: “Options for recruiting interest”)</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Appendix P. “What did you notice?/What ideas does this give you?” Draft Graphic Organizer

Name:
Date:

<table>
<thead>
<tr>
<th>What did you notice about the conclusion?</th>
<th>What idea does this give you for your own conclusion?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix Q: Design of the “What I Notice/What I Want to Try” Conclusion Lesson: Leveraging UDL to Encourage Students’ Disciplinary Thinking

<table>
<thead>
<tr>
<th>UDL Principle</th>
<th>UDL “Access Guidelines” to reduce barriers and to increase access to learning goal</th>
<th>UDL to encourage disciplinary thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multiple Means of Representation</strong></td>
<td>- Students were provided with model conclusions in text and/or could read aloud with a partner <em>(UDL Guidelines: “Options for perception” and “Options for language and symbols”)</em></td>
<td>- The graphic organizer prompted students to consider the strategies that authors use to conclude nonfiction writing <em>(UDL Guidelines: “Options for Comprehension”)</em> through the disciplinary lens of “Reading like a writer”</td>
</tr>
<tr>
<td><strong>Multiple Means of Action and Expression</strong></td>
<td>- Students could work together to fill out their graphic organizers and could begin drafting their conclusions individually or as a team. <em>(UDL Guidelines: “Options for physical action” and “Options for expression and communication”)</em></td>
<td>- Graphic organizer supported students in organizing the authors’ strategies and in documenting their own ideas <em>(UDL Guideline: “Options for executive function”)</em> through the disciplinary lens of “Reading like a writer” and “Writing like a writer”</td>
</tr>
</tbody>
</table>
| **Multiple Means of Engagement**     | - Students could work with a partner *(UDL Guideline: “Options for sustaining effort and persistence”)*  
- Overarching unit: Students had choice in terms of the topic of their own nonfiction reports *(UDL Guideline: “Options for recruiting interest”)* | - “Insight from the Author” page to encourage students to reflect on the techniques that they incorporated into their reports *(UDL Guideline: “Options for executive function”)* through the disciplinary lens of “Identifying like a writer” |
Appendix R: BookBuilder Narrative Planning Template

Name:
Date:

Page _____
Text:

Image (Describe the image you want on this page. Have you found it yet?):

Coach: EXPLAIN how you are SHOWING (not telling) the character’s feelings on this page

Page _____
Text:

Image (Describe the image you want on this page. Have you found it yet?):

Coach: EXPLAIN how you are SHOWING (not telling) the character’s feelings on this page
Appendix S: Design of the BookBuilder Intervention: Leveraging UDL to Encourage Students’ Disciplinary Thinking

<table>
<thead>
<tr>
<th>UDL Principle</th>
<th>UDL “Access Guidelines” to reduce barriers and to increase access to learning goal</th>
<th>UDL to encourage disciplinary thinking</th>
</tr>
</thead>
</table>
| **Multiple Means of Representation** | • By using the text-to-speech function, students could hear their writing read aloud (*UDL Guidelines: “Options for perception” and “Options for language and symbols”*)  
  • Ms. Edwards and I modeled the process of creating a BookBuilder book while students followed along at their individual computers (*UDL Guidelines: “Options for perception” and “Options for comprehension”*) | n/a |
| **Multiple Means of Action and Expression** | • Instead of paper and pencil, students developed their narratives using the digital features in BookBuilder (*UDL Guidelines: “Options for physical action” and “Options for expression and communication”*)  
  • Students were offered a scribe for expressing ideas into the planning template (*UDL Guidelines: “Options for physical action” and “Options for expression and communication”*) | • The planning template was intended to support students’ planning and organization (*UDL Guidelines: “Options for executive function”*) through the disciplinary lens of “Writing like a writer”  
  • Scripting the coach was intended to support students to apply into their own writing what they learned about “showing vs telling” from reading other authors’ work (*UDL Guidelines: “Options for executive function”*) (“Reading like a Writer,” “Writing like a Writer”) |
<p>| <strong>Multiple Means of Engagement</strong> | • Students could choose the draft of the narrative that they were most proud of (<em>UDL Guidelines: “Options for engagement”</em>) | n/a |</p>
<table>
<thead>
<tr>
<th>for recruiting interest” and “Options for sustaining effort and persistence”</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ms. Edwards believed that creating digital books via UDL BookBuilder would be an engaging and motivating experience for students (UDL Guidelines: “Options for recruiting interest” and “Options for sustaining effort and persistence”)</td>
</tr>
</tbody>
</table>
Appendix T: The “Take a Closer Look” Worksheet

<table>
<thead>
<tr>
<th>TAKE A CLOSER LOOK</th>
<th>Name:</th>
<th>What’s the <strong>point</strong>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magazine <strong>Title</strong>:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feature Article <strong>Title</strong>:</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Author</strong>:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Audience</strong>:</th>
<th>What <strong>evidence</strong> do you have that the article is written for this kind of person?</th>
<th>What <strong>type of article</strong> is this?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(Circle one)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. How-to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Informational</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Review/Critique</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Travel</td>
</tr>
</tbody>
</table>

| **Length** *(In paragraphs)*: | **Sub-Headings/Sub-Titles**: | **Side-boxes/Fun Features**:

Describe one or more **illustrations** (graphs, photos, drawings, charts) that support the article:


Write the **lead** below. What makes it effective? *(Personal story, shocking fact(s), burning questions, etc.)*


Did the author **interview** anyone? Please write down two or more **quotes** and identify who is speaking and why you think this person was interviewed:


Appendix U: Disciplinary Thinking in ELA Handout

“Disciplinary Thinking” in ELA

| Identity as a Reader | Students see themselves as capable readers  
|                      | They are motivated to undertake difficult texts and to gain enjoyment from reading |
| Identity as a Writer | Students see themselves as capable writers  
|                      | They feel as though they are part of “the club of writers” |
| Read for Meaning     | Students move beyond basic comprehension  
|                      | They construct meaning from a text, contribute background knowledge, and assimilate new knowledge |
| Read like a Writer   | Students explore the “author’s craft” and uncover techniques that authors use to evoke meaning and to guide readers |
| Write like a Writer  | By closely attending to the author’s craft, students can begin to weave these strategies into their own work |
Appendix V: What I Notice/What I Want to Try T-Chart

<table>
<thead>
<tr>
<th>“What I notice about the poet’s strategies”</th>
<th>“What I want to try out in my own poem”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Think about imagery, setting, mood, and/or poetic devices (simile/metaphor, alliteration, hyperbole, personification, onomatopoeia, etc.)</td>
<td></td>
</tr>
</tbody>
</table>
Appendix W: Design of the “What I Notice/What I Want to Try” T-Chart: Leveraging UDL to Encourage Students’ Disciplinary Thinking

<table>
<thead>
<tr>
<th>UDL Principle</th>
<th>UDL “Access Guidelines” to reduce barriers and to increase access to learning goal</th>
<th>UDL to encourage disciplinary thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multiple Means of</strong></td>
<td>• Students were provided with model poems in text and read aloud (<em>UDL Guidelines: “Options for perception” and “Options for language and symbols”</em>)</td>
<td>• The T-chart prompted students to consider the poet’s use of figurative language (*UDL Guidelines: “Options for Comprehension”) through the disciplinary lens of “Reading like a writer”</td>
</tr>
<tr>
<td>Representation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Multiple Means of</strong></td>
<td>• Students were able to communicate their findings through multiple modes: the chart in their notebooks, Electing a spokesperson from the group to share orally with the class, and writing their findings on the chart on the whiteboard (<em>UDL Guidelines: “Options for physical action” and “Options for expression and communication”</em>)</td>
<td>• T-chart supported students in organizing the poet’s use of poetic devices in the model poems and in documenting their own ideas (*UDL Guideline: “Options for executive function”) through the disciplinary lens of “Reading like a writer” and “Writing like a writer”</td>
</tr>
<tr>
<td>Action and Expression</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Multiple Means of</strong></td>
<td>• Ms. Oliver used the same T-chart over the course of the remaining unit, thus establishing a routine (<em>UDL Guideline: “Options for recruiting interest”</em>)&lt;br&gt;• Students had choice in terms of the topic of their own poems (<em>UDL Guideline: “Options for recruiting interest”</em>)</td>
<td>n/a</td>
</tr>
<tr>
<td>Engagement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix X: Design of the “Figurative Language Column”: Leveraging UDL to Encourage Students’ Disciplinary Thinking

<table>
<thead>
<tr>
<th>UDL Principle</th>
<th>UDL “Access Guidelines” to reduce barriers and to increase access to learning goal</th>
<th>UDL to encourage disciplinary thinking</th>
</tr>
</thead>
</table>
| **Multiple Means of Representation**   | • Students listened to the audio version of *Out of the Dust* and followed along with the text (*UDL Guidelines: “Options for perception” and “Options for language and symbols”)*  
  • When sharing out with the class, students stated their findings orally and added their findings to the chart on the whiteboard, providing other students in the class 2 modes of understanding their findings (*UDL Guidelines: “Options for perception”)* | • The figurative language column prompted students to consider the poet’s use of figurative language (*UDL Guidelines: “Options for Comprehension”*) through the disciplinary lens of “Reading like a writer” |
| **Multiple Means of Action and Expression** | • Students were able to communicate their findings through multiple modes: the chart in their notebooks, electing a spokesperson from the group to share orally with the class, and writing their findings on the chart on the whiteboard (*UDL Guidelines: “Options for physical action” and “Options for expression and communication”)* | • The chart structure supported students in organizing their analysis of the poems (*UDL Guidelines: “Options for executive function”*) through the disciplinary lens of “Reading like a writer” |
| **Multiple Means of Engagement**       | • Ms. Oliver used the same chart over the course of the remaining unit, thus establishing a routine (*UDL Guideline: “Options for recruiting interest”*)  
  • Students worked together in their book clubs (*UDL Guideline: “Options for sustaining effort and persistence”)* | n/a                                                                                                                                                                    |
Appendix Y: BookBuilder Poetry Book Planning Template

Name: 
Date: 

Title and text of the poem:

Image (Describe the image you want on this page. Have you found it yet?):

“Elements of Poetry” Coach: What kind of mood, imagery, or rhythm are you trying to create? HOW?

Example: I used imagery to create a suspenseful mood. I hope my description of the dark clouds and the sound of the crows will make my readers feel on edge.

Figurative Language (What figurative language do you want to highlight on this page?)

<table>
<thead>
<tr>
<th>Your example</th>
<th>Definition</th>
<th>Why you chose to use this figurative language?</th>
</tr>
</thead>
<tbody>
<tr>
<td>“The ground is covered with a blanket of snow”</td>
<td>Metaphor: A figure of speech that makes a direct comparison between two unlike things.</td>
<td>I want my reader to be able to visualize the snow.</td>
</tr>
</tbody>
</table>
Appendix Z: Design of the BookBuilder Project: Leveraging UDL to Encourage Students’ Disciplinary Thinking

<table>
<thead>
<tr>
<th>UDL Principle</th>
<th>UDL “Access Guidelines” to reduce barriers and to increase access to learning goal</th>
<th>UDL to encourage disciplinary thinking</th>
</tr>
</thead>
</table>
| Multiple Means of Representation | • By using the text-to-speech function, students could hear their writing read aloud (*UDL Guidelines: “Options for perception” and “Options for language and symbols”)  
• I modeled the process of creating a BookBuilder book while students followed along at their individual computers (*UDL Guidelines: “Options for perception” and “Options for comprehension”) | n/a                                     |
| Multiple Means of Action and Expression | • Instead of paper and pencil, students developed their poetry books using the digital features in BookBuilder (*UDL Guidelines: “Options for physical action” and “Options for expression and communication”)  
• Students were offered a scribe for expressing ideas into the planning template (*UDL Guidelines: “Options for physical action” and “Options for expression and communication”) | • The planning template was intended to support students’ planning and organization and provide explicit prompts (*UDL Guidelines: “Options for Comprehension” and Options for executive function”) through the disciplinary lens of “Writing like a writer”  
• Scripting the coach and developing the glossary entries were intended to provide more explicit support in reading their own poetry “like poets” and reflection about their intentions as poets (*UDL Guidelines: “Options for executive function”) (“Reading like a Writer,” “Writing like a Writer”) | n/a                                     |
| Multiple Means of Engagement | • Students could choose the poems to include in their books that they were most                                                                 | n/a                                     |
proud of (UDL Guidelines: “Options for recruiting interest” and “Options for sustaining effort and persistence”) 

• Ms. Oliver believed that creating digital books via UDL BookBuilder would be an engaging and motivating experience for students (UDL Guidelines: “Options for recruiting interest” and “Options for sustaining effort and persistence”) 

• Students worked together in groups of four (UDL Guideline: “Options for sustaining effort and persistence”)

Appendix AA. Ms. Ayala’s Concept Card poster

Concept Card

- Use during Independent reading books.
- Summarize by identifying important details from pages or chapter read.

Concept Card

Name: 
Title: 
Characters: 

*Four sentences summarizing important info from pages read.

Date: 
Pages/chapter:
Appendix BB. *Thinking Reader Environment*
Appendix CC: Design of the “Thinking Reader” Version of *The Giver* Experiment: Applying UDL to Increase Access

<table>
<thead>
<tr>
<th>UDL Principle</th>
<th>UDL “Access Guidelines” to reduce barriers and to increase access to learning goal</th>
<th>UDL to encourage disciplinary thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Means of Representation</td>
<td>• Human narration and synchronized highlighting offered an alternative to the paper-based format (<em>UDL Guidelines: “Options for perception” and “Options for language and symbols”</em>)</td>
<td>n/a</td>
</tr>
<tr>
<td>Multiple Means of Action and Expression</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Multiple Means of Engagement</td>
<td>• We hoped that providing students with an accessible format would reduce the threats associated with reading printed text and increase their motivation to read (<em>UDL Guidelines: “Options for recruiting interest”</em>)</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Appendix DD. “Good Reader” Poster

- What is a Good Reader?
- **A good reader can stop and think.** Then jot about...
  1. Images they created...
  2. Questions they have...
  3. Connections they have... **T-T, T-S**
  4. Prediction they might have. (**T-W**)
  5. And what you think/feel about the book. **Stop: Think = Jot**
Appendix EE: Design of the *Gifted Hands* Experiment: Applying UDL to Increase Access

<table>
<thead>
<tr>
<th>UDL Principle</th>
<th>UDL “Access Guidelines” to reduce barriers and to increase access to learning goal</th>
<th>UDL to encourage disciplinary thinking</th>
</tr>
</thead>
</table>
| **Multiple Means of Representation** | • Students would be able to access the text through a human narrated audio version and could follow along with the printed text (*UDL Guidelines: “Options for perception” and “Options for language and symbols”*)  
• The incorporation of video added to the multiple layers of representation as students would be able to develop an understanding of *Gifted Hands* through a range of modalities (*UDL Guidelines: “Options for perception” and “Options for language and symbols”*) | n/a |
| **Multiple Means of Action and Expression** | n/a | n/a |
| **Multiple Means of Engagement**     | • We hoped that providing students with an accessible format would reduce the threats associated with reading printed text and increase their motivation to read (*UDL Guidelines: “Options for recruiting interest”*) | n/a |
Appendix FF: “Book Review Template” Organizer

**Book Review Template**

Introduce the book.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Tell about the book, but don’t give away the ending!

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Tell about your favorite part of the book or make a connection.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Give a recommendation (e.g., If you like..., you will love this book or I recommend this book to anyone who likes...).

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Appendix GG: BookBuilder Book Review Planning Template

Name:
Date:

BookBuilder Planning Template

COVER PAGE
Title:

Image (Describe the image you want on the cover. Have you found it yet?):

PAGE 1: Introduce the Book
Text from your Graphic Organizer

Coach: How did Lois Lowry first hook your interest? Give an example of a specific strategy that she used that seemed to work for you as a reader.

PAGE 2: Tell about the book, but don’t give away the ending
Text from your Graphic Organizer

Coach: What were some of the strategies that Lowry used to sustain your interest? For example, did you like her use of suspense? Her use of imagery when describing the dreams that Jonas received from the Giver? Etc.
PAGE 3: Tell about your favorite part of the book and make a connection
Text from your Graphic Organizer

Coach: WHY this was your favorite part? WHY were you able to make a connection? What strategies did the author use to make this happen?

PAGE 4: Give a recommendation
Text from your Graphic Organizer

Coach: What audience you do think Lowry had in mind when she was writing this book?

PAGE 5: YOU as a writer!
Did reading *The Giver* give you any ideas that you might like to try out in your own writing? For example, Lowry’s expertise of “hooking” the reader, her use of imagery, or her suspense? Why might you want to try this out in your own writing?
### Appendix HH: Design of the BookBuilder Assignment: Leveraging UDL to Encourage Students’ Disciplinary Thinking

<table>
<thead>
<tr>
<th>UDL Principle</th>
<th>UDL “Access Guidelines” to reduce barriers and to increase access to learning goal</th>
<th>UDL to encourage disciplinary thinking</th>
</tr>
</thead>
</table>
| **Multiple Means of Representation** | • By using the text-to-speech function, students could hear their writing read aloud (*UDL Guidelines: “Options for perception” and “Options for language and symbols”)  
• I modeled the process of creating a BookBuilder book and while students followed along at their individual computers (*UDL Guidelines: “Options for perception” and “Options for comprehension”) | • The task of scripting the coach supported students to uncover and reflect on the strategies of Lowry’s writing though the lens of “Reading like a Writer” (*UDL Guideline: “Options for comprehension”) |
| **Multiple Means of Action and Expression** | • Students developed their book reviews using the digital features in BookBuilder (*UDL Guidelines: “Options for physical action” and “Options for expression and communication”)  
• Chrome books were also available for students to being drafting their ideas for the “Book Review Template” as well the planning template (*UDL Guidelines: “Options for physical action” and “Options for expression and communication”) | • The planning template was intended to support students’ planning and organization and provide explicit prompts (*UDL Guidelines: “Options for Comprehension” and Options for executive function”) through the disciplinary lens of “Writing like a writer”  
• The “YOU as a writer” page was intended to support students to reflect on ideas that they might like to try out in their own writing (*UDL Guidelines: “Options for executive function,” “Writing like a Writer”) |
| **Multiple Means of Engagement**     | • Ms. Ayala believed that creating digital books via UDL BookBuilder would be an engaging an motivating experience for students (*UDL Guidelines: “Options for engagement”) | n/a |


| for recruiting interest” and “Options for sustaining effort and persistence) |
## Appendix II. UDL Options and Supports Embedded into the Collaborative Interventions

### I. Provide Multiple Means of Representation

<table>
<thead>
<tr>
<th>1: Provide options for perception</th>
<th>• Provided teachers with the opportunity to “see” students’ thinking through the exploration of classroom video footage and student work (checkpoints 1.2, 1.3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2: Provide options for language, mathematical expressions, and symbols</td>
<td>• CAST’s UDL Guidelines and the 5 themes of disciplinary thinking handout were resources to provide us with a common language (checkpoint 2.1)</td>
</tr>
</tbody>
</table>
| 3: Provide options for comprehension | • Embraced teachers’ preexisting practices and beliefs and created space for teachers to acknowledge, explore, and wrestle with the commitments, understandings, and tensions that they brought to our collaborations (checkpoint 3.1)  
  • Offered a range of scaffolds to support teachers’ to construct understandings of UDL and disciplinary thinking and to develop the lenses needed to “see” students’ disciplinary thinking: connecting to preexisting practices and beliefs (checkpoint 3.1), highlighting critical features and patterns in video and student work (checkpoint 3.2), guiding information processing when exploring video and student work (checkpoint 3.3), and support for applying what we learned from the video and student work into our next co-design (checkpoint 3.4) |

### II. Provide Multiple Means of Action and Expression

<table>
<thead>
<tr>
<th>4: Provide options for physical action</th>
<th>• Communicated through different modes: in-person meetings, formal interviews, email (checkpoint 4.1)</th>
</tr>
</thead>
</table>
| 5: Provide options for expression and communication | • Explored the intersection of UDL and disciplinary thinking through CAST’s UDL BookBuilder (checkpoints 5.1, 5.2)  
  • Supported teachers to leverage BookBuilder specifically for the purpose of engaging students in disciplinary thinking (checkpoint 5.3)  
    o Explored model lesson plans and associated student work as well as model scaffolds developed by teachers’ in my pilot work |
| 6: Provide options for | • In my role as the researcher/collaborator, I |
scheduled our meetings in order to engage in DBR’s cyclical process of designing, implementing, reflecting, and refining (checkpoints 6.1, 6.2).

- In my role as the researcher/collaborator, I facilitated the management and organization of the student artifacts and video footage to explore during our reflective meetings (checkpoint 6.3).
- Together, the teachers and I worked to monitor our progress toward leveraging UDL for disciplinary aims, using the student thinking captured in the video and student work as feedback to inform our process (checkpoint 6.4).

### III. Provide Multiple Means of Engagement

<table>
<thead>
<tr>
<th>7: Provide options for recruiting interest</th>
<th>“Teacher-driven”: Guided by teachers’ individual goals and problems of practice in order to increase choice and autonomy and to enhance relevance and authenticity (checkpoints 7.1, 7.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Guided by teachers’ readiness to engage with the study’s focus on the intersection of UDL and disciplinary thinking (checkpoints 7.1, 7.2, 7.3)</td>
</tr>
<tr>
<td></td>
<td>Worked over time to develop the trusting relationships needed to minimize threats (checkpoint 7.3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8: Provide options for sustaining effort and persistence</th>
<th>Our collaborative meetings continually reinforced the salience of our goal of leveraging UDL for discipline-specific aims: we used this goal to guide our co-designing efforts as well as our reflection and refinement processes (checkpoint 8.1).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Varied demands and optimized challenge of individualized interventions according to teachers’ unique preexisting practices and beliefs, goals, concerns, and readiness (checkpoint 8.2)</td>
</tr>
<tr>
<td></td>
<td>Emphasized the collaborative nature of our design-based research approach (checkpoint 8.3)</td>
</tr>
<tr>
<td></td>
<td>Used our collaborative meetings to focus on the specific successes as well as the specific challenges of the idea that we tried out in the classroom (checkpoint 8.4)</td>
</tr>
</tbody>
</table>

<p>| 9: Provide options for self-regulation | Exploring evidence of student thinking that exceeded teachers’ original expectations served to optimize teachers’ motivation (checkpoint |</p>
<table>
<thead>
<tr>
<th>9.1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Used our collaborative meetings to consider approaches to specific challenges that teachers faced in their classrooms (checkpoint 9.2)</td>
</tr>
<tr>
<td>• Reflected on students’ growth as well as teachers’ own growth in regular meetings, supporting teachers’ ability to self-reflect and self-assess (9.3)</td>
</tr>
</tbody>
</table>
References


Alvarez, J. (2002). *Before we were free*. New York, NY: Knopf.


Brown, L. (1987). Dr. Lou Brown: The “pre means never” guidepost or why not just call it what it is? Retrieved from https://www.youtube.com/watch?v=elFW8gMxYC8


Understanding the conditions that produce reforms that last. *American Educational Research Journal.*


Designing professional development for teachers of science and mathematics.


technology: Developing a technology pedagogical content knowledge.

*Teaching and Teacher Education, 21*(5), 509-523.


