MANAGING THE GAP: EXPLORING THE MULTIMODAL LITERACY INSTRUCTION OF A STUDENT WITH LEARNING DISABILITIES

by

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Abstract

Students with learning disabilities (LD) are one of the largest categories of learners in North America (British Columbia [BC] Ministry of Education, 2017; Dudley-Marling & Gurn, 2012; Statistics Canada, 2008). Their literacy struggles are generally categorized as difficulties with print-based practices in reading, writing, and oral language skills (BC Ministry of Education, 2011, 2016a). However, the English Language Arts curriculum in BC considers meaning-making and communication to be multimodal—that is, the combination of print, visuals, audio, movies, bodily gestures, and other semiotic modes. Multimodal texts, in particular, are seen as resources that enhance learning and students are expected to compose texts using a variety of modes (BC Ministry of Education, 2016b, 2018; Kress, 1997, 2010).

With these different approaches to literacy, this case study explores the multimodal meaning-making practices of a teacher and a focal student with LD in a Grade 4/5 classroom. Data was collected through observations and field notes, semi-structured interviews, and photo documentation of the teacher's instruction and the student's engagement with multimodal materials. The findings indicate that the teacher and the student had different expectations and perceptions of multimodal meaning-making practices. Although the teacher welcomed the focus on multimodality to help the student express his learning in a variety of ways, she encountered many barriers during her instruction. This resulted in turning to print-based activities in order to redirect the student's focus. Conversely, the student's practices were rooted in his interest in the design of his multimodal texts and he demonstrated strong proficiency using a variety of digital tools. Although the student's exploration of semiotic modes was similar to his peers without LD, it was a challenge for the teacher to reposition

the student as a “knower” of his own work (Hall, Burns, & Greene, 2013). This study raises questions about how the multimodal meaning-making practices of students with LD are perceived by teachers. The findings suggest there needs to be a continued effort to view students with LD as “designers of meaning” in order to challenge perceptions of lower literacy achievement (Anderson, Stewart, & Kachorsky, 2017).

Lay Summary

This case study explores the literacy instruction of a student with learning disabilities (LD) in Grade 4/5 with a focus on the teacher's use of a variety of resources, such as technology, digital texts, art, picture and chapter books, and hands-on building materials. The findings indicate that the teacher welcomed opportunities to experiment with different resources with the focal student, but experienced barriers in her instruction. Despite his struggles with print-based practices, the student demonstrated a strong interest in technology and was proficient using many devices and applications. However, the student's challenges and the teacher's perception of academic work affected their practices, interactions, and expectations for learning. Implications of this study suggests that teachers need professional development opportunities to better implement multimodality for students with LD and there needs to be continued effort to view students as designers of meaning.

Preface

This dissertation is the intellectual property of its author, Lisa Marie Chang. The research project was reviewed and approved by the University of British Columbia's Research Ethics Board (certificate H17-02361), under the original title of "Managing the Gap: Exploring Multimodal Literacy Instruction for Students with Learning Difficulties."

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Dedication

This dissertation is dedicated to my family and friends, who supported me, took care of me, and cheered me on. Words could never express how much you all mean to me.

To one Mona Chang, I am forever grateful you are my mother.

To Pedro Chang, who I know is always watching over us. Thanks, Dad.

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Chapter 1: Introduction to the Study

1.1 Background of the Research Problem

In September 2016, the Ministry of Education in British Columbia mandated public schools to implement a new curriculum that shifted how literacy was understood and taught by teachers. The previous English Language Arts curriculum saw literacy as reading and viewing information from "various types of texts," as well as writing and developing "students' command of grammar, spelling, punctuation, and paragraphing" (BC Ministry of Education, 2006, p. 5). Despite acknowledging that students are exposed to a variety of texts in their daily lives that include pictures, sound, and movies, the previous curriculum clearly adopted a traditional view of literacy—as proficiency with alphabetic print. The newly revised curriculum now requires students to "gain a repertoire of communication skills, including the ability to interact, on a local and global level, with information from a variety of sources in multiple modes" (BC Ministry of Education, 2019, Rationale section, para. 4). In this context, modes include print, images, audio, video, animations, and gestures, all of which are used for meaning-making and communication (Kress, 1997). There is continued instruction about the forms, functions, and genres of texts, as well as literary elements and devices, but there is a stronger focus on developing higher-order literacy practices and knowledge, such as exchanging ideas and perspectives; engaging with oral, written, visual, and digital texts; and drawing from prior knowledge and experiences (BC Ministry of Education, 2016a). The Ministry notes that students' engagement with a variety of modes and texts contributes to developing their social awareness and furthering their goals for life in and outside of the classroom.

These changes to the curriculum mean that literacy is now seen as inherently multimodal and cannot be simplified to a singular set of skills or a standardization of language. Consequently, literacy pedagogy is no longer centralized around the grammar of alphabetic print (Kress, 1997; The New London Group, 1996). Kress (1997) theorized that literacy is unstable, dynamic, and fluid and has to be a more elastic construct to account for the many ways people create and exchange meaning. Literacy is also a sensory experience, in which people's interactions with their surroundings and with other people contribute to their use of semiotic tools and their understandings of the modes used in each context of communication (Kress, 2004; Vygotsky, 1978). These interactions mean that literacy is a not a set of skills (Street, 1984) but a social practice between people with shared cultures and histories as they engage with a collection of texts in their daily activities (Barton & Hamilton, 1998).

Adding to this complex view of literacy is the ubiquity of technology in classrooms across North America. Technology plays a greater role in meaning-making and instruction for both students and teachers than in previous years, especially as technology is increasingly mobile (Adami & Kress, 2014; Gillen & Barton, 2010; McClanahan & Stojke, 2013). Meanwhile, teachers are also refining their literacy practices in response to their students' technology use. Regardless of how teachers feel about using technology, they are still seen as responsible for designing learning activities that utilize technology effectively to meet the curricular expectations of literacy learning in the 21st century for diverse learning needs (Cviko, McKenney, & Voogt, 2014; Drewry, Cumming-Potvin, & Maor, 2019). And yet, nearly a decade later since the call for more research about teachers' voices about

pedagogical practices, there is still a need for research about how teachers use technology to meet the needs of students with LD (Atanga, Jones, Krueger, & Lu, 2019).

Despite these sweeping changes to the curriculum and to frameworks that guide literacy instruction, there are some students who are still identified by their difficulties with print—namely, students with learning disabilities (LD). The BC Ministry of Education (2016) notes that students with LD struggle with the following: "oral language (e.g., listening, speaking, understanding), reading (e.g., decoding, phonetic knowledge, word recognition, comprehension), and written language (e.g., spelling and written expression)" (p. 47). Although the revised curriculum sees print as one mode out of many, students with LD and their teachers are caught between two very different perceptions of literacy instruction and assessment – one for students with LD and one for students without. Learning disabilities in literacy have often been described as below-grade-level academic achievement with the print-based modalities (Bakken & Gaddy, 2014; BC Ministry of Education, 2016b). Furthermore, the literacy practices under scrutiny are the print-based literacies that are the most prevalent in schooling. The BC Ministry of Education (2011) adds that LD "are not detected before children start school. Many students with learning disabilities display no signs of difficulty, except when they attempt the specific academic tasks that challenge their particular area of cognitive-processing difficulty" (p. 7). Therefore, the indicators of LD are often based on the students' ability to engage with academic content in formal schooling environments. Barton and Hamilton (1998) caution that, although literacy is seen as a social practice, literacy is also "patterned by social institutions and power relationships," where some literacies are seen as more "dominant, visible, and influential than others" (p. 7). For students with LD, their difficulties with print continue to be one of the main focal points

about their learning, and this is reflected in much of the research about literacy pedagogy for students with LD, which often focuses on remediating skills such as phonemic awareness, vocabulary, comprehension, fluency, grammar, and spelling (Gillespie & Graham, 2014; McCulley, Katz, & Vaughn, 2014).

With these contrasting views about literacy, additional research is needed to explore the multimodal meaning-making practices of teachers and students with LD to understand how teachers are working with these different literacy frameworks to meet the needs of their students. Simon, Campano, Broderick, and Pantoja (2012) suggest there needs to be further exploration of this disconnect between research and practice from practitioners "who conceptualize literacy from the locations of diverse classrooms and communities" (p. 5). As the revised curriculum calls for increased awareness of teaching with multimodal resources, it is important to understand how teachers mobilize multimodality in practice. Bazalgette and Buckingham (2013) note that definitions and understandings of multimodality are diverse, which can be confusing for teachers since curriculum documents and educational policies may oversimplify multimodality as the difference between print and non-print modes. Teachers have also experienced increased scrutiny for their use of technology as Naraian and Surabian (2014) suggest that teachers have only a "developing" knowledge of teaching with technology for students with LD. However, these claims of confusion, oversimplification, and inadequate knowledge of multimodality and classroom literacy practices need to be explored from the perspectives of teachers, who have complex ideologies, practices, attitudes, and beliefs about literacy and LD (Atanga et al., 2019; Barton & Hamilton, 1998; Harris, Mishra, & Koehler, 2009; Kataoka, Kraayenoord, & Elkins, 2004).

1.2 Purpose of the Present Study

The purpose of this study was to explore how a Grade 4/5 teacher addressed the learning needs of a focal student with LD by documenting the teacher's implementation of multimodal meaning-making practices and the student's response to the instruction. It was important to explore the factors and influences that shaped teachers' literacy instruction with students with LD "because teachers' conceptualizations about disability, the nature of learning, and the purpose of teaching reading, writing, and communication result in teaching practices that can expand or contract the future quality of life of students" (Ruppar, Gaffney, & Dymond, 2015, p. 209).

In my study, I understood multimodal meaning-making as part of classroom literacy practices. Classroom literacy practice are both observable and invisible practices (e.g., actions, attitudes, beliefs, and relationships), shaped by cultural and historical influences within a social group (Barton & Hamilton, 1998). I acknowledged that the teacher and the student in this study had shared literacy practices as well as very different ones as a result of their roles and positions in the classroom. The teacher-student dynamic means that the teacher generally has a stronger influence on the student's literacy practices. For example, the teacher's classroom literacy practices are often in the form of instruction (e.g., teacher-led activities, read-alouds, and conferences with students), as informed by curriculum documents and pedagogical knowledge (Lewis, 2001). Consequently, the student's literacy practices are often in response to the teacher's instruction.

The goal of this study was to better understand how these different experiences and perspectives of multimodal meaning-making in a classroom environment were negotiated between the participants within a shared social space. In particular, there continues to be

tension about technology use as part of classroom literacy practice. Although technology is generally seen as beneficial for students with LD as it helps students to comprehend curricular content, enhances social participation and inclusion, and improves overall literacy learning (Kennedy & Deshler, 2010; Laidlaw & O'Mara, 2015; Naraian & Surabian, 2014), teachers and students encounter barriers when using technology as well, such as inadequate access to technology, unstable or unreliable devices, lack of time (Francom, 2020; Wachiera & Keengwe, 2011), and disruptions that affect students' focus on reading texts (Savage, Nair, McBreen, & Wood, 2018). Exploring teachers' and students' perspectives on teaching and learning with technology during literacy activities is important because these experiences can inform how multimodality is taken up in the classroom and what aspects of multimodality are enacted as well as which ones are less understood or implemented by teachers. Although teachers' beliefs, preferences, and knowledge about technology shape their instruction (Anstey & Bull, 2018), their experiences are rarely discussed even though they can contribute to a better understanding of how teachers conceptualize and integrate multimodality into their practice. Likewise, students' experiences are also overlooked beyond the benefits of implementing multiple modes during instruction, and it is often assumed that students are adept users of technology (Hsin, Li, & Tsai, 2014).

1.3 Research Questions and Data Collection

There are two guiding questions that frame this single case study:

1. What are the multimodal meaning-making practices the teacher implements during literacy instruction to meet the needs of the student with learning disabilities?

2. How does the student with learning disabilities engage with meaning-making practices during literacy instruction in the classroom?

Every month, I interviewed the participants as well as documented their literacy practices and interactions with each other through observations, field notes, and photo documentation. A focus on a specific teacher-student pair allowed for deeper insights into how their classroom literacy practices were shaped by the contexts of schooling as much as they were by the teacher's knowledge of theories and instructional practices. With the teacher, I sought to better understand the reasons behind the employment of certain instructional methods for the focal student as well as the teacher's knowledge, attitudes, and beliefs about literacy and LD. The data collection methods I used also helped me to examine and better understand the practices of the focal student during instructional activities. The inclusion of the focal student's perspective was crucial to this study given that LD is one of the largest disability categories of students across North America (Dudley-Marling & Gurn, 2012). Within this large LD category are students with nuanced and complex experiences with literacy (Collins, 2011; Mock & Hildebrand, 2013), and the goal of this study was to further diversify and enrich current research beyond "able" and "disabled" literacy practices (Brodeur, 2020; Kliewer, Biklen, & Kasa-Hendrickson, 2006).

1.4 Defining and Contextualizing Learning Disabilities

The BC Ministry of Education (2016) sees LD as a genetic or neurobiological impairment that affects students' cognitive processes related to learning. They define LD as:

> A number of disorders that may affect the acquisition, organization, retention, understanding or use of verbal or nonverbal information. These disorders affect

> learning in individuals who otherwise demonstrate at least average abilities essential for thinking and/or reasoning. (p. 47)

The Ministry's policy goes on to further specify that LD are considered to be impairments in "perceiving, thinking, remembering or learning" in "language processing, phonological processing, visual spatial processing, processing speed, memory and attention, and executive functions (e.g., planning and decision-making)." In addition to difficulties with oral language, reading, and written language skills, there are also social implications of LD. Students may struggle with "organizational skills, social perception, social interaction, and perspective taking" (p. 47). In general, LD is diagnosed in the absence of other disabilities that can explain lower academic achievement (Butler & Schnellert, 2015).

Learning disabilities are one of the largest categorizations of students in the province of British Columbia. There were 17,908 students with LD in the 2016–2017 school year, which amounted to about 3.2% of the total public school (i.e., K–12) population of over 557,000 students (BC Ministry of Education, 2017). In comparison, the next largest categories of students with disabilities in the same school year are students with autism and students with physical disabilities with 8,459 and 8,293 students in their respective categories or about 1.5% of the student population in K-12 public schools. Between 2000-2019, the BC Teachers' Federation (2019) reported a 26.3% increase in the number of students with LD, which implied a steady growth of students designated with LD over the past two decades. This increase also reflects the diversity of learning challenges within the LD designation and funding needs. Students with LD can have a wide range of difficulties in reading, writing, and mathematics and socioemotional challenges but are grouped together under a common category. Secondly, the shift away from special education resource teachers to general

education classrooms for a more inclusive learning environment has resulted in changes in funding models based on diagnosis and needs (BC Teachers' Federation, 2019; Stegemann, 2016). BC's prevalence of LD is on par with the national Canadian statistic, which was reported to be 2-3% (Statistics Canada, 2008). The national statistic for non-working-age children with LD who are younger than 15 years old has not been updated since 2008 (Dunn & Zwicker, 2017). However, it is important to note that it is difficult to obtain an accurate national prevalence rate because "the concept of LD is not uniformly defined across Canada" (D'Intino, 2017, p. 228) and some territories and provinces (the Yukon, Northwest Territories, Nunavut, Saskatchewan, Manitoba, and Quebec) do not mention LD in their ministerial documents (Stegemann, 2016).

I acknowledge that LD as a term has negative connotations, especially when used with a traditionally marginalized population of students. The definitions of LD have varied across Canadian provinces, but the majority of definitions see the condition as students who have a "discrepancy between intelligence and achievement" (Kozey & Siegel, 2008, p. 162). In BC, students with LD are generally viewed as having "average or above average cognitive ability" (BC Ministry of Education, 2016b, p. 49), who struggle with academic tasks after repeated attempts, instructional interventions, and significant amounts of effort to complete the tasks. Although the language about LD has shifted from talking about intelligence to ability in BC's policies (Kozey & Siegel, 2008), a close reading of the current special education manual indicates that there is still an expectation of what is perceived to be appropriate grade-level learning behavior as indicated in a battery of standardized assessments (BC Ministry of Education, 2016b). Adopting this stance about LD as a neurological impairment means that the definition leans on medical definitions of "deficits"

in cognitive processes (Trent, Artiles, & Englert, 1998, p. 278). I recognize that there are other models that do not draw as heavily from the medical community or from deficit theories; however, the definition of LD from a biomedical perspective is used consistently in the British Columbia's educational policies as well as in the research literature. More importantly, this definition was also the most widely understood and accepted by the teacher and the parents of the focal student because of their experiences with the diagnosis and the referral process. The objective of this study is not to focus on the diagnosis itself but to better understand how a student with LD works with, through, and around challenges during literacy activities, which I view as a unique experience for the focal student that can inform further research about pedagogy and educational policy.

1.5 Significance

The goal of this study was to contribute to a reframing of literacy for students with LD as well as to explore how the literacy practices of the teacher and the student can further inform practical understandings of multimodality. Research about students with LD and their multimodal meaning-making practices is emerging though it is still limited and lags behind research about the practices of students without disabilities. Moreover, the available research about students with LD does not necessarily frame their literacies as multimodal (Naraian & Surabian, 2014). At times, their multimodal meaning-making practices are seen as alternative means of communication because of their struggles with print (Dalton & Jocius, 2013). While these struggles are certainly present in schooling contexts, the literacies of students with LD also need to be reframed in ways that "are no longer assistive and compensatory but, instead, facilitative and natural" (Parr, 2012, p. 1427), especially as students with and without disabilities often share similar multimodal resources in the classroom (e.g., texts,

devices, applications, and tactile materials). Collins (2011) notes that it is important to investigate how certain modes can both enhance learning for students and exacerbate their issues. Rather than simply assuming that issues arise from a student with LD, a better understanding of how modality may limit a student's participation in literacy activities can serve to further inform practice.

This study also unpacked pedagogical knowledge from a teacher's perspective in order to better understand how multimodal literacy practices were designed to meet the needs of the focal student. I addressed the teacher's knowledge in this study because it was important to examine how different models of literacy as well as understandings of LD inform pedagogical decisions. If teachers are positioned as being responsible for designing learning activities, then it is equally important to generate a dialogue with them to better understand their thinking and rationale when working with students with LD. As there is a persistent gap in research about students with LD and multimodality, Connor, Gallagher, and Ferri (2011) note that:

> an alternative to trying to circumvent teachers (with so-called "teacher-proof" materials) would be to position teachers at the center of inquiry and knowledge about the research-to-practice gap. Yet, surprisingly few studies have attempted to study this gap from teachers', and specifically special-education teachers' perspectives. (p. 116)

Addressing this gap was important in this study because there have been few changes made to the literacy curriculum for students with disabilities, including LD (Heydon & Iannacci, 2005). This is evident in the special education manual in BC, in which the latest version, from 2016, echoes a similar language to that in the previous version, from 2011,

which was only moderately changed from the version analyzed by Kozey and Siegel in 2008. Yet, teachers are expected to balance different instructional methods and multimodal materials to address the needs of students with LD. This study is significant in that the teacher participant voiced her thoughts about this balancing act during a time of substantial change within the school district—a relatable experience for many teachers who work with students with LD.

1.6 Limitations

This case study investigated a teacher and a student in a Grade 4/5 classroom in a large city in British Columbia. As a single-case study with two participants, it was not possible to generalize the findings in this study to represent the experiences of larger populations of students with LD and their teachers in elementary classrooms. Although the findings were triangulated using multiple forms of data, the perspectives of the teacher and the focal student remain linked to their history and experiences in their school. This study took place in a school district in which the administration and funding committees paid special attention to investing in new and updated technology (e.g., robotics sets and newer, more robust models of old devices, respectively). I must also acknowledge that conducting this research in BC during the time frame of this study was another unique experience that makes it difficult to generalize for a larger population. As the school districts were in their second year with the new curriculum that saw literacy as multimodal, I recognize that there were many districts that still prioritized the mastery of print in their literacy programs.

The time and length of this study were also limitations. Because of delays prior to entering the classroom, the proposed timeline of the data collection was shortened to three and a half months. I encountered difficulties entering the school because the principal was

not responding to my inquiries even though the teacher participant agreed to the study. Despite an extensive amount of time spent in the classroom, between 3–6 hours per observation for at least three visits each week, this abbreviated time frame reduced my ability to observe a wider range of literacy activities over the school terms that may have contributed to theory development.

1.7 Key Terminology for this Dissertation

In this section, I introduce some of the key terminology that appear throughout this dissertation. During the different stages of preparing this dissertation, I encountered difficulty "pinning down" exactly how I wanted to define what I saw in the classroom and how I understood the participants' literacy practices. Understanding and writing about multimodality was a particular challenge because of the "slippery terms" used to discuss meaning-making practices across different disciplines (Bateman, Wildfeuer, & Hiippala, 2017, p. 79). The most commonly used terms in this study are briefly defined here but I go into further detail in the next chapter in the theoretical framework and provide additional examples in subsequent chapters.

Table 1.1

Glossary of Terms

Term	Definition
Affordances	The potentials and constraints of modes, which are defined by sociocultural contexts (Kress, 2010).
Classroom literacy practices	The patterns, rules, beliefs, and discourses about meaning-making processes that are governed by educational policy and implemented by schools, which affect how teachers and students construct meaning individually and collectively (Barton & Hamilton, 1998; Lewis, 2001). Multimodality is inherently part of classroom literacy practices.
Learning disabilities (LD)	This study draws from the terminology and definition used by the Ministry of Education (2016), which sees learning disabilities (LD) as a number of issues that affect the student's ability to acquire, organize, retain, understand, or use verbal or nonverbal information. Students may

	also struggle with "organizational skills, social perception, social interaction, and perspective taking" (p. 47).
Literacy instruction	In the context of this study, literacy instruction spans across the curriculum and content areas (e.g., social studies, science, math, etc.). It includes, but is not limited to, language arts instruction.
Mode	The semiotic material used to construct meaning, such as visuals, audio, and gestures (Kress, 1997).
Multimodal literacy instruction (short form: multimodal instruction)	The work of teachers to incorporate different tools (e.g., devices and applications) and modes (see above) into learning experiences for students. Derived from Stein's (2008) research about multimodal pedagogies.
Multimodal meaning-making practices	The meaning-making processes by students with a variety of modes based on their perceptions of affordances, their choices, and their interests in expressing meaning (Kress, 1997).
Multimodal texts	Digital or non-digital forms of communication that combine multiple modes, such as picture books and websites (Bull & Anstey, 2019; Serafini, 2011).
Print-based literacies	Tasks or activities where alphabetic print is the primary focus, such as reading and writing (Purcell-Gates, Jacobson, & Degener, 2004).
Teachers' knowledge	Understandings about pedagogy that are shaped by individual beliefs, contexts of schooling, professional development, and experiences in the classroom (Golombek, 1998).

1.8 Chapter Summary and Overview of the Dissertation

In this chapter, I discussed the different models of literacy being implemented for students with LD and their teachers. With the revised public-school curriculum in 2016, a stronger effort has been made toward viewing literacy as multimodal—that is, using more than one semiotic material (e.g., print, images, audio, etc.) for meaning-making and communication. The previous curriculum focused heavily on literacy as developing and mastering rules of language, such as with spelling and grammar, which viewed literacy development as a set of skills. However, students with LD are still identified through their difficulties with print-based literacies, particularly their struggles with reading, writing, and

oral language. This means that teachers in BC are constantly balancing these different understandings of literacy as they work to meet the needs of students with LD.

The purpose of this study was to explore the classroom literacy practices of a Grade 4/5 teacher and a focal student with LD to better understand how learning needs are met through multimodal materials. I collected data using semi-structured interviews, observations and field notes, and photo documentation. During my time in the classroom, I documented observable practices in action as well as talked to the participants about their practices. As noted earlier in the chapter, I recognize that literacy practices are both visible and invisible behaviors and patterns of thought; this required different forms of data collection to triangulate my findings.

It is important to reiterate that I understand the term "learning disabilities" is fraught with negative connotations, especially as there are efforts to move away from deficit theories that see disability as impairment. I understand the life-long significance of labeling children as having disabilities and how that may impact their learning as well as their sense of self. However, I use "learning disabilities" in this study because it is widely used in the research literature that aligns with my field of interest. The teacher and the parent I spoke to for this study also both recognized the term because of their experiences with the focal student, helping to avoid confusion about what was considered to be LD or not. Again, my goal with this study was not to highlight the focal student's difficulties and, thus, contribute to the discussion of LD as a struggle with literacy, but to enrich the conversation about the student's unique and nuanced practices as a student from a traditionally marginalized community of learners. With LD being one of the largest categories of learners in BC (almost 18,000 students in K-12 public schools during the 2016-2017 school year), it is important to

think of students with LD as diverse and their literacy practices as complex rather than label them as "disabled."

This dissertation is comprised of seven chapters. In Chapter 2, I discuss the theoretical framework that informs this study, which draws from sociocultural theories about literacy and disability, and provide a literature review of research about multimodality as part of classroom practice, teachers' knowledge, and literacy in LD contexts. Chapter 3 is an overview of my research methodology, data collection methods, and data analysis methods, as well as information about my participants, the setting of the school, and the steps I took to prepare for this study. My findings are presented in Chapters 4 and 5. In Chapter 4, I discuss the participant teacher's classroom literacy practices; how these practices addressed the needs of the focal student; and the values, reasoning, and beliefs that informed the instruction. In Chapter 5, I detail how the student responded to the observed instruction during a variety of activities. Finally, I present my findings in Chapter 6 and conclude my dissertation in Chapter 7 with implications for educators.

Chapter 2: Theoretical Framework and Literature Review

In this chapter, I discuss my theoretical framework and how I derived it to frame my understanding of literacy. I also review the literature about the instruction and classroom literacy practices of students with learning disabilities (LD). The first section focuses on the sociocultural perspectives that inform this study. I draw from social semiotics, multimodality, and multiliteracies to describe my conceptualization of literacy, especially with regard to defining literacy practices in the classroom. The second section is an overview of how LD are shaped by societal beliefs about ability and deficit, particularly in light of the privileging of print-based skills in general understandings about literacy and school curricula. Teachers' knowledge about literacy practices, multimodality, and LD are discussed in the second section as they relate to designing learning experiences, instruction, and assessment. The final section of this chapter is a literature review of research about teachers' and students' classroom literacy practices.

2.1 Defining Literacy Practices through a Sociocultural Perspective

Literacy, in the context of this study, is seen as dependent on cultural and community contexts. There are norms and patterns to how literacy is used within each community, which are deeply rooted in values, relationships, attitudes, feelings, and social relationships (Lemley, Hart, & King, 2019; Perry, 2012). In this theoretical perspective, literacy often falls into a binary as "literacy is something that one either has or does not have; people are either literate or illiterate," especially with written texts (Perry, 2012, p. 53). Street (1984) proposed two models of literacy: the autonomous model and the ideological model. The autonomous model centers on a decontextualized skills-based model of literacy, in which literacy can be mastered in any context through instruction. The ideological model sees literacy as

entrenched in cultural practices, historical contexts, and power dynamics in society (Street, 2003). Within these multiple forms of literacy, there are practices that are considered to be socially dominant and accepted and there are practices that are marginalized and valued less by society. Barton and Hamilton (1998) pointed out that literacy practices change as societies and communities evolve.

I differentiate literacy from communication by seeing the former as deeply entrenched in cultural practices and beliefs and the latter as a form of information transmission that often requires mastery of language as a "socially skilled performance" (Tugtekin & Koc, 2019, p. 6). Using Ruppar's (2017) study as an example, she noted that the teachers in her study recognized that literacy was difficult to define for students with disabilities because it is deeply rooted in the ability to read and write. However, the teachers believed that conceptualizations of literacy for students with disabilities needed to be expanded to include helping students develop a sense of freedom and a better quality of life, navigating their daily lives successfully, and continued growth in their personal journeys. The goal was to help students strengthen their communication skills for basic tasks (e.g., writing a note, following directions, and finding employment), but the teachers believed that literacy for students with disabilities should be grounded in respect for their students' lives and choices and not necessarily in their communicative abilities.

Although there is an increasing awareness of multiple literacies, the autonomous model proposed by Street (1984) continues to persist today as noted in the curriculum documents and in the definition of LD adopted by the province of British Columbia (Learning Disabilities Association of Canada, 2017). As I mentioned in Chapter 1, LD are usually observable or identifiable when students experience difficulties with academic tasks,

which include reading, writing and spelling, and oral language skills (BC Ministry of Education, 2016b). This view of literacy for students with LD implies that literacy is a set of decontextualized skills that the students lack and as such, their literacies are seen as marginalized unless they gain grade-level appropriate competence in reading, writing, and other print-based literacies. I do not discount literacy as reading, writing, and oral language abilities, but I acknowledge that model of literacy is linked to societal perceptions and values about schooling and literacy. Definitions of literacy that stem from a print-based model are laced with notions about learning and schooling (Street, 2003), which vary according to the individual (e.g., educators, parents, students, policy-makers, and curriculum developers), but have wide-ranging implications for the students' learning and their lives (Siegel & Valtierra, 2017). As such, I draw from a collection of sociocultural perspectives that view literacy as social practice with semiotic systems between people and how they "use literacy in their everyday lives" (Perry, 2012, p. 51) in a particular environment, space, and culture. I think of literacy as multiple semiotic systems because people do not engage in only print in their academic and daily lives. There are multiple modes (e.g., audio, video, and gestures) that contribute to our uses and understanding of print (Kress, 1997). Each of these modes requires different ways of viewing and communicating meaning, especially with the increased use of technology and media (Kress, 2010).

In this study, I explored the implementation of multimodal meaning-making practices of a Grade 4/5 teacher with a focal student with LD. Within the localized context of the classroom, I defined literacy practices as individual and group activities as patterned by institutionalized beliefs about schooling and curricula (Barton & Hamilton, 1998; Lewis, 2001). The meaning-making experiences that I mentioned in the previous paragraph were

further influenced by dynamics and social relationships within the school and classroom environments. Patterns, rules, and beliefs about literacy and pedagogy change over time and alter how literacy practices are enacted in the classroom. For example, the advent of technology leading to its use in learning activities has changed teachers' and students' behaviors with communication, meaning-making, and language from traditional print and paper practices (Walsh, 2008). There are diverse practices occurring simultaneously between students, teachers, and other people in the classroom setting.

Classroom literacy practices are also informed by social dynamics and power relations (Barton & Hamilton, 1998); as such, some practices (e.g., reading printed text and writing) are considered to be more "dominant, visible, and influential than others" (Barton & Hamilton, 1998, p. 8). For example, in her yearlong study of students between 10 and 12 years of age, Lewis (2001) reported examples of literacy practices in the classroom, including teacher-led read-alouds and literature discussions, independent reading time, and peer-led discussion groups. Each of these activities seemed like a traditional form of instruction and activity in the classroom; however, she noted that each activity was also laden with values about literacy and required students to navigate their positions as readers and learners, which were generally positioned as unequal to that of their teachers.

A sociocultural perspective of children's literacy practices recognizes the importance of social interaction between children and the ways they internalize and re-enact behaviors as part of their social and language development (Vygotsky, 1978). Part of this development is seen in how children navigate the different semiotic representations of language learned from others in their social groups and in their environment. Vygotsky (1978) noted that "the use of signs leads humans to a specific structure of behavior that breaks away from biological

development and creates new forms of a culturally-based psychological process" (p. 40). Children use signs and tools to transform "the material world and conditions in which [they] live, as well as using signs to mediate and regulate [their] relationships with each other and with [themselves] in social activities" (Green & Kostogriz, 2003, p. 108). In classroom environments, these relationships with other children and with teachers are key to learning and constructing shared experiences that "provide the opportunity for synthesizing several influences into the learner's novel modes of understanding and participation" (John-Steiner & Mahn, 1996, p. 192). Vygotsky (1984) argued that children's relationships are important because children can learn skills from more knowledgeable peers and adults in what he coined the Zone of Proximal Development. He identified the Zone of Proximal Development as "the distance between [the] actual development level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" (p. 86). In terms of language and literacy development, the Zone of Proximal Development plays a key role in understanding the development of communicative practices. All learners use a variety of semiotic signs and tools, but their uses and meanings are generally taught by those in their social circles before being applied to different contexts that enrich learning and mental development (Lantolf, Poehner, & Swain, 2018; Vygotsky, 1978).

It is important to consider the changing contexts of children's learning because there are societal assumptions of schooling that prevail in today's classrooms. Vygotsky (1978) writes that "if someone learns to do any single thing well, [s]he will also be able to do other entirely unrelated things well as a result of some secret connection" (p. 82). Learning was considered, in the past, to be solely within the individual rather than impacted by social

relationships. Earlier notions about literacy followed a similar thought as it was seen as a set of decontextualized skills that "one either has or does not have" (Perry, 2012, p. 53). Students with LD are typically viewed as not having certain academic skills with language needed for success in schools. Consequently, the focus on print-centric practices overlooks other literacy practices that students with LD engage in and are somewhat hidden from teachers (Rowsell & Kendrick, 2013).

2.1.1 Social Semiotics

The primary focus of social semiotics is to study meaning-making in specific social contexts. Social semiotics stem from Halliday's (2003) work, which positioned language in two ways: from a linguistic and a rules-based lens, or from a semiotic perspective in which language is a resource for facilitating relationships and communication, and for representing ideas and "thinking about the world" (p. 21). Language is purposeful and has its function because people needed ways to "communicate and enact reality" in their communities (Halliday, 2003). Kress (2010) added to the conversation by underscoring the importance of the underlying social aspects of meaning-making because people are "the origin[s] and the generator[s] of meaning" (p. 56). Although language is often viewed as the primary form of communication, linguistic rules cannot necessarily account for the way people use language to assign meaning to their experiences (Halliday, 1993). Instead, there is an interplay between functions and relationships with language. That is, people from a very young age develop ways to organize their purposes for language, which changes throughout their childhoods and adult lives (Halliday, 2003). Kress (2010) pointed out that social semiotics moves away from linguistically bound rules to focus on the sign-making process, which is shaped by social histories and culturally available resources (Kress, 2010). He argued that

linguistics cannot account "for the whole domain of meaning" (Kress, as cited in Andersen, Boeriss, Maagerø, & Tønnessen, 2015, p. 72). In a social semiotics approach, it is also important to consider the identity of the sign-maker and the intent of the sign as well as the resources used within the environment (Kress, 2010). Signs also have the potential to produce multiple meanings as well as be indicators of power between people communicating the signs. Classroom environments are enclaves full of sign-makers, but teachers' and students' purposes for their sign-making are often mediated by the expectations of schooling. Consequently, students are often guided by teachers to fulfill these expectations of schooling (Kress, 2003).

This study paired social semiotics with sociocultural perspectives in order to account for both the contexts of meaning-making and the role of texts in classroom literacy practices. In contrast to social semiotics, sociocultural perspectives are grounded in the interactions and relationships between people to make meaning as well as the "social and cultural contexts in which literacy is practiced" (Perry, 2012, p. 51). Although Vygotsky (1978) wrote of the shared uses of materials and texts for meaning-making, he placed more emphasis on how social interactions and language-learning lead to cognitive development. There is less focus on the production of a text than on the shared cultural understandings of the text itself. On the other hand, social semiotics places an intense focus on how texts are created, produced, and interpreted by exploring their features (e.g., point of view and narration, visual representations, and format/layout of the text). Texts in this context are not limited to print-based documents, but include film, audio, advertisements, and other formats in which meaning is disseminated. Chandler (2017) noted that semiotics is the codification of meaning in texts and the interpretation of these codes relies on a person's prior knowledge and

experiences as well as how the individual connects one text to another. However, Rose (2016) pointed out that a shortcoming of social semiotics is that some versions of semiology "remain uninterested" (p. 145) in how each individual interprets texts differently. Indeed, Chandler (2017) concluded that

> codes cannot account for everything in human culture and communication: social behavior and textual practices cannot simply be reduced to the operation of semiotic codes. They are not autonomous determinants of human action—historical changes in social and textual patterns attest to the importance of human agency and textual "transgression." (p. 220–221)

Given that social semiotics and sociocultural perspectives of literacy emphasize two different facets of literacy, a combination, rather than separation, of the two is needed to understand literacy as social practices with texts. Literacy is a social phenomenon within specific cultural contexts, and what people do with these texts is nuanced and complex (Perry, 2012). People's use of texts and the shared understanding of a variety of signs produce texts that speak to the interests of the sign-makers. This is vital as students with LD are engaging with print-centric texts even though they are seen as struggling with them, and they are also using other modes to facilitate understanding and communicate their learning.

2.1.2 Multimodality

In this section, I summarize the concept of multimodality and the contemporary understanding of literacy practices. Multimodality is the application of social semiotics and is particularly useful in understanding literacy practices in the classroom. As mentioned earlier, social semiotics seeks to shift the viewing of language from a stable system of rules and structure, to the way it is constantly remade by individuals to fit specific communicative

contexts. However, language learning continues to be a major focus for students with LD as instruction is generally grounded in reading, writing, and oral language skills rather than in how students are combining modes to express their learning and their understanding of the world around them (Brigham & Bakken, 2013; Shanahan, 2013).

This study focused heavily on the concept of modal affordances in classroom learning environments. Kress (2010) defined affordances as "different potentials for making meaning" that "have a fundamental effect on the choice(s) of mode in specific instances of communication" (p. 80). Affordances are determined through repeated use of a mode over long periods of time. For example, Kress (1997) suggested that there are times when print is not the main feature of communication because some texts may require the reader to interpret symbols, shapes, and images that require an understanding of visual observation and analysis. Print would then be regarded as constraining rather than having potential for meaning-making in such contexts because the information is communicated more effectively using visual modes. Collins (2011) added that each mode also enhances or limits social participation because of individual understandings and familiarity with the modal affordances. Each mode is dependent on interpretations that are based on social patterns and cultural understandings; as such, Kress (1997) argued that the combination of modes, known as signs, are similar to metaphors because people innately draw connections between signs by comparing them to something of similar meaning to them. Signs are transformative in nature and are always made new again because interpretations vary depending on the contexts in which they are created.

Media, or the way signs are disseminated (e.g., print and digital means), also have their own affordances. People generally have an awareness of how they want to

communicate meaning that fits their interests. In classroom learning environments, technology (e.g., mobile devices and content-creation applications) is a medium increasingly used by students and teachers. Adami and Kress (2010) posited that smartphones, which are a fairly recent addition to classroom teaching, have "material and social possibilities and constraints" (p. 185). Technology plays a key role in transforming modes and signs as people select semiotic materials that best represent their intent and often reuse and remix them in a variety of contexts, especially with the fast-pace sharing of multimodal messages (Adami & Kress, 2014). With the different devices available to teachers and students, identifying the affordances of hardware includes taking note of screen resolution, size, portability, and ease of use of a hand-held device during the sign-making process (Adami & Kress, 2010).

It is important that children are seen as language-makers with their in-school and out-of-school literacy practices (Kress, 1997). Children's engagement with language involves complex mental interpretations of signs they have been exposed to early in their lives and throughout childhood. The application of these interpretations can be seen as a remixing of language in a way that represents their social lives and their experiences. Children's interests, motivations, and experiences play a large role in how they use and combine modes to create signs. Kress (1997) defined interests as how children see the world through interactions with the people in their lives (e.g., in their living and schooling environments) and through their experiences in various social contexts. Their motivations arise from their interests, and they draw on these motivations to choose how to represent their understandings in their sign-making. Kress (1997) pointed out that, although children are inundated by signs early in their lives, they do not seem overwhelmed by the "multifaceted communicational world" (p. 3) but, instead, transform their understandings during their play. Technology, for example,

plays a key role in how meaning between people is transformed and shared through messages (Kress, 2003); it is seen as a resource for making signs and as the medium for how meaning is communicated. Children with access to technology can more fluently share their interests and experiences through multimodal communication as well as engage in higher levels of interactivity where they build new understandings from a variety of information resources (Kress, 2003). Despite these technological affordances, however, Kress (1997) cautioned that children's interests can be overlooked due to adult dominance in their lives and at school. In educational contexts, this may be a particular issue. As Collins (2013) observed, children are seen as learners that are dependent on how teachers recognize their identities and abilities, which affects how learning activities are designed and implemented for students and what resources are used in student learning.

Of particular interest in this study is the notion of transmediation by the student during literacy activities. Mills (2011) defined transmediation as "the connections between [signs] for making sense of human experience" (p. 56) and these connections are fundamental for all meaning making. In a longitudinal study about 8-year old children and the transmediation of multimodal texts, Mills (2011) identified three key principles:

1. Transmediation is not just the reproduction of knowledge, but a process for how knowledge was created and transformed;
2. This process is a "continual adaptation of intentions for representing knowledge in response to the possibilities and limitations of sign-making systems, including the affordances of digital systems" (p. 58); and
3. With the ubiquity of mobile devices and digital multimodal texts, transmediation is considered to be central to the process of communicating in

> digital formats because "it involves translating semiotic content via the discrete sign-making systems inherent in software interfaces" (p. 58).

More importantly, transmediation is an approximation of meaning because discrete sign systems often do not have a direct translation (e.g., dance movements and music have different ways of conveying meaning) (Kress, 2010).

In the context of this study, texts are also seen as multimodal, which are defined as digital or non-digital forms of communication that combine "two or more semiotic systems," such as alphabetic print, linguistic, visual, audio, spatial, or gestural modes (Bull & Anstey, 2019, p. 320). Like frameworks of literacy, what is considered a text has also been redefined over time. Perry (2012) pointed out that genres and textual features play a significant role in how people shape their literacy practices, especially in regards to written print. Groups and communities share social practices around certain texts (e.g., the Bible and other religious doctrines) that also evoke political and historical discussions (e.g., the Bible compared to the Quran). As such, literacy as a social practice is about the positioning of print as being central to society (Perry, 2012). From a teaching perspective, texts often serve as source material to extend content knowledge (Wissinger & Ciullo, 2018), to learn the linguistics of language (Spear-Swerling, 2018), and to enhance engagement during instruction (Shaw, 2013). The definition of text can be highly contested when discussing literacy practices for students with LD, who often struggle with print but may do well with other modes. Although print-based literature is still very much considered text in this study, it is also important to view texts, even ones with only print, as multimodal (Adami & Kress, 2014). Students are making sense of print-based texts through other modes such as font choices and sizes, color, and layouts. Technology has also expanded the definition of text as it can be screen-based as well and

may not necessarily be alphabetic print at all but media such as music, videos, and animations (Kress, 2010). Students are increasingly seen as creators or composers of multimodal texts (Dalton & Jocius, 2013) as they experiment with layouts, colors, drawings, fonts, sound effects, and written words during their design process (Hull & Nelson, 2005; Pantaleo, 2013; Shanahan, 2013). Dalton and Jocius (2013) suggests seeing students with literacy challenges as multimodal composers to help shift the view of them being struggling students.

2.1.3 Multiliteracies Pedagogy

Multiliteracies and multimodality are often intertwined as both explore the different uses of modes and texts in a variety of contexts from daily living to classroom learning. Walsh (2017) differentiated the two theoretical approaches by explaining that multiliteracies has been adopted as a pedagogical approach to address diversity and inequity in society while multimodality examines "the way we use signs or symbols to communicate" (p. 22). Although there are a variety of understandings of multiliteracies (Walsh, 2017), this study understands multiliteracies as a form of pedagogy for teachers to adapt to changing patterns of communication which are most frequently associated with the increased use of technology for teaching and learning (The New London Group [NLG], 1996). New forms of texts are created with changing patterns of communication as well as the increasing linguistic and cultural diversity in the classrooms. Multiliteracies pedagogy considers the importance of recognizing students' identities and their fluency with various forms of communication as they embark on goals for their future lives. The NLG (1996) proposed viewing multiliteracies pedagogy as addressing the skill sets and competencies needed to design meaning and participate in these numerous channels of communication. With this focus on

participation and diversity, the NLG (1996) asked, “How do we ensure that differences of culture, language, and gender are not barriers to educational success?” (p. 61). This study also extends this question to encompass differences of ability as well as notions and beliefs about disability as students with LD also use these multiple communicative channels as part of their literacy practices. In the manifesto written by The NLG, linguistic and cultural diversity are mostly seen as assets. However, I question what does a multiliteracies pedagogy look like for students whose language abilities are not seen as beneficial to their learning. The language skills of students with LD, for example, are typically seen as challenges or struggles because of their difficulties with reading and writing rather than “diverse.”

There are four components of multiliteracies pedagogy: situated practice, overt instruction, critical framing, and transformed practice. Each of these components contributes to the framing of students’ communicative practices as forms of literacy that are conducive to their learning and that also respect their diverse backgrounds. Like the concept of signs in multimodality, meaning in a multiliteracies perspective is always redesigned by the individual. As such, the four components serve as a way for educators to shift away from traditional notions of curriculum that standardize literacy as alphabetical, and reframe literacy instruction as multilingual, multimodal, cross-cultural, and socially equitable (Cope & Kalantzis, 2009). A large part of literacy instruction relies on educators to discover how their students design and make meaning out of their resources (Kress, 2003) as well as how they themselves address the ever-changing nature of literacy and texts in order for students to successfully adapt to and participate in literacy practices beyond the classroom (Anstey & Bull, 2018). Hull and Nelson (2005) added that

> the process of design in our digital age draws widely on multimodal materials and resources [and,] in thinking of multimodal texts, it is obvious how useful the notion of design can become . . . a way to conceptualize the suddenly increased array of choices about semiotic features that an author confronts. (p. 229)

As such, multiliteracies pedagogy calls for teachers to explore the affordances of modes with their students and to consider the student's intent and choices in communication in hopes of leveraging this knowledge toward more critical communication in and out of the schooling context.

A classroom environment that is conducive to multiliteracies is one that honors and respects each student's identity, agency, and background as part of building a community of learners. This is known as situated practice, which recognizes that each student has a sense of mastery over their individual literacy practices and meaning-making, and that each student is developing different skills at their own pace (The NLG, 1996). In what Kress (1997) called a "multifaceted communicational world" (p. 3), situated practice acknowledges that students have their own nuanced and complex ways of dealing with a steady stream of information from their social lives and that they are working actively to apply that information in their learning. Because of this nod toward diverse ways of thinking and knowing as part of literacy practices, Anstey and Bull (2018) pointed out that literacy is not neutral, and teachers bring in their own practices, understandings, preferences, and discourses when implementing multiliteracies pedagogy, especially in overt instruction. Drawing on the Vygotskian (1978) principle that students learn from other people in their social environments, the NLG (1996) defined overt instruction as "active interventions on the part of the teacher and other experts to scaffold learning activities" (p. 86). Overt instruction is about guiding students within a

community of learners to collaborate and reflect on their experiences. Through a constant exchange of ideas and information, students develop an awareness and understanding of their communicative patterns and decisions during literacy activities. Students then refine their thinking through the subsequent components of multiliteracies called critical framing and transformed practice. These two components of multiliteracies call for teachers to guide students toward critical reflection about the social dynamics represented in their texts and to consider how they can transform their understanding to a wider, sometimes global, context (The NLG, 1996).

2.2 Teachers' Knowledge and Their Literate Identities

Because a part of this study examined how the teacher participant understood classroom literacy practices and enacted pedagogy for the focal student with LD, it is important to look at how the literature frames such nuanced and highly personal forms of knowledge. Stein (2000) posited that teachers engage in multimodal pedagogies and classroom literacy practices in which a variety of modes "shape the production of curriculum knowledge and pedagogic practices that lead to learning. The relationship between modes and users is dynamic and transforming: modes change users and users change modes" (p. 122). Although teachers may take different stances with regard to literacy and their professional knowledge, Stein suggested that the classroom is inherently a multimodal space, and teachers make decisions about their classroom literacy practices, such as the arrangement of the desks and the selection of instructional materials as well as how to communicate complex concepts and ideas to the students. However, pedagogical decisions are impacted by teachers' own beliefs, values, and professional training. Golombek (1998) identified four categories of teachers' personal practical knowledge in her research: knowledge of self,

knowledge of subject matter, knowledge of instruction, and knowledge of context. She suggested that teachers' identities as people, their disciplinary knowledge from experience and from their professional training, and their engagement with "institutional and sociopolitical setting[s] along with the time[s], place[s], and actors within the setting[s]" are all re-constructed and enacted in classroom teaching (p. 452). More importantly, teachers' knowledge has its own set of consequences in the classroom because how teachers reflect and enact their knowledge in teaching impacts how students learn.

Golombek's (1998) framework of teachers' knowledge also facilitates the understanding of how teachers shape their classroom literacy practices. As noted earlier in this chapter, classroom literacy practices consist of both observable events, like reading and writing, as well as intangible influences, such as social dynamics between teachers and students, values and beliefs about literacy, and institutional traditions around pedagogy. Subsequently, teachers' knowledge is also influenced by teachers' literate identities. Gennrich and Janks (2013) pointed out that teachers' literate identities are constantly in flux as they encounter changes in policy, curriculum, and pedagogical approaches. Teachers are also expected to be experts in literacy practices in the classroom by modeling effective reading and writing methods, utilizing technology for multimodal compositions, meeting the needs of diverse learners through various pedagogical methods, and being well-versed in literature and materials to engage students during instructional activities. However, these classroom literacy practices come with their own set of tensions that are constantly negotiated by the teachers. For example, the two English-as-a-Second-Language teachers in Golombek's (1998) study explicitly stated the need to balance various teaching approaches in literacy to meet the diverse linguistic abilities of their students. In response to their

supervisors' expectations of teaching specific English-language-learning skills (e.g., reading, speaking, and listening), the teachers noted the strain of balancing the expectations with their own personal beliefs of teaching. One teacher observed a fear of hypercorrecting the students while another teacher felt the strategies that were suggested to her by her supervisor were not useful in resolving the gap between the students' learning and her own teaching methods. Golombek (1998) concluded that teachers' knowledge not only consisted of pedagogical strategies but also forms of "self-exploration to discern how emotions and moral beliefs influence their sense-making processes" (p. 462).

As models of literacy continue to evolve over time, teachers' knowledge and their identities also continue shifting. McDougall (2009) observed that "broadening views of literacy have made the responsibility for teaching literacy even more complex, nuanced, and potentially more hazardous" (p. 680). In her study of Australian teachers, teachers aligned themselves with specific identities with the increased use of technology alongside print-based instruction—identities such as "traditionalism (preference for traditional teaching priorities), survival (need for self-preservation), and futures (recognition of changing priorities)" (McDougall, 2009, p. 683). These distinct stances on literacy instruction indicate that teachers feel the need to defend their positions and face ongoing frustration when their values are challenged and criticized. A common theme for all of the teachers in McDougall's study was the constant questioning of their own knowledge in practice as they tried to mediate their beliefs about literacy with the changing practices of the students.

Noting that teachers' literate identities continue to change over time due to the ubiquity of technology, Cviko, McKenney, and Voogt (2014) proposed an updated model about what teachers do with literacy curricula and instruction. The influx of devices in the

classroom means that teachers are increasingly expected to become designers of instruction with technology, which manifests in multiple ways depending on teachers' beliefs and styles of instruction. Teachers can be "executors" of instruction, in which they implement ready-made curriculum and assume little involvement in the design process; they can also take on the role of "re-designer," in which the current curriculum is modified with other teachers to better suit pedagogical needs as well as to enhance facilitation of the curriculum in the classroom; and, finally, teachers can become more active "co-designers" of the curriculum by creating new activities with the existing materials as well as self-made materials (Cviko, McKenney, & Voogt, 2014, pp. 69–70). However, the inclusion of technology means that effective instruction is tied to judgements of how well teachers are using the technology (Archer et al., 2014), which puts further strain and tension on the professional work and knowledge of teachers.

Because this study also explored a teacher's understanding of multimodality and multiliteracies as part of her classroom literacy practices, I also combined multiliteracies with teachers' knowledge using Mishra and Koehler's (2006) framework for pedagogical and content knowledge. These two frameworks are important to use together because multiliteracies mostly highlights observable instructional practices—that is, what teachers do and say—more so than the intangible influences that impact their teaching, which were highlighted by Mishra and Koehler (2006) and Golombek (1998).

As multiliteracies pedagogy emphasizes the importance of teaching using technology, media, and multimodal texts, the way that the four components of multiliteracies pedagogy (i.e., situated practice, overt instruction, critical framing, and transformed practice) are taken up by teachers is also reliant on "what teachers need to know in order to appropriately

incorporate technology into their teaching" (Mishra & Koehler, 2006, p. 1,018). It is important to unpack what teachers know and do with technology because they interact with diverse learners who use a variety of devices and digital platforms. Mishra and Koehler propose a framework that merges teachers' pedagogical and content knowledge when looking at technology use in the classroom. Teachers are increasingly working with technical knowledge such as knowing how a device works, what applications fit what purposes, how to troubleshoot issues, and how to best deliver content to students. More importantly, knowledge about technology is no longer fixed because technology is not "standardized and relatively stable" (Mishra & Koehler, 2006, p. 1,023). Instead, teachers must have some sense of flexibility to adapt to technology that is ever changing and constantly being updated. Theoretical perspectives on teachers' knowledge, like the one presented by Mishra and Koehler, need to include technical knowledge as part of the content and pedagogy rather than keeping them as separate entities. The various forms of knowledge are interrelated when teachers implement multiliteracies pedagogy.

Each of the four components of multiliteracies pedagogy is aligned with the different forms of knowledge that are needed for successful implementation of instruction with technology. For example, situated practice focuses on meaningful engagement with peers and teachers in a collaborative community. Mishra and Koehler (2006) defined pedagogical knowledge as relating to "all issues of student learning" (p. 1026) and noted that a "teacher with deep pedagogical knowledge understands how students construct knowledge, acquire skills, and develop habits of mind and positive dispositions toward learning" (p. 1027). Forming a community with and between students is very much dependent on having pedagogical knowledge; however, I also propose that teachers need to have content

knowledge as well. How a teacher develops instruction is dependent on what they know about the content. Beyond situated practice, the rest of the components of multiliteracies pedagogy are much more involved as teachers need to draw from more complex knowledge about technology. Forming a classroom community around learning does not necessarily require technology knowledge, but scaffolding learning and developing design processes during overt instruction might involve devices and applications.

The merging of the different forms of knowledge (pedagogical content knowledge, technological pedagogical knowledge, technological content knowledge, and technological pedagogical content knowledge) shape the processes that teachers need to know as they shift from one component of multiliteracies to another. These are more subjective and flexible because they are dependent on the activity and the teachers' instructional design. However, Mishra and Koehler (2006) noted that the final form of knowledge, technological pedagogical content knowledge, is emerging and requires "a thoughtful interweaving of all three key sources of knowledge" (p. 1029). I consider technological pedagogical content knowledge as a part of transformed practice. The NLG (1996) suggested that teachers need to reformulate instruction from assessments of learning within the classroom community. This requires teachers to draw from all three forms of knowledge together, reflect on the instructional design, reassess learning, and then reconfigure their practices.

Lesser discussed by Mishra and Koehler is the teacher's knowledge of self and knowledge of context as proposed by Golombek (1998), but they are important in the implementation of multiliteracies pedagogy. Knowledge of self is positioned in the center because I think it is important to emphasize that how teachers perceive themselves and their abilities are at the core of pedagogy. If a teacher is not as comfortable with technology, odds

are those feelings would lead to some tension during instruction. Knowledge of context is missing from Mishra and Koehler's model because they saw the different forms of knowledge as individually distinct and somewhat unaffected by larger social influences. Golombek's (1998) knowledge of context focused on the teacher's awareness of institutionalized beliefs, school process, and educational policy. All of these factors shape the different knowledges that Mishra and Koehler proposed. Using technology as an example again, if a school district does not invest in devices or digital content, the multiliteracies pedagogy would look very different. As such, knowledge and instructional practices are also shaped by the context of the school and the classroom.

2.3 Beyond Deficits: Defining Learning Disabilities

In Chapter 1, I discussed the general definition of LD as students' difficulties with processing and communicating language, and how their struggles are often more visible during academic tasks, such as reading and writing texts. This definition remains fairly unchallenged and even broadly accepted and implemented by schools in BC. However, standardized definitions of LD as cognitive impairments overlook other theoretical perspectives that shape our collective perceptions about LD. In this section, I discuss my own understanding about LD through a sociocultural lens. I believe that students' struggle with language needs to be understood through an analysis of the shared social, cultural, and historical beliefs about normality and disability (Cousin, Diaz, Flores, & Hernandez, 1995). I shift away from seeing LD as solely existing within the student's mind to discussing how a student's social environment and interactions can further perpetuate the existence of literacy difficulties (Iannacci, 2018). In the following sections, I discuss how perceptions of LD are

manifested through discourse about disability, curriculum development, and assessment of literacy skills.

2.3.1 The Discourse About Disability in Schools

The writing about disability in general tends to fall into two distinct categories—one from a biological and medical (biomedical) perspective and one from a social-model perspective. The biomedical perspective of LD is perhaps the most widely accepted by the general public; in it, disability is seen as an illness or an impairment in the body and the mind (Thomas, 2004). The issue with adopting the biomedical perspective as the dominant viewpoint of disability is that there are assumptions about normality and abnormality or, in other words, behavior that deviates from what is considered to be of the norm (Bøttcher & Dammeyer, 2012). However, what is considered to be normal academic behavior is constantly in flux even though such behaviors are grounded in traditional notions about literacy; as Gallagher, Connor, and Ferri (2014) wrote:

> Identification of these disability categories requires the drawing of arbitrary lines and distinctions. Moreover, none of these categories could exist absent a cultural context that values literacy, that elevates certain markers of "smartness" over others, and that stipulates expectations for personal deportment. (p. 1,124)

In order to understand the arbitrary lines drawn in schooling contexts between students with LD and students without LD, a sociocultural lens can be used to highlight how an environment of learning can contribute to disability being more overt. A large part of children's socialization involves schooling, which is often where their disabilities are identified and highlighted. Historically, this focus on difference as deviation from what is perceived to be normal learning resulted in disability being viewed as a lack of competence

or a deficit rather than as the possession of a range of knowledge and skills. Vygotsky (1993) asserted that there is an assumption of normal behavior and learning in schools that does not align with the developmental differences in children with disabilities and that this disconnect also impacts a child's psychological growth. This perspective continues to exist in schooling as students with LD are mostly identified through their struggles with academic tasks and content. LD are considered to be an invisible disability (Gunderson & Siegel, 2001; Learning Disabilities Association of Canada, 2017) that is usually detected after schooling begins (BC Ministry of Education, 2016b). Dudley-Marling (2004) argued that LD often manifest during schooling because there is a need to assess and categorize children as types of learners, and "the evaluation of student performance [is] based largely on assessing differential rates of learning—with the underlying assumption that school achievement distributes more or less normally" (p. 484). Indeed, Mercieca and Mercieca (2010) supported this point by suggesting that disability cannot exist without society upholding certain beliefs, understandings, stereotypes, and even myths about cognitive and physical differences.

Perceptions about disability can also lead to ability profiling of students who are seemingly consistently underachieving in their academic tasks. Collins (2013) defined ability profiling as an act that continues to associate children's disabilities with deficiency in learning. However, students' socioeconomic status, their family structure, their ethnicity, and their gender can contribute to perceptions of them as "less capable, less intelligent, [and] less talented" (Collins, 2013, p. xiii) when compared to their peers. Consequently, disability cannot be looked at solely from a biomedical perspective because "the dynamics of low school achievement" (Collins, 2013, p. 2) do not rest solely on cognitive development but also on how other social influences and perceptions affect understandings of disability. For

example, despite being proven a myth, male students are still seen as more likely to have reading disabilities than female students. Siegel and Smythe (2005) argued that much of the research about gender differences and reading often occur because the studies utilize definitions of reading disabilities from multiple sources, which lead to skewed results without the proper context. This issue reflects Artiles' (1998) argument that disability needs to be looked at in "the-individual-in-action-within-special-contexts" (p. 35), not solely in terms of the student her/himself.

Although alternative ways of viewing LD and other disabilities are crucial to reconceptualizing differences, biomedical models cannot be ignored in favor of other models. Anastasiou and Kauffman (2011) argued that the social model of disability combines multiple conditions (e.g., physical disability, sensory disabilities, autism, and emotional and behavioral disorders) together when each condition clearly requires different types of services and treatments. Proponents of the social model often advocate for seeing disability as a difference much like race, socioeconomic status, gender, and sexuality—the underlying thread of these differences being oppression brought on by dominant discourses in society about normal appearances and behaviors (Anastasiou & Kauffman, 2012). However, Anastasiou and Kaufmann argued that there is a danger in viewing disability as a cultural difference because disability and diversity can be conflated, and the learning needs of people with disabilities may not be addressed properly. More importantly, the social model does not particularly help to address the overrepresentation of students from culturally and linguistically diverse backgrounds in special-education classrooms. Artiles (1998) wrote that it is important to acknowledge that "human difference has been seen as problematic in our society" (p. 33) in order to explain the discrimination, prejudice, and racism that are steeped

in society. A blending of these differences in the social model thus overlooks cases where students do not have a disability but are labeled as such because of ability profiling. Kauffman, Anastasiou, and Maag (2017) concluded that "a neutralization of disability would lead to no positive changes in education and public policy domains" (p. 147) because it is simply impossible to live in a society where every difference is considered normal. Because both the biomedical model and the social model tend to take on binaries of disability, I argue that a sociocultural perspective can help to bridge some of the gaps in understanding how different viewpoints within a specific context inform each other and impact students with LD and their teachers.

2.3.2 The Impact of Curricula

With literacy being historically viewed as reading and writing (Kress, 1997; Street, 1984), LD have been associated with a lack of competency in these traditional forms of print literacy. In particular, curriculum documents have reinforced the notion of literacy as tied to students' reading, writing, and spelling, which Green and Kostogriz (2003) viewed as contributing to "our structured incapacity to see multiple reasons for poor performance and literacy learning difficulties" (p. 107). Iannacci (2018) noted that there is sparse attention paid to curricula for students with disabilities, which means that literacy pedagogy and special-education support can remain "unchallenged" (p. 9). Few changes to curricula also perpetuate the cycle of pathologizing children as disabled early in their schooling, a designation which can have far-reaching implications (Heydon & Iannacci, 2008). Literacy instruction for students with LD is thus reduced to remediating isolated skills. Some examples of remediation include teaching reading with a focus on specific skills such as phonemic and phonological awareness, vocabulary word building, and identifying text

structures (Boardman, Argüelles, Vaughn, Hughes, & Klingner, 2005; Gersten, Fuchs, Williams, & Baker, 2001; McCulley et al., 2013; Wyse & Goswami, 2008). Remediation of literacy skills is important, but may also overwhelm the students' other literacy practices that are not print-centric. Similarly, suggestions by the BC Ministry of Education (2011) also provided an overview of mostly print-based activities to improve vocabulary development, comprehension, and writing skills. As mentioned earlier, this model of instruction aligns with Street's (1984) view of an autonomous model of literacy in which literacy is seen as a skill set that relies heavily on the cognitive aptitude to learn to read and write print. While these forms of instruction and remediation are certainly necessary for students with LD, they also tend to highlight a fraction of the students' overall literacy practices. Mock and Hildenbrand (2013) observed that a "lack of understanding of multiple modes of literacy and responses that do not mirror traditional literacy models and typical developmental milestones" (p. 116) contribute to segregation of students with disabilities from literacy-rich classroom experiences, and lower expectations for their literacy development. This results in a possible "absence of opportunities to encounter activities that foster literacy" (Kliewer et al., 2006, p. 172) and a reduction in the participation of students in learning activities (Bøttcher & Dammeyer, 2012) as many teachers still see literacy as "ability focused" (Siegel & Valtierra, 2017, p. 95) for students with disabilities—as a competency rather than as a form of meaning-making unique to the student (Kress, 1997). Green and Kostogriz (2003) argued that the literacies of students with LD need to be reframed under a New Literacy Studies framework in order to foster a "more productive, socially-inclusive way of thinking about classrooms, learning, and teaching" (p. 102). However, as conceptualizations of literacy and disability are changing, it is important to address "what counts as literacy as well as what

counts as (in)competence" (Green & Kostogriz, 2003, p. 106) because literacy education is often laden with specific rules and notions of "standardized norms." As school districts invest in new devices and platforms (e.g., applications, software, and learning management systems), it is important to consider how these forms of technology can exacerbate student difficulties rather than improve literacy learning.

2.3.3 Literacy as an Assessment for Students with LD

Models of literacy for students with LD that lean heavily on print-based literacies have profound implications for assessment. Heydon and Iannacci (2008) observed that literacy instruction and assessment are organized by curriculum expectations of what students should be able to do at a certain age and grade level, according to developmental norms. As such, some assessment practices starting from early childhood serve as possible perceptions of literacy disability. Students are assessed regularly for language aptitude, which includes phonemic awareness, vocabulary knowledge, and comprehension strategies (Heydon & Iannacci, 2008). If literacy is seen as linguistically based and structured with rules, then reading, writing, and oral language skills can be assessed for possible indicators of cognitive language difference because these skills are quantifiable in some way (Brigham & Bakken, 2013). Heydon and Iannacci (2008) argued that such assessment practices of literacy reinforce deficit perspectives of students who do not meet curricular expectations.

In the context of this study, assessments were seen as a social practice, much like my understanding of literacy. All assessments are laden in social, cultural, and historical values "emanating from the dominant culture as to what constitutes evidence of 'intelligence' and what constitutes valid realization of 'educational knowledge'" (Broadfoot, 2002, p. 105). Broadfoot (2002) noted that assessments allow people to pass judgements on knowledge and

expertise, which, in a classroom setting, also translates to ability and skills. A student who knows how to read and write demonstrates the ability to engage with academic print literacies in a way that is valued and deemed as learning at an appropriate grade-level for their age. For students with LD, these assessments reinforce their identities as learners who fall outside of the norm, which reinforces certain assumptions and stereotypes about their literacy learning.

2.4 Literature Review of Classroom Literacy Practices

This review of literature summarizes the research about classroom literacy practices of teachers and of students with LD. The literature discusses multimodal meaning-making practices in disability contexts, which includes research about print-based practices and a variety of semiotic materials. I begin this literature review by highlighting the pedagogical approaches that teachers implement in the classroom for students with diverse learning needs. Although the focus is on instruction for students with LD, I also talk about practices for students with other disabilities who experience literacy challenges. In the second section, I address the emerging trend of positioning multimodal meaning-making practices as a means for student inclusion and participation. With the use of technology increasing in literacy instruction, I also discuss the barriers and constraints that teachers and students encounter in the third section. Finally, I conclude this section with the changing teaching beliefs about literacy as well as summarize the literature on how teachers conceptualize LD and how their understandings impact instruction.

2.4.1 Classroom Literacy Practices of Students with LD

The classroom literacy practices of students with LD are diverse as they are shaped by the students' own interests and creativity and also influenced by adults in their lives.

Collins (2011, 2013) suggested that the way students understand their practices, the modes they use, the artifacts they create, and, subsequently, how they talk about their practices are all part of their learning experiences, which are situated in specific contexts. Moreover, there is a range of practices occurring simultaneously as students engage with multimodal texts and materials—practices which include engaging with design, interpreting texts for meaning, connecting to background knowledge, and interacting with teachers' direct instruction (Pantaleo, 2013; Ryan, Scott, & Walsh, 2010). However, despite an acknowledgement of the diverse practices of students with LD in academic research, their literacy practices in the classroom are inevitably shaped by teachers' knowledge of pedagogy and best practices for students with specific learning needs (Brodeur, 2020). As noted in the theoretical framework and in the review of the extant literature, students with LD are typically viewed as having deficits in their learning and in their literacy practices, resulting in instruction that is heavily based in remedial reading, writing, and oral language skills (Mason & Graham, 2008; McCulley et al., 2013). Students are generally referred to early intervention programs to address their difficulties with phonics, letter recognition, spelling patterns, verbal memory, and semantic organization—to name a few underlying language processes—as, there, students will be provided with strategies to enhance their skill sets and overcome their challenges (Steele, 2004). However, there needs to be some movement towards instruction that focuses on multiple modes as many of these literacy interventions for students with LD focus on print-based practices. Elkins (2002) wrote that conventional teaching practices do not always address the needs of students with LD. It is necessary, then, to explore the experiences of students with LD to better understand their struggles and inform practice as well as promote inclusivity that is learner centered (Naraian, 2019).

Although students with LD are rarely ever dissociated from their difficulties with print, teachers have implemented a wide range of multimodal activities to bridge the gap in learning. Much of the literature about multimodal meaning-making practices and students with LD focuses on students' ability to express their understanding in multimodal compositions (i.e., writing with visuals, creating digital stories, and presenting information orally) as part of their learning with print-based literacies. In a study by Collins (2011) of a Grade 2 student named Christopher, who was considered at-risk for being seen as having a deficit in his learning, Collins noted that Christopher was consistently opting out of activities that involved oral and print forms of literacy. However, when presented with an opportunity to express himself using art, Christopher quickly responded by telling the teacher and Collins that he was an artist. He was soon given the responsibility of being a set designer for a play the class was working on, which redirected his formerly "off-task" (Collins, 2011, p. 415) behavior (i.e., of refusing to participate in literacy activities) and gave him an outlet to express his creativity.

Multimodal compositions are increasingly associated with the use of technology as well. In schooling, the use of technology for students with LD is not a new practice. Historically, students with LD have used assistive technologies during literacy activities—for example, text-to-speech software, digital texts, word processors, spell checkers, as well as graphic organizers and composition planning software (Courtad & Bouck, 2013)—with the idea that these forms of technology help students communicate better despite their difficulties with print. More importantly, the ever-growing number of content-creation applications for students allows students to combine modes and media with relative ease (Smith, 2017). In her example of a middle-school classroom, Stein (2000) presented a project

in which students built competency in visual narratives without sound or dialogue. The principal and English teacher of the school facilitated a variety of "stimulus activities" (Stein, 2000, p. 126) in which students and the teacher analyzed icons, perspective, sound and music, camera angles, and color that attracted viewers' attention. The teacher participant in this study arranged for students to work in groups and noted that the collaborative work around the films generated interest and sparked insightful conversations about storytelling, personal narratives, and emotions, as well as constant reflections about the film-making process. In this study, it was clear that print was not the primary mode in the project; however, the analysis of the visual and audio modes between the teacher and the students led to discussions about critical issues that enhanced oral language skills.

For students with writing challenges, multimodal compositions have been seen as interventions to ameliorate students' difficulties with print. In her study about three male students (aged 11 to 12) in special-education placements, Faux (2005) found that digital platforms that allowed the students to make collages, insert photos, and create videos helped students to create a "portfolio of individual achievements" (p. 171). Equipped with a rubric created by the teacher, the three students had to consider design elements, such as font styles, color, and size, as well as connect images to text, sound, speech, and video. The checklist and the digital platforms ensured that the students were able to freely design their multimodal compositions while keeping their teacher's expectations in mind. Although this project was seen as an intervention, two of the three students noted it was difficult for them not to revert back to print as the primary mode for their study. Faux observed that students made use of the tools within the software to improve their writing, such as using the spell checker, the dictionary, and the speech-to-text function, even though the assignment itself was not

grounded in written text alone. Current research about multimodal compositions continues to focus on how students move from one modality to another, especially with technology, and how students are developing their identities and relationships throughout their design process (Blaine, 2017). Schneider, King, Kozdras, and Welsh (2020) noted that students are increasingly exposed to multimodal texts online with questionable authenticity, especially on social media. The challenge that teachers face is teaching to the composition of multimodal texts that enforce critical media literacy while also addressing textual design and meaning. Students not only have to know how to create the multimodal texts, but they also need to comprehend other texts outside the classroom that address "real-world and digital situations (e.g., fake news, trolling, cyberbullying)" (Schneider et al., 2020, p. 3). As multimodal texts become shorter in the form of images (e.g., memes and gifs), students are creating texts with less printed text and relying on the visual to communicate social meaning. However, teachers are not necessarily designing instruction that draws from these more contemporary, and at times problematic, texts to teach multimodal compositions.

From a teaching perspective, technology has been noted as beneficial to pedagogy, especially in addressing the diverse needs of students. Teachers have limited time with their students and, during such a busy time, they need to consider the number of students in their class, the space(s) available for students to work and collaborate in, as well as the amount of instructional time allocated for each activity. Mobility, productivity, flexibility, and accessibility are important qualities to consider when designing activities for students with LD (Bruce et al., 2013). Mobile devices, like iPads and other tablets, are increasingly associated with meeting these needs. For one, they are seen as more cost effective than computer systems, including laptops, and, secondly, they are more portable, which allows

teachers and students freedom to move within a classroom while still targeting learning needs and objectives (Burke & Hughes, 2017). In a study about iPad use by teachers, Draper Rodríguez, Strnadová, and Cumming (2013) noted that teachers enjoyed using iPads during their instruction because the iPads "enhanced the students' learning opportunities in the areas of communication, access, engagement, and independence" (p. 246). The authors also argued that students could more easily collaborate on projects. Moreover, because of the mobility, teachers and students were less inclined to use designated computer labs in the schools that moved students away from the resources they normally had access to in the classroom (Burke & Hughes, 2017). For teachers, technology afforded them productivity and an opportunity to build upon their professional knowledge. Teachers reported that tablets and other devices increased their efficacy, especially devices that allowed them to save or store resources, which allowed for faster access and easier sharing with students using other devices (Atanga et al., 2019; Churchill, Fox, & King, 2012).

2.4.2 Multimodal Meaning-Making Practices as a Means of Inclusion

One of the major shifts in understanding classroom literacy practices is the emergent viewpoint of multimodality as a way to enhance participation and inclusion for students with LD. As noted earlier, because many of the students' difficulties are with print, there is a prevailing notion that working with a wide range of modes can help students express their meaning better and, thus, help to strengthen their status in the classroom as able learners rather than deficient students (Collins, 2011). Stein (2008) added that students' experiences and background knowledge are crucial factors to consider when planning literacy instruction. Stein viewed students as "agentive, resourceful, creative meaning-makers who communicate using the communicative potential and multiple resources of their bodies and of their

environment to interconnect" (p. 122). As such, classroom literacy practices are embodied experiences that contribute to the meaning-making process with print rather than uphold print as a standalone model of literacy. Instructional activities, according to Stein, must also include the use of a variety of modes as "multiple entry points for meaning-making" (p. 335). Stein's perspective of literacy instruction speaks to collaborative approaches between the teacher and the students to design instruction, which also disrupts the traditional view of teacher-led activities. Viewing literacy instruction and practices as multimodal can have powerful implications as students are seen as creators of meaning. In addition, viewing literacy instruction and practices as multimodal recognizes that students have different "histories and competencies" with each mode, resulting in multimodal meaning-making practices that are highly personal to the students (Stein, 2008, p. 122).

The goal of using technology with students with LD is to ensure students can participate in classroom activities that fit their diverse learning needs while also increasing their independence (Blackhurst, 2005; Bruce et al., 2013). In order to build independence, the technology used has to enhance motivation and generate positive learning experiences. Laidlaw and O'Mara (2015) noted that technology can also act as appropriate accommodations for students with disabilities because the devices allow them to work "outside of normative skill expectations" (p. 69). For example, students with fine and gross motor difficulties, in their experience, could still participate in literacy activities because iPads helped to alleviate their issues with writing print. Similarly, Burke and Hughes (2017) added that tablets were important tools that created a more inclusive environment for students with difficulties by helping them to achieve higher levels of academic achievement. Burke and Hughes observed that the functions of the iPads helped to meet students' needs,

which then allowed them to participate more actively in classroom activities. Their findings were echoed in Drewry, Cummin-Potvin, and Maor's (2019) study about implementing a multimodal literacy program to enhance inclusivity in the classroom. The focal student noted that she felt more comfortable "show[ing] herself" (Drewry et al., 2019, p. 70) through her creation of a multimodal text with video, pictures, music, and voice recording. Rather than seeing it as a distraction, the researchers noted that the many options for design on the devices helped to improve differentiated instruction, which is necessary for inclusivity in the classroom.

Although devices and applications offer access to multiple modes, one of the strongest benefits of using technology is its ability to enhance print literacies. Cullen, Richards, and Frank (2008) suggested that students with LD benefitted from applications that addressed their difficulties with written expression, such as difficulties with spelling, grammar, punctuation, and the organization of ideas. Applications that included spell-check, word prediction, and text-to-speech functions improved student writing as well as allowed them to write independently and produce longer writing pieces with clearer communication (Cullen, Richards, & Frank, 2008). These findings were echoed in a study by Parr (2012), who noted that text-to-speech functions were often utilized in the classroom by students with difficulties because the functions were seen as helping students to follow along with the printed text, potentially aiding in comprehension. Teachers in the study believed that using the text-to-speech function as part of their instructional resources increased the independence of students with reading issues. The students reflected on their use of text-to-speech and reported higher levels of self-efficacy because of the options available to them, such as controlling the speed of the reading. Since reading was a large component of all of the

literacy programs in the study, text-to-speech helped students with LD to engage with the same or similar content as their peers. Fernández-López, Rodríguez-Fórtiz, Rodríguez-Almendros, and Martínez-Segura (2013) concluded in their study that students developed a stronger sense of autonomy through the use of tablets as their primary device because there were tools and functions that bridged the students' issues with print. As multimodal meaning-making practices are increasingly being seen as part of inclusive instruction, it is important that students have the opportunity to experiment and engage with technology in a variety of ways. This also helps with reducing the "differential treatment" of students with disabilities as they develop and strengthen competencies with technology (McGhie-Richmond & de Bruin, 2015, p. 228). Thus, the goal of inclusion is valuing different approaches to meaning-making as a class community.

With proper teacher guidance, Burke and Hughes (2017) noted that "students struggling with basic literacy skills could find success when high quality applications were used" (p. 196) to meet students' literacy goals, particularly when expressing their learning. Students reported feeling more engaged, confident, and motivated in their learning when the applications provided functions that suited their needs (Burke & Hughes, 2017). Although these functions centered around writing accuracy, multimodal literacy practices were framed as a way to allow students to engage with their expressions of learning without being sidelined by spelling and grammatical rules. This then helped them to write longer texts and feel more confident during the process (Bruce et al., 2013). As students became increasingly motivated to write and produce works that shared their learning, they were more willing to take risks and move "outside of their comfort zones to explore new possibilities in writing" (Bruce et al., 2013, p. 36).

A major aspect of participation is giving students tools to build background knowledge alongside their peers. Images, video, and audio are the most commonly discussed modes to help students build background knowledge and understand a variety of texts better (Cordero et al., 2014; Harrison, 2011; Jewitt, 2008). Even with digital print-centric activities, such as reading websites, Castek et al. (2011) argued that students who struggle with reading can benefit from online reading because "the [I]nternet is now a central source of information, and learning is dependent on the ability to read and comprehend complex information at high levels" (p. 92). Online information is no longer associated with print, and Castek et al. (2011) suggested that, because there is no linear way of viewing information on the Internet, students explore pieces of information in a variety of modes that scaffold their understanding. Students access a variety of information sources that are not necessarily tied to their offline reading comprehension level; instead, the multimedia support higher-level literacy, such as organization, audience, and even comprehension (Castek et al., 2011). However, Coiro (2020) cautioned that digital multimodal texts are likely to have "unique features, with the potential to hinder or support comprehension" (p. 16), which highlights the different affordances and constraints that students encounter individually when navigating multimodal texts online.

Under British Columbia's educational policies, students with LD are often in inclusive or integrated classrooms, in which they interact and learn with peers of different abilities, including students without disabilities (BC Ministry of Education, 2013; BC Ministry of Education, 2018). Technology has been positioned as a way to bridge differences in the classroom and provide students with a variety of options to express their learning (Flewitt, Kucirkova, & Messer, 2014). This also implies a certain level of equal access to

devices in order to maintain or even increase participation. Unsurprisingly, many studies reveal the efficacy of group activities that incorporate the strengths of students with LD rather than confine their literacy development to individual remediation (Jones, 2012; McGrail & Davis, 2010). For example, Jones (2012) found that blogging included students with LD as part of the community of writers while providing a range of tools that allowed them to create more meaningful written pieces for a wider (online) audience. Blogs helped to solidify the idea of writing for "real world purposes" (Jones, 2012, p. 16) rather than solely academic ones while still preserving the integrity of writing instruction. Stover, Kissel, Wood, and Putman's (2015) study about writing with technology supported Jones's (2012) findings. Students in their study reported positive experiences because they felt the technology allowed them to more easily share their work with "authentic audiences" (p. 352) such as their classmates and parents while teachers noted that they could more easily provide feedback to their students. Teachers felt that they could more easily bridge the differences between school and home literacies through teaching writing with technology, which also motivated students because these activities closely aligned with their interests (Drewry et al., 2020; Price-Dennis, Holmes, & Smith, 2015).

2.4.3 Barriers and Constraints of Technology

Although the benefits of technology have been regularly touted in the research literature, it is important to consider the limitations they pose in the classroom. For teachers who regularly deal with a lack of time, space, and access to resources, technology use in the classroom can be difficult and even ineffective for them and their students (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012; Francom, 2020; Parette, Quesenberry, & Blum, 2010; Stover et al., 2015; Yeo, 2007). The most common issue in the

literature reviewed was a lack of devices for growing class sizes, especially as funding was limited to replace and add devices (Chen, 2008; O'Mara, Laidlaw, & Blackmore, 2017). Kearney, Burden, and Rai (2015) observed that not every student in the classroom had their own device, and, even if they did, they encountered difficulties with them or were unclear about how to use the device to meet their teachers' learning objectives and expectations. Additionally, the lack of devices impeded the file-sharing and collaborative benefits that are often associated with technology and subsequently reduced feelings of autonomy and efficacy for teachers (Kearney, Burden, & Rai, 2015). Burke and Hughes (2017) listed a wide range of issues in their Canadian-based study, such as security problems, school district safeguards or website filters, insufficient storage on devices, and a limited number of apps deemed educational and useful for students and teachers. For these teachers who were expected to engage with multimodal literacy practices, these issues greatly affected access to materials that students needed to complete their projects effectively. Francom's (2020) study about teachers in K-12 and technology use in the classroom found that a lack of time was persistent and the greatest barrier for teachers when integrating technology into their practice. The lack of time was not necessarily just about teaching with technology but also try and test out technological tools and resources in meaningful ways prior to designing instruction.

The efficacy of instruction with technology is also affected by teachers' perspectives about using devices and digital content in the classroom. In some North American school districts, standardized assessments require a fair amount of test preparation that reduces time spent on working with devices and digital content. Teachers who were already unfamiliar with technology were found to be even less likely to prioritize devices and digital content

over other methods of instruction with print in favor of more closely aligning with material in the assessments (Stover et al., 2015). Ertmer et al. (2012) added that a lack of support by school district administrators with regard to technology implementation can also contribute to teacher inability to use such resources meaningfully in their teaching. Burke and Hughes (2017) pointed out that the teachers in their study confessed to needing more professional development with the vast array of technology in their schools as well as more training to adequately use the devices effectively, especially when teaching students with diverse needs. With regard to the supposed schism between teaching technology or teaching print-based skills, Yeo (2007) found that teachers prioritized "traditional literacies" (p. 121), such as reading books and writing activities, over student competencies in other literacy forms, such as with mobile devices and video games, because of a lack of familiarity with the digital platforms students used most often in their daily lives. Similarly, teacher beliefs about text structure and visuals also affected how multimodal texts were used with students. Poyas and Eilam (2012) noted that teachers' "prior knowledge, professional experience, personal disposition, and artistic taste, to name only a few, [are] involved and affected the process" (p. 98) of integrating multimodal texts into instructional practices. Francom (2020) added that if all other barriers (e.g., time, training, access, and support) were removed, teacher beliefs about technology, particularly when the study entered its third and final year, still play a significant role. Most notably, teachers reported difficulty keeping up with the changing trends in technology, which also affected their self-efficacy with using different tools in their practice. The study's findings indicated that teaching beliefs about technology do not necessarily change over time, furthering concerns that teachers may not necessarily access the affordances of technology in their practices.

2.4.4 Teachers' Perspectives About LD and Inclusion

Adding to the understanding of teachers' conceptualizations of literacy, this section focuses on teachers' perspectives of LD. The way teachers develop their beliefs about LD also, like their understanding of literacy, impacts how they shape their literacy instruction (Siegel & Valtierra, 2017). Hornstra, Denessen, Bakker, van den Bergh, and Voeten (2010) note that teachers' attitudes can contribute to how they view competencies in literacy; they found that a negative outlook resulted in negative expectations of student learning. As mentioned earlier, Collins (2013) pointed out that ability profiling continues to exist in today's classrooms, stemming from the use of the LD designation as a way to explain unexpected low achievement. LD is viewed as an "uncontrollable cause of failure" (Clark, 1997, p. 76) by teachers, which results in expectations of students performing below their grade level.

Although many students with LD are taught in inclusive classrooms, viewpoints about inclusion can also have negative effects despite inclusion being framed as positive (BC Ministry of Education, 2018b; Loreman, 2014). McGhie-Richmond, Irvine, Loreman, Cizman, and Lupart (2013) found that general education teachers in inclusive classrooms expressed difficulties managing students' difficulties and instructional time. Moreover, teachers were concerned about pulling out students for therapy and other interventions because the students would miss time in their classrooms, further impacting relationship-building and the bridging of gaps in their instruction (McGhie-Richmond et al., 2013). Lalvani's (2013) results showed that teachers also had preferences for what difficulties or behaviors were deemed as more appropriate for inclusive classroom environments. Students who were seen as more fitting for general education classrooms typically had fewer difficult

behaviors and cognitive abilities that were perceived to be closer to expectations of students without disabilities. Other factors that may further complicate teachers' beliefs about disability include a lack of resources to meet diverse learning needs and growing class sizes as well as weak administrative or teaching support, which can further increase responsibilities of teachers (McGhie-Richmond et al., 2013).

2.5 Chapter Summary

In this chapter, I discussed the theoretical framework and literature that guided and informed my study. I first addressed my understanding of literacy and classroom literacy practices, which were drawn from sociocultural theory, social semiotics, multimodality, and multiliteracies. Literacy was seen as inherently multimodal and included the use of multiple semiotic resources to communicate and construct meaning in both digital and non-digital contexts. Print was just one of the semiotic resources identified as being available for use in constructing and communicating meaning. Multiliteracies pedagogy has become increasingly prevalent in classrooms as teachers adopt this framework for instruction to guide their work with students with diverse learning needs. However, as teachers implement more technology in their instruction, I argued that a framework for teachers' knowledge was needed to better understand what teachers know and need to know about using a variety of tools in addition to their responsibility to teach content knowledge.

I then discussed how, despite these changing conceptualizations of literacy, students with LD are still defined by their difficulties with print literacies in school. I also explained how conceptualizations of LD can be unpacked using a sociocultural lens to better understand how a school environment, literacy curricula, and societal notions of deficit limit the literacy practices of students with LD. In my discussion of disability, I noted that there

are two outlooks of literacy—the biomedical model and the social model. The biomedical model tends to frame LD as a cognitive impairment within a student while the social model counters this perspective by arguing that disability is a social construct. Despite the availability of multiple lenses through which to view disability, the biomedical model has continued to persist in definitions of LD, which is evident in curriculum development and in assessment practices that assume a level of appropriate academic achievement at each grade level. Students who fall outside of the norm tend to be viewed from a deficit perspective even though a sociocultural lens argues that LD can only exist through the upholding of certain societal beliefs about disability—the drawing of arbitrary academic lines by school systems being a prime example.

As this chapter drew to a close, I provided a review of the literature about classroom literacy practices of teachers and of students with LD. The literature review addressed four topics: instructional practices in the classroom, multimodality as a means of inclusion and participation, barriers and constraints of using technology during literacy instruction, and teachers' conceptualizations of LD and inclusion. As a means to counteract the deficit perspective of LD, classroom literacy practices have become increasingly seen as multimodal. Students are encouraged to share their learning using a variety of modes in addition to print. However, classroom literacy practices are also limited by particular constraints, including the prevailing notion of literacy as print-centric, the lack of access to materials (particularly technology), and teachers' difficulties broadening their perspectives of literacy and LD.

In the next chapter, I discuss my case study research design, data collection methods, and steps taken toward data analysis.

Chapter 3: Research Methodology

In this chapter, I discuss my research design, data collection, and analysis methods, as well as how my methods relate to my research questions for the study. I also address how my pilot study informed my decisions about data collection. My research questions are as follows:

1. What are the multimodal meaning-making practices the teacher implements during literacy instruction to meet the needs of the student with learning disabilities?
2. How does the student with learning disabilities engage with meaning-making practices during literacy instruction in the classroom?

3.1 Case Study as a Research Design

I conceived this research study as a single case study because I was addressing my research questions in a specific context with a limited number of participants. As a methodology, case study calls for the use of multiple data collection methods to explore the complexity of social behavior through a variety of lenses and relies on the use of theory to guide the research process and the data analysis (Baxter & Jack, 2008; Glesne, 2016; Meyer, 2001). Yin (2014) noted that a single case study is an appropriate design when a specific human condition—LD in this case—offers "a distinct opportunity worth documenting and analyzing" (p. 52). However, I also argued earlier in this dissertation that LD were not necessarily extreme or unusual in the context of my study. As mentioned before, the BC Ministry of Education (2017) reported there were nearly 18,000 students with LD within a total population of 557,000 students between kindergarten and Grade 12; therefore, it can be considered quite normal to have students with LD in the classroom. I approached this case

study, then, as a look into "an everyday situation" (Yin, 2014, p. 52), with the goal of contributing to "knowledge and theory building by confirming, challenging, or extending the theory" (Yin, 2014, p. 51). A single case study design was also appropriate because there were no other participants of a similar age and position I could compare my data to, such as a second teacher and another focal student with LD.

I chose case study as my research design because I was interested in how my participants engaged in multimodal meaning-making practices within the shared space of a classroom as well as how they understood their practices. This interest meant I had to choose a research design that allowed their perspectives to be the primary focus. I aligned closely with Merriam's (1998) and Stake's (2003) philosophical beliefs about case study, both of whom wrote about case study from a constructivist perspective in which knowledge is constructed rather than discovered. In the context of this study, I understood case study as an intensive focus on people's knowledge about their lives within a specific context of space or location (e.g., communities, organizations, and institutions) and time. Case study research is generally done to "understand a real-world case and assume that such an understanding is likely to involve important contextual conditions pertinent to [the] case" (Yin, 2014, p. 16). This is otherwise known as a *descriptive* case study. Merriam (1998) wrote that a case study can also extend what is currently known for the reader and can "bring about the discovery of new meaning" (p. 30), which, in this study, was exploring the participants' nuanced classroom literacy practices. I recognized that my study was very specific to the location (i.e., the school district, the neighborhood, the school itself, and the classroom) and that the way LD was conceptualized within these contexts was dependent on how my teacher participant interacted with the school and classroom environment. Because my participants

had very different identities, experiences, and roles in the classroom, I acknowledged that there were "multiple realities having multiple meanings" (Yin, 2014, p. 17) despite their close proximity to each other on a regular basis.

Although Yin argued that multiple case study designs are generally better for theory development, Dyer and Wilkins (1991) noted that a careful study of a single case "leads researchers to see new theoretical relationships and question old ones" (p. 614). With single case studies, they argued that researchers engage in a deeper analysis of the data and build a stronger understanding of the phenomenon being studied. They noted a risk of surface-level generalizations during multiple case studies and believed that "theory that is born of such deep insights will be more accurate and more appropriately tentative because the researcher must take into account the intricacies and qualifications of a particular context" (Dyer & Wilkins, 1991, p. 615). Flyvbjerg (2006) argued that generalization does not necessarily contribute to more valid knowledge production. Instead, he noted that "formal generalization is overvalued as a source of scientific development, whereas 'the force of example' is underestimated" (Flyvberg, 2006, p. 228). In other words, the selection of the case and the reasons why a specific case is being studied bears more importance than generalizations as a single case can refute commonly held assumptions or beliefs. Although my participants engaged in routines within the same classroom space, the literacy instruction were not necessarily planned and delivered by the teacher or experienced by the student in the same way from day to day; the contexts of the literacy practices shifted during each session of data collection, which generated more complex and nuanced findings.

One of the complexities of designing a case study is identifying the case and the unit of analysis. Research methodologists have claimed that the case and the unit of analysis are

the same thing in case study research (Grünbaum, 2007; Yin; 2014); however, I found the lack of distinction to be unhelpful in considering the identity of my participants, their experiences, their actions, their attitudes, and their spoken beliefs about their literacy practices. Merriam (1998) defined a case as "a thing, a single entity, a unit around which there are boundaries" (p. 27), which led me to question what attributes were considered to be part of the case. After multiple readings of case study design, I came to understand the case as a particular person or social group, program, or event being studied for a defined period of time that can be described with identifying information, such as geographic location, institution or organization, age, gender, and role/function (Hitchcock, Hitchcock, & Hughes, 1995; Leedy & Ormrod, 2016; Street & Heath, 2008). In this study, the boundary around my case was linked to the schooling and classroom environment, the grade level, the school year and the teacher's availability, and the LD designation of the focal student. Dyson and Genishi (2005) recommended researchers collect information about the setting of their research, including "the configuration of time and space, of people, and of activity in their physical sites" (p. 19). They coined this method as "casing the joint" (Dyson & Genishi, 2005, p. 85), which I found helped me collect information in terms of who, where, and when I was conducting my study; however, it did not help me to answer the specifics of what was happening with the participants as I collected the data to address my research questions.

To differentiate the case from the unit of analysis, I drew from Grünbaum's (2007) conceptual paper about identifying the unit of analysis in case study research and Pahl's (2007) work about multimodal events and practices. Grünbaum (2007) noted that there can be many layers to the case (i.e., location of the research and the identities of the participants) but the unit of analysis is "the 'heart' of the case" that is demystified through data collection.

I first needed to consider what I was conducting an analysis of within the larger case and address the question of what this case study was about on a more broader level (Baxter & Jack, 2008). Ultimately, this was a case study of how a teacher implemented multimodal meaning-making practices to meet the needs of a focal student with LD. To further refine my unit of analysis within this case study, I drew heavily from Pahl's (2007) extension of literacy events and literacy practices to multimodal events and multimodal practices as the units of analysis. Multimodal events are observable behaviors and actions with a variety of modes (e.g., creating a text, drawing, and writing) while multimodal practices are the beliefs and values about meaning-making with a number of semiotic modes (e.g., print, pictures or photos, sound, movies, gestures, etc.). Pahl (2007) noted that "multimodal events and practices, like literacy events and practices, are situated within a range of contexts, domains and ideologies" (p. 86). As such, I understood my units of analysis as the multimodal events and practices that took place between the teacher and the student during whole-class, small-group, and one-to-one instruction. I analyzed the multimodal events by examining the time periods of the events (when did they occur in the class schedule and class routines), different pedagogical methods implemented by the teacher, the materials used by the teacher and the student, the student's assignments, and the participants' interactions that took place during literacy instruction. From the multimodal events, which included observable actions and interactions between the participants during literacy instruction, I was able to infer the teacher and the student's experiences with multimodal practices. Drawing from Drewry et al. (2019), activities elicit the participants' attitudes, emotions, and beliefs (otherwise known as part of their experiences during the activities). They noted that the focal student with a mild LD in their study recognized that she had trouble with reading, writing, and spelling. In order

to address this issue, she regularly asked her peers for help with questions she found challenging. Thus, the student's prior experiences during print-based activities brought on some uncomfortable feelings, resulting in her developing strategies to cope with the academic work with her peers. Consequently, activities are difficult to differentiate from experiences.

Because this research work was done with a student with LD, I referred to Artiles' (1998) observation that "the unit of analysis is not the individual child, but rather, the-individual-in-action-within-special-contexts" (p. 98). As I mentioned in Chapter 2, a sociocultural lens of disability considers environmental factors (e.g., classroom space, literacy curriculum, and assessment) that contribute to making the LD more obvious, and these factors are always situational based on the context. Gorichanaz, Latham, and Wood (2018) added that participants' daily lives, projects and tasks, and attitudes about the world around them also serve to contextualize the unit of analysis; in this study, I considered these factors to be part of the special contexts that Artiles (1998) referred to in his writing. In Figure 3.1, I sought to illustrate how the case (the literacy practices of my participants) was intertwined with the unit of analysis (the multimodal meaning-making events that took place). It was important for me to study the participants' activities within specific contexts (e.g., time of day, other people they engaged with, and with what materials) to notice "patterns of participation" (Borko, 2004, p. 4) as well as explore how they understood their practices during multimodal events.

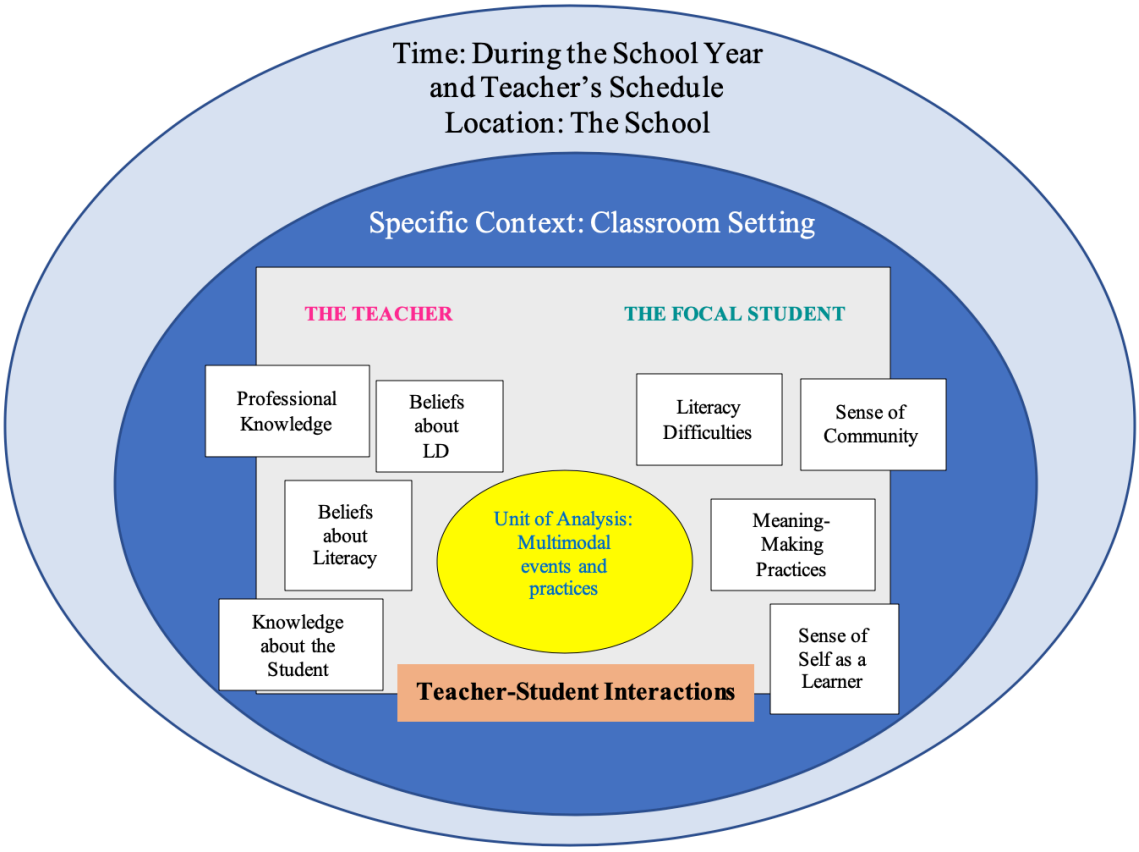


Figure 3.1 The case (the teacher and the focal student) and the unit of analysis (the multimodal events and practices) for this single case study.

From the theoretical review about literacy practices, I contextualized the case with the knowledge and literacy practices of the teacher and the student (depicted as rectangles in Figure 3.1). I understood all observable actions and behaviors to be informed by unspoken beliefs and thought processes that are enacted in the classroom through teacher-student interactions, instruction, and learning behaviors. The participants' practices during literacy activities were expected to be different depending on the contexts of instruction (e.g., whole class, small group, and one-to-one instruction). Each of these contexts was needed because the teacher and the student participants were not always working together for long periods of

time. The literacy practices of the participants changed depending on the context of instruction and other teachers or students involved during the literacy activity.

3.2 Participants

Before discussing the research study in detail, it is important to introduce the participants first. In this section, I describe the recruitment process for this study and how I met the participants, Cate and Theo. I also talk more about their experiences as well as their connections to the school community.

3.2.1 Participant Selection and Recruitment

The selection criteria of the teacher participant were based on teaching experience and professional knowledge. The teacher had to be working in an elementary setting with Grades 1–7 and have a working knowledge of LD. This knowledge could have come from a variety of sources, such as their teacher education coursework, practicum and/or classroom experience, or professional development. The main criterion was that the teacher needed to be working currently with a student with LD in literacy since the teacher needed to choose a focal student for this study. The second criterion was that the teacher needed to have had prior communication with their classroom students' parents, guardians, or family members about the learning difficulty so that no focal student was selected without their parents' awareness or knowledge of the LD.

The focal student's selection criteria were based on the BC Ministry of Education's (2016) definition of learning disabilities:

> Learning disabilities refers to a number of disorders that may affect the acquisition, organization, retention, understanding, or use of verbal or nonverbal information. These disorders affect learning in individuals who otherwise demonstrate at least

average abilities essential for thinking and/or reasoning. As such, learning disabilities are distinct from global intellectual disabilities. (p. 47)

This definition was used because teachers would be most familiar with how the Ministry describes LD, and it would be the most relevant definition to their teaching practice. Likewise, I assumed parents, guardians, and family members of students with LD would recognize this definition because of continued communication with the teacher and administrators. At the time of the study, the teacher needed to have had some form of documentation of the LD. Documentation could have included assessments, diagnoses by medical practitioners, previous teachers' reports, parent and teacher observations, and other assignments or assessments that indicated difficulty with literacy. Students who did not have such documentation, such as those suspected of having a difficulty and who were in the process of being diagnosed or assessed, were not considered. This was because it was possible that the student could have been assessed as not having LD under BC's criteria and would have been mis-categorized in my study as having one. Students in kindergarten were also excluded because they would have been still learning how to read and write and would have been less likely to have been considered as having LD because they were so young. I was hesitant to recruit students who were considered early years learners (i.e., kindergarten to Grade 2) because of the same concerns I had with students in kindergarten. For privacy and confidentiality reasons, I did not ask to collect any forms of documentation describing the LD because I believed it would be too intrusive for the student and the parents.

3.2.2 Cate Frost

I first talked to Cate[1] when she wrote to me expressing an interest in participating in my pilot study. At the time, she was teaching a Grade 5 class. She was an experienced teacher in the Seton school district, having worked there for more than eight years. She also lived in the same city with her husband and two young children, so her ties to the community were strong. Prior to this, she taught in Taiwan in an English kindergarten/Grade 1 classroom for five years before returning to British Columbia to complete her Bachelor of Education and, eventually, her Master of Education.

Cate's experience in the classroom and her studies led her to join my study because she had a lot of questions about using multimodal resources with students with diverse learning needs. The school district had recently purchased new iPads and robotics devices, and Cate was trying to figure out how best to integrate these new resources into her teaching as well as gauge their effectiveness in literacy learning. Cate's class of 27 students reflected the cultural, linguistic, and socioeconomic diversity of Seton. Her class consisted of students who were English-language learners, refugees, and newly immigrated children, but the majority of her students spoke English fluently. She also taught students with socioemotional issues and diverse learning needs. Because her class included such a mix of learning abilities and languages, she viewed multimodal meaning-making practices as a way of helping students to bridge their knowledge and experiences to the curriculum. This was also why she wanted to participate in the study. She hoped to gain more knowledge about her instruction with multimodal meaning-making practices to better address the focal student's learning needs.

[1] All participant names and locations in this study have been changed to pseudonyms.

3.2.3 Theo Darcy

Cate chose Theo as the focal student because he already had paperwork with the school district to file for the LD designation and for additional instructional support. Theo had been attending Knoll Elementary since Grade 2, but Cate noted that, despite his years in the school, he was still missing services for his reading and writing. She noted that the paperwork to formally assign him a disability designation was missing signatures from appropriate school district personnel even though his mother had already signed off on the designation. Cate explained to me that

> [t]here was some assessment that was dropped; like, he moved schools between Grade 2 and 3 or Grade 1 and 2. There was a shift, and there was an assessment that was almost complete, but, when he moved here, it wasn't completed, so they were missing a signature. His mom signed off on a designation, but then there was school paperwork that didn't get done and hasn't been done in three years. (Interview, March 15, 2018)

This oversight meant that Theo was never formally referred to the district for the interventional instruction he needed for his difficulties. After noticing the incomplete paper work at the beginning of Theo's Grade 5 school year, Cate recommended him for services with the Learner Support Team in hopes of obtaining the small-group and individual attention he needed in literacy and math. By the time I entered her classroom in March 2018, Cate had successfully secured services for math, which he received in a pull-out program on Friday mornings. However, Theo was removed from the pull-out reading group support provided by the Learner Support Team even though Cate explained that she felt he was not thriving without additional reading support. The Learning Support Team concluded that

Theo progressed enough between Grade 4 and 5 in his reading skills to not warrant extra literacy instruction. However, Cate noticed discrepancies between his ability to decode words and his ability to comprehend texts by himself. Cate noted there were too many students that required services and that probably contributed to the delays in getting Theo the help he needed to complete literacy activities. Although Theo's formal designation had not yet been finalized by the beginning of the school year, Theo was still an acceptable focal student because Cate and Theo's mother both agreed that Theo had a learning disability despite the missing signature on his designation. Cate confirmed that, had the paperwork been completed, Theo would have had the formal LD designation and would have been eligible for services to support his learning.

During literacy instruction and activities, Theo experienced difficulties with both reading and writing. Cate noticed that Theo was quick to mask his challenges with his bright and outgoing personality. Although he had strong decoder skills as a reader, he had difficulties with his comprehension and his retention of information for application to other literacy work. Cate noted that, if he spent one block of Daily 5 researching and reading about a topic, he would experience difficulties remembering that information the next day for his projects, and he would have to re-read the material. Because he was reading below grade-level, Theo often struggled with both informational and fictional texts in Cate's classroom. For example, during his reading of *White Water*, a picture book about racial discrimination in the 1950s, Theo interpreted figurative language and images as literal information, and Cate noted that, despite picture books being multimodal, he struggled with interpreting some of the images, which further confused him. However, Theo still enjoyed reading more than writing. His written output was limited as Theo often needed more time to gather his ideas,

make connections, and organize his thoughts, processes which were overwhelming for him as he was easily distracted. He often made efforts to avoid written work by taking bathroom breaks, checking in with friends, or doing another activity. As a result, Cate, the educational assistant assigned to another student, and I spent some time sitting next to him to keep him focused, talk him through his ideas, and even scribe for him. Cate observed that, although he did not like to write, he was more productive typing even if he still needed an extended amount of time to finish an assignment. Theo had a strong interest in technology and utilized the available devices (e.g., iPads and MacBooks), applications (e.g., Edmodo, GarageBand, and Bloxels EDU), and media platforms (e.g., YouTube and Discovery Education) in class quickly and proficiently. At the same time, he was often so enraptured with the technology that he would miss the learning criteria outlined by Cate. Theo sometimes used the devices as a form of opting out of work that was challenging for him, which meant Cate had to determine an appropriate time for him to be on a device.

Theo had varied interests and abilities. His first language was English, and, during our time together, he discovered that he had a Cree/Métis background, which prompted his interest in learning more about his heritage. Theo also enjoyed sports, video games, and technology as well as hands-on activities, such as playing with LEGO toys and creating arts and crafts. Socially, he was always open to meeting new people and talking about his interests and his experiences. Although friendly and outgoing, Theo experienced occasional miscommunications in his peer relationships as Cate noted that he would sometimes say things that would be considered off-putting to his classmates. However, he felt really connected to his school and neighborhood community. For example, Cate and her class hosted weekly “Little Buddies” reading groups with the preschool students from the nearby

Montessori school. Each Grade 4/5 student was paired with at least one preschooler. Although some students in Theo's class were reluctant to read to the younger students, Theo was always excited to spend time with his little buddies. His reading difficulties were also less apparent as he read picture books to two preschoolers at a time. At one point in the study he was even entrusted to read to a group of three little buddies. In June 2018, Theo experienced an accident at home that left him with a concussion and a fractured elbow, which limited data collection toward the end of the study. Incidentally, Theo also reported feeling saddened by his impending move at the end of the school year.

3.3 The School Setting

The study was completed at Knoll Elementary School in the Seton school district, one of the largest school districts in British Columbia. Knoll Elementary enrolled about 300-350 K–7 students, with new classrooms added for the 2017–2018 school year. Cate noted there were many new teachers this year as many others had retired or left during the past year. Seton was a diverse city with many different cultural backgrounds, home languages, and socioeconomic statuses. Despite the busyness of such a large city, Knoll Elementary was situated near a park in a quiet residential neighborhood off a main stretch of businesses. I had last visited the school in June 2017 after I had finished my pilot study and, upon my return in March 2018, I noticed a change in the neighborhood as buildings had been demolished to make way for a new transit system. Cate noted some families and students had to move away because their homes had been demolished to appropriate more land for the incoming transit system, and they could not afford to stay in the area. Rental housing near the school was even more limited than before. In fact, by the end of this study in June 2018, the focal student's family had plans to move to a city east of Seton, about an hour away.

The curriculum used in Knoll Elementary at the time of this study was a result of the Ministry of Education's implementation of a new curriculum for kindergarten to Grade 7 in 2016. The underlying goal of the revised curriculum was that students would be able to engage with a wide variety of texts in order to develop competencies in "listening to understand; communicating effectively; presenting information and ideas with confidence and fluency; and understanding the connections between language and culture" (BC Ministry of Education, 2019, English Language Arts Curricular Competencies, para. 1). For Grade 4 and 5 students, the BC Ministry of Education (2018a) expected them to integrate a variety of texts to build their background knowledge, respond to these texts by making connections, and create new texts with their own ideas and the information gained from their work with multiple texts. These specific guidelines by the Ministry called for teachers to use a variety of multimodal texts and new technologies with the understanding that every teacher approached multimodal instruction differently.

By the time I met Cate, she was using this curriculum to frame her instruction. Cate focused on empowering students with choices in their literacy activities to enhance motivation in their learning. She followed a model of literacy instruction used throughout the district called Daily 5. Daily 5 was a published American literacy program that was first made available in 2006. The program was structured in a way that allowed space for students' choices in activities, autonomy, and self-growth as they took on more ownership of their literacy learning and work (Boushey & Moser, 2014). Daily 5 promoted the following core beliefs that teachers were expected to adopt: "trusting students, providing choice, nurturing community, creating a sense of urgency, building stamina, and staying out of students' way once routines are established" (Boushey & Moser, 2014, p. 18).

Cate designed reading, writing, and vocabulary activities that students completed individually or in small groups during Daily 5 while she circulated around the classroom to check in with her students as well as hold book-group meetings. She also readily used technology and multimodal resources as a part of her instruction to differentiate learning for her students. Because she taught in an inclusive classroom that included a mix of students with linguistically and culturally diverse backgrounds, various learning designations (e.g., LD and socioemotional/behavioral issues), and no disabilities, she had to tailor her teaching to best suit the students' wide range of needs and interests. Cate also integrated literacy activities throughout content areas such as math, science, and social studies. Her instructional approaches mirrored the recommendations by the BC Ministry of Education (2018b) to implement a Universal Design of Learning approach toward differentiated instruction and technology. Universal Design of Learning is defined as learning spaces and teaching methods that allow for multiple means of engagement, representation, actions, and expression (Center for Applied Special Technology, 2018). Cate's instruction included multiple ways of accessing content and information as well as ensuring her students had a choice in how they wanted to represent their ideas and learning while also meeting curricular competencies.

3.4 Ethical Research Practice with Participants

In January 2018, approval was granted by the Seton school district and by BREB to begin the study with Cate confirmed as one of the participants. After the pilot study, Cate informed me that she was interested in participating in my dissertation study and that she planned to ask her colleagues to join her as my original intent had been to have two teachers and two focal students. However, by the time I received permission to enter the school by

Cate's principal, the other interested teacher declined to participate, and it was decided with my supervisor to only focus on Cate and the focal student given the limited time I would have in her class.

Cate and I met in her classroom to review the consent form (see Appendix A) and details of the study, including the study's purpose, the data collection methods, privacy and confidentiality, and any potential risks of the study. We also discussed the best way to contact the focal student's parents for consent. It was decided that Cate would present the key information about the study after school with the parents as well as send the consent form home. The parents would then have my contact information and would be able to communicate with me by e-mail or phone if they had any questions or concerns. After a couple of weeks, Theo's mother submitted to Cate the consent form for Theo's participation (see Appendix B).

Assent with Theo (see Appendix C) was obtained in March 2018, and I reviewed the study in child-friendly and age-appropriate language by avoiding technical and academic terms in my explanation. For example, I explained the study to Theo as a project to learn from his teacher and from him about teaching and learning English Language Arts. I also told him that I would be taking photos and recording talks with him with an iPod Touch as well as writing notes in a notebook to help him anticipate what to expect from me when I visited the classroom. Finally, I carefully reviewed his right to exclude any information he was not comfortable with me using for the study, such as selected photos or sensitive information recorded during the interviews. At appropriate times, Theo was also welcomed to look at photos taken on the iPod Touch to ensure he knew what kinds of photos I was taking.

Theo's mother, although she was not involved in the study, was able to view photos of Theo and his work through UBC's Workspace, a secured cloud storage system compliant with Canadian privacy policies. Every month, Theo's mother was asked to review the photos and to send an e-mail to me confirming she was comfortable with the photos being used for the data analysis. She also had the right to omit photos she did not want to be part of the analysis; however, she did not exercise this right for any of the photos. This process of sharing the photos ensured that Theo's mother was aware of the study's progress; as a result, we maintained consistent contact throughout the study.

Cate, Theo, and Theo's mother were also given the option to withdraw from the study at any time if they wished to do so. Theo was also told he could "sit out" of data collection if he did not feel like being photographed or interviewed that day. As mentioned earlier, Theo experienced an accident at home that led to a fractured elbow and a concussion resulting in multiple visits to the hospital. He was absent from school for a few days at a time to recuperate as much as possible. When he was in school, he experienced lingering effects from the concussion and severe drowsiness from his lack of sleep because of his pain and his reaction to the side effects from his allergy medication. He was also working with a cast and a sling, which limited his mobility, especially while building his simple machines project and taking photos and videos of his work to upload onto his portfolio. Because of this, I made the decision to limit my data collection with him to reduce his stress even though he did not specifically request to opt out of the observation or the photo documentation for the day.

In an effort to maintain confidentiality, the names of people and places were assigned pseudonyms. Furthermore, the participants were informed that any identifying information in the photos would be removed or blurred out. In the photos shared with Theo's mother, other

students' faces were blurred or cropped out to further ensure the privacy of the other students who were not participating in the study (Delamont, 2012).

3.5 Preparing for the Study: Volunteer Experience and Pilot Study

In order to refine my data collection methods and acclimate myself to school communities again, I participated in volunteering and completed a pilot study in two separate schools, respectively. In each of these two schools, I experienced a different classroom culture, environment, and grade level. Working between an early childhood classroom and an upper elementary classroom shaped my decision to complete my dissertation study with older elementary-aged students. In the following two sections, I recount my experiences in the classrooms and further detail how my time there informed my dissertation study.

3.5.1 Volunteer Experience

Prior to this dissertation study, it was suggested by my committee to volunteer in a classroom to reintegrate myself into an elementary teaching environment and to find ways a researcher can be helpful to a teacher. From May to June 2015, I volunteered in my former classmate's kindergarten/Grade 1 classroom in a local school. During my time in her class, I helped her with classroom management and student projects as well as leading reading groups for a Grade 1 class next door. Although this was a short volunteer stint, the teachers let me know how important it was to be willing to engage with the students and the school community. For them, reciprocity was key to a successful research experience. Although I enjoyed my time with the younger students, I realized that evaluations of LD by school districts and medical professionals often take a long time and tend to be more prominent in students who are older; thus, it was important for me to shift my recruitment toward older elementary students.

3.5.2 Pilot Study

From April to June 2017, I conducted a pilot study with the teacher participant featured in this dissertation study and a focal student with LD in Grade 5. I received approval from the University of British Columbia's (UBC) Behavioral Research Ethics Board (BREB) for the pilot study in December 2016, and the school district's research office also approved my application to conduct a short study. However, I experienced difficulties with recruitment as many principals did not respond to my initial contact e-mails. As time was limited, I discussed with my committee member, Dr. Marianne McTavish, about recruitment strategies, and she offered to send a notice to the practicing teachers in her graduate course. The only teacher who responded with interest to the notice was Cate. With my recruitment method, participant number, and study location amended, both my BREB application and my research proposal to the school district's research office were approved in March 2017.

For this pilot study, I observed Cate and a student she had chosen named Sam for three to six hours once a week over the course of eight weeks. This length of time allowed me to capture literacy instruction as well as cross-curricular activities. The goal of the pilot study was to refine my data collection methods as well as my research questions. At the time, the committee and I planned my data collection methods to be observations, semi-structured interviews, photo documentation, and artifact collection. Through my observations and photo documentation, I noted how Cate taught with multimodal resources during whole-class, small-group, and individual instruction with Sam. I also documented the types of multimodal resources available to Cate and Sam (i.e., devices, applications, and tactile materials) as well as Sam's responses to the resources and his use of them for his own learning. For example, in my photo documentation, I was able to capture incidents where Sam opted out of literacy

activities, especially if they involved writing, as well as times he was receptive to Cate's use of media and participated in small-group discussions. These photos and observations were supplemented with participant interviews during which Cate discussed her rationale for designing her instruction, her frustrations with and enjoyment using multimodal resources, as well as her views about Sam as a learner and his social and academic needs. From Sam's perspective, he shared stories about why he liked using devices for his learning (because they were fun to use) as well as times he felt uncomfortable or did not want to participate in certain literacy activities. Participation became a key theme during the observations as Cate and I both noticed there were times that Sam was hesitant to use technology despite his proficiency with all of the devices used in the classroom. By the end of the study, it was clear that artifact collection was redundant because all of Sam's work and Cate's teaching materials were captured in the photos. It was decided that photography would be used to capture student work, teaching resources, and other print materials. I also wanted to respect Cate's time and did not want her to find copies of materials for me.

With the mix of whole-class, small-group, and independent work in the class, I also revised the design of my case study to better fit how Cate led her class throughout the day. As mentioned before, I originally meant to focus only on teacher-student interactions, and I envisioned observing one-to-one instruction. Shortly after starting the pilot study, I quickly realized this would limit the amount of time I could actually observe Cate and Sam together because Cate frequently moved between groups of students, and Sam worked independently or in small groups without Cate. As such, I had to organize my observations and photo documentation as subsets of data within each day. Each subset was dependent on the context, such as the literacy activity (e.g., story-writing, group reading, or text analysis) or cross-

curricular activities that joined literacy with another content area (e.g., the reading and analysis of non-fiction/expository texts during social studies). The activities in general also called for different learning tools, from hard copies with illustrated texts to technology-related activities. This revision in the organization of my observations and photos ended up being a more efficient way of describing my photos because I typed my observation notes with the corresponding photos (Suchar, 1997). With the "lessons" I learned from the pilot study, I conducted my dissertation study in a similar manner to help ease my entrance into Cate's classroom and because she was already familiar with my data collection strategies.

3.6 Data Collection Methods

My data collection methods were participant observations, semi-structured interviews and informal talks, and photo documentation. In this section, I detail the purposes for each of my methods as well as my experiences using the methods in the classroom. To investigate the two research questions, I collected data through weekly observations and written field notes, recorded and transcribed interviews with Cate and Theo each month, and took photos during observation of literacy instruction.

3.6.1 Participant Observations

Merriam (1998) noted that observations are one of the primary forms of data collection in qualitative research as they help researchers to make sense of what is happening in the environment of their study. Participant observation allows the researcher to "see things firsthand and [use] his or her knowledge and expertise in interpreting what is observed rather than relying upon once removed accounts from interviews. Observation makes it possible to record behavior as it is happening" (Merriam, 1998, p. 96). For this study, I decided to be a participant-observer. This was important to me because of the feedback I received during my

volunteer experience, where teachers told me that a researcher's participation was important to them as guests in their classrooms. Participant observation allowed me to integrate myself into the schedule, routines, and general flow of the class as well as become an "active member" (Flick, 2014, p. 296). I expected the school community to interact with me—from asking about my study to working with the students—and it was impossible for me to be a silent researcher confined to the back of the room for my observations. Instead, I set aside pockets of time to interact with the teacher and all of the students as needed as well as to observe my participants carefully. At times, observations and the writing of field notes were not appropriate, such as when students needed my help, but I made sure to return to my field notes after taking care of those situations.

It was crucial to the study that I observe interactions between Cate and Theo during literacy activities and instruction. I observed Cate during her whole-class instruction, of which Theo was a part. Theo also worked in small groups, such as for book club, projects, and discussion, as well as for logistical reasons, such as sharing materials and devices. Many of my observations also included Theo in these small groups as Cate circulated through the classroom to work with the rest of the students. During these small-group observations with and without Cate, I observed Theo with his classmates as they discussed the topic at hand or worked on projects.

As per the school district's research protocol, I maintained a distance from Theo and his peers as necessary. Initially, I was worried this protocol limited my interactions with him, but eventually I used it as an opportunity to observe the classroom environment more holistically and get to know the student and his classmates so that my presence in the classroom would be normalized. I rotated around the class to capture Theo's literacy

practices from a distance as well as to look at other examples of work being done as a way to gauge the expectations of Cate and her instruction with multimodal resources. The students were quick to welcome me, and I was able to sit closer to Theo and observe his individual and group work, which afforded me more in-depth observations of the student and his discussions with others during literacy activities. When I was writing my field notes or taking photos, the students generally ignored me because they recognized I was busy. Occasionally, the students asked me what I was writing about, and I often responded that I was taking notes on their activities because I wanted to remember their work. Eventually, the students stopped asking questions because my observations were no longer a curious practice to them.

I kept field notes of my observations in a journal that I carried with me throughout my observations. I followed Merriam's (1998) guidelines on recording the physical setting of the classroom, including the layout; the participants; their activities and interactions; as well as their conversations. I also wrote about my feelings, questions, and other ideas or thoughts that occurred to me during the observation. There were occasions when I wrote snippets or reminders to myself if I was too busy to write in detail. For example, there were times I was more actively involved with the students and their work, such as helping them with projects or explaining directions. I was also frequently moving from space to space with Cate and the class, which restricted my ability to write my notes in full. Photography also preoccupied me and resulted in an inability to maneuver more than one data collection instrument (the iPod Touch and my notebook) at a time. After my photography task was completed, I would return to my reminders and complete the field notes in more detail.

3.6.2 Semi-Structured Interviews and Informal Talks

Flick (2014) defined semi-structured interviews as "a set of prepared, mostly open-ended questions, which guide the interview and the interviewer" (p. 197). I utilized semi-structured interviews because they allowed for participant perspectives to emerge. I recognized that the participants interpreted the questions in their own way, which also helped me to take into account their "complex stock of knowledge" (Flick, 2014, p. 217) about the research topic. The goal of the interviews was to gain a better understanding of the participants' literacy practices in the classroom while also providing them opportunities to describe and reflect on their experiences with multimodal resources.

Both participants were interviewed once per month using the Voice Memo application on the iPod Touch. Interviews were then uploaded and backed up onto my laptop and transcribed using Microsoft Word. Both the iPod Touch and the laptop were password protected to ensure security of the data. The location services on the iPod Touch were also disabled to prevent tracking of the device in consideration of the privacy of the participants. I reviewed each transcription to determine my next course of data collection and my next set of interview questions using my semi-structured interview questions as a guide. The teacher's interviews were naturally longer given that she was the adult participant. Her interviews often lasted from 30 to 60 minutes, depending on her availability (see Appendix D for the teacher and focal student interview instrument). Cate's first interview was conducted in early March 2018, prior to the beginning of the observations. Routinely, her monthly interviews were done at or after the end of the month. All of the interviews were conducted after school in her classroom. The only exception to this was her post-study interview, conducted in mid-August 2018; Cate chose the local public library as the interview location

since the school was unavailable due to a summer camp, and she was transitioning to a new position in the district, so her classroom was unavailable anyway. I asked her questions around her instruction with multimodal materials, her teaching philosophy, her beliefs about LD, the focal student and his work, as well as her reflections on the activities that occurred over the course of the month. Throughout the interviews and informal conversations, I also asked clarification questions to verify if I had accurately interpreted her experiences.

The student's "informal talks" (see Appendix D) were far shorter and limited to 15 minutes as recommended by the school district's research protocol. I was initially concerned the interview time would be too short to capture all of the information I needed for research; however, it ended up being an appropriate length of time given his attention span and his eagerness to rejoin the classroom. He was often worried he would be missing something important while he was out of the class, but I assured him we would adhere to the 15-minute limit. His interviews were recorded during the school day and scheduled with him and the teacher to ensure he did not miss any instruction, work time, lunch, or recess. He chose the empty stairwell space down the hall from his classroom as the interview location because he felt it was quieter and he was comfortable in that space. However, occasionally his interviews would be interrupted by his friends and teachers moving through that space. Informal talks with him often revolved around the assignment he was working on, his feelings about the teacher's instruction, and his participation in group and whole-class activities. In addition to these short talks, I noted all of the conversations we had about his work and interests in my field notes. Although these conversations were not recorded like the talks, they served to further inform me of the student's experiences with multimodal literacies.

3.6.3 Photo Documentation

Photos were taken with the iPod Touch during the observations with the intent of including a multimodal form of data collection in this study. With the classroom being so busy and lively, photos served as a way to capture instruction and learning as well as to take note of the many resources used during literacy activities that would be difficult to notate in field notes. Rose (2016) defined photo documentation as a carefully taken and curated series of photographs to document a social occurrence or setting. In the context of this study, I took photos of how multimodality was implemented during language arts instruction, such as the participants engaging with printed text, using technology, building projects, and arts-based activities. This amounted to over a thousand photographs collected, as indicated in Table 3.1.

Table 3.1

Number of Photos Taken During the Study

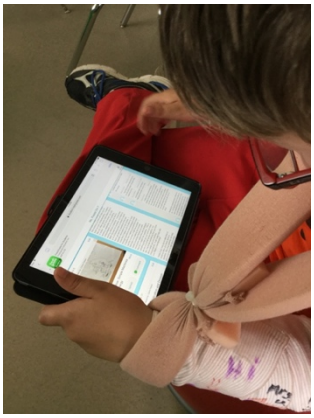
	March	April	May	June	Total
Number of photos taken	45	270	533	538	1,386

Because I was not a trained photographer, and this method was new to me, I had to develop ways of deciding which photos were worth taking—what Suchar (1997) called shooting scripts. Shooting scripts provide a structure to field work and photography by requiring the researcher to ask "a series of questions about the subject matter or photo documentary project" (Suchar, 1997, p. 36). The photos taken would then answer or address the shooting script. Examples of my shooting script included:

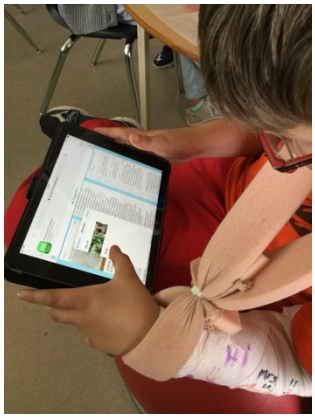
1. What are the activities (considered the multimodal event) that took place during this block of time (e.g., teaching with technology, playing videos, or re-enacting a scenario)?

2. Who is experiencing this literacy activity?
3. What are the modes/materials being used?
4. What is the setting?

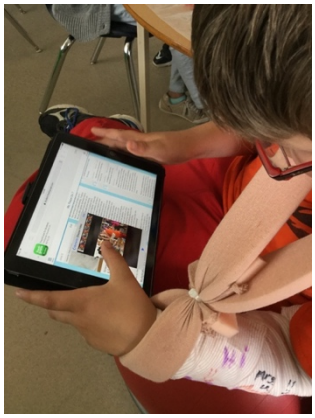
Many of the photos with Cate, the teacher, captured her in action, such as during her whole-class instruction during literacy activities, her choice and use of digital and non-digital materials, and her meetings with the focal student and his classmates. Theo's photos were mostly of his independent or group work, his responses and participation during instruction (e.g., facial expressions, body language, and building projects), as well as his engagement with hands-on activities such as technology use and project building. Despite the sheer number of photos, I found that taking photographs of Theo's technology use was the most difficult due to the actions involved with working on devices, such as swiping through menus, pinching the screen, choosing colors, and so on. As a way to resolve this, I took a series of photos to mimic a stop-motion effect so that, when I scrolled through the photos on the iPod Touch, I could view the actions like a video (see Figure 3.2 for an example).



Theo looking at his posts on Fresh Grade, a digital portfolio/assessment system



Theo accessing the menu to upload pictures and videos onto Fresh Grade



Theo selecting his video for upload

Figure 3.2 Example of a set of photos taken during an action sequence (Theo's work on FreshGrade) to mimic a video.

3.6.4 Recording Device

From my volunteer experience, where I was shuffling between two classrooms and moving around quite a bit in the school, I knew early on that I needed a device that was both portable and multifunctional. For security reasons, I wanted a device I could keep with me as much as possible but also one that would be small enough to put down without taking up too much space from students because I anticipated classroom space would be limited based on my previous experience working with Cate. I chose an iPod Touch for these reasons. The iPod Touch was basically a thinner iPhone without the calling capabilities. It had a voice-recording function that allowed me to record long interviews with an acceptable sound quality as well as enough storage for my photos. I disabled any location services that could possibly track where I was and set up a password to protect the data from security breaches. The photos I took were uploaded onto Workspace, UBC's secure cloud storage system, for Cate and Theo's mother's viewing. The iPod proved to be efficient for transferring files to my laptop safely because I set the iPod to only be recognizable by my laptop, which made it easier to upload onto Workspace. Although Theo did not have access to Workspace, he was invited to look at any of the photos I took if he was interested in seeing them. The size of the iPod allowed me to hand over the device to Theo without any extra maneuvering compared to larger devices like an iPad or a laptop.

3.7 Data Analysis

The inductive data analysis for this study occurred during and after data collection. Thomas (2006) wrote that the purpose of inductive analysis is to "use detailed readings of raw data" to allow for findings "to emerge from the frequent, dominant, or significant themes inherent in raw data, without the restraints imposed by structured methodologies" (p. 238).

The goal of inductive analysis is to condense the raw data that summarizes the phenomena and experiences under study and draw connections between the research questions and the findings derived from the raw data (Thomas, 2006). The data analysis occurred in multiple phases. Simultaneous data analysis began during the study in March 2018 after my first observation. As I compiled more data from Cate and Theo through scheduled monthly interviews and informal conversations during observations, field notes, and photos, I continued to refine my coding until after data collection concluded, when a formal reorganization of codes into categories was completed to group ideas and themes according to the research questions (Merriam, 1998; Yin, 2014). This was followed by a more intensive analysis after the study ended as a way to triangulate my findings (e.g., compare the photos to the interview data and field notes). For example, when Cate talked about the importance of giving Theo an opportunity to express his interests and learning in a variety of modes, I compared the interview transcripts to my field notes. As I compared the interviews to the field notes, I coded for instances where Theo engaged in multimodal meaning-making practices that spoke to his interests (e.g., working on GarageBand because he enjoyed music) and when he was limited to written work, which he often tried to opt out of doing because he preferred working with visual modes on a device. I then cross referenced my interviews and field notes with the photos to further confirm or reassess my triangulation. I was able to further examine and enrich my analysis if my photos indicated a multimodal event that was not written down in my field notes in full detail. For example, I previously focused on Theo's facility with technology during my observations. Although he talked about his interest in technology during interviews and conversations, he was not always explaining his reasons other than he liked using iPads and MacBooks. When I reviewed the photos, I realized that

his comfort with using the devices and EdModo (a platform that resembled Facebook) also helped him to engage with his peers by posting comments on their work. This process of comparing and triangulating the data continued throughout my writing of this dissertation as well as the subsequent revisions. The cross-referencing of codes from multiple data sources confirmed the identification of categories. The figure below summarizes each stage of data analysis throughout the study.

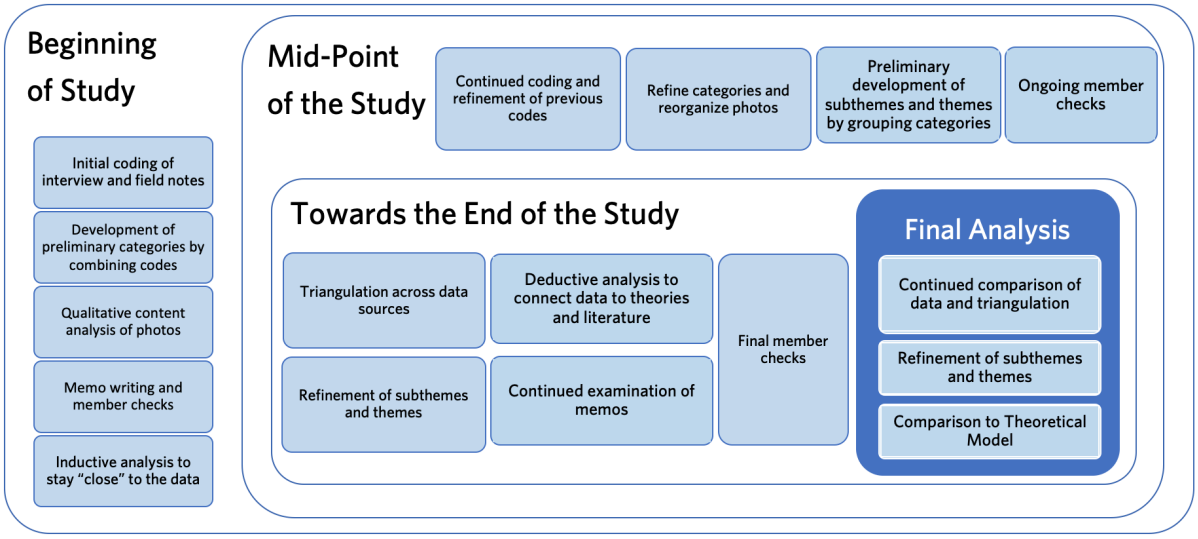


Figure 3.3 Stages of data analysis.

After I generated a list of categories and themes, I conducted a member check with Cate as I began writing this dissertation by sending her the list of the themes. I was unable to complete a final member check with Theo like I did with Cate because he moved to another city shortly after the end of the study. It was also difficult for his mother to have continued involvement in the study given her work schedule and relocation. All of the data was loaded into the qualitative data analysis software, NVivo 12, in order to efficiently organize the large amounts of information so that pieces of data could easily be located, analyzed, and reorganized during my multiple stages of analysis (Merriam, 1998). More importantly, the

use of NVivo allowed for immediate connections to be made between verbal and written data and the photos taken during this study.

3.7.1 Abductive Analysis with a Theoretical Model

Currently, there are no theoretical models that specifically exist for understanding the meaning-making practices of students with LD. To address this gap, I adapted and expanded Perry's (2012) model of literacy practices. In Perry's model, literacy practices and literacy events are addressed as well as the function of communication, text features, social purposes of literacy practices, human activity with literacy, and the various sociocultural factors that influence how literacy is mobilized (e.g., beliefs, power relationships, institutions, languages, values, and histories). All of these aspects of literacy were incapsulated in concentric circles nestled within each other. In the expanded model (Figure 3.4), I added teachers' knowledge, technological pedagogical content knowledge, participation of students, and literacy difficulties to further explore the classroom literacy practices of teachers and students (Artiles, 1998; BC Ministry of Education, 2011; Collins, 2011; Golombek, 1998; Kliewer, Biklen, and Kasa-Hendrickson, 2006; Mishra & Koehler, 2006). Instead of seeing literacy practices as concentric circles, I saw the teacher and the student as separate entities with unique knowledge and beliefs about literacy that are connected and patterned by their interactions (Barton & Hamilton, 1998; Kress, 1997; Vygotsky, 1978).

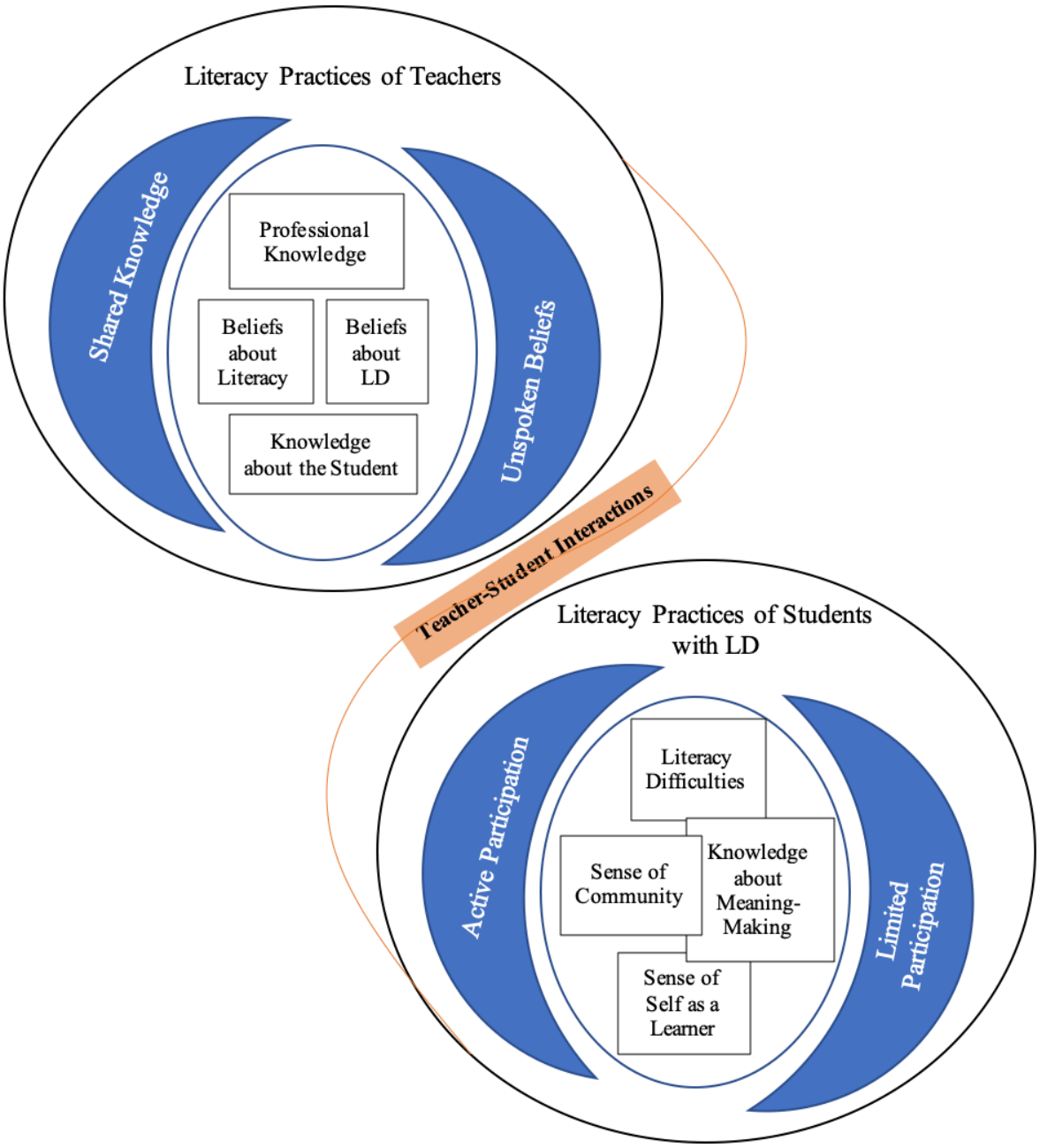


Figure 3.4 Model of teacher-student literacy practices during classroom learning.

This theoretical model was created after my re-review of the theories that shaped this study at the beginning of writing this dissertation. It became a conceptual framework that helped me to draw connections between the data and the literature through a deductive approach (Freeman & Mathison, 2009). It was important to connect my analysis to extant

literature because case study methodology relies on theories to develop categorizations of data and provide meaning to the findings (Meyer, 2001). More importantly, the model helped me to connect seemingly discrete theories about literacy, disability, and teachers' knowledge to enrich this study and explain literacy practices in a way that can be understood from multiple points of view and disciplines (Agar, 2011).

As I maneuvered my data during multiple stages of analysis and refinement throughout the writing process, the theoretical model became a constant framework that helped me to organize and triangulate my findings. My transition between inductive and deductive analysis meant that I applied an abductive approach in a "back-and-forth movement between data, theory, and the purpose and focus of the research" (Freeman & Mathison, 2009, p. 154). I found that I relied more on an abductive approach when I reached the stage of categorical refinement and thematic development during the final analysis. Agar (1996) noted that the goal of abductive reasoning is the "development of new theoretical propositions to account for material that the old propositions didn't map onto" (p. 35). As I started to combine categories to develop themes, I referred to the model to strengthen my assertions in this dissertation as well as re-examine themes that needed more theoretical support. For example, one of the themes I present in this dissertation is the resistance to Theo's transmediative practices by his peers and by Cate. I did not anticipate such a finding in the theoretical model and noted a need to include student participation, which I drew from Kliewer et al., 2006, to the model. This addition later contributed to my understanding of the gaps in pedagogical knowledge about multimodality. I did not create this model as a generalization of the literacy practices for all students with LD and their teachers. However,

this model captured many of the overlapping themes I found in the literature I reviewed in the previous chapter and the findings from this study.

3.7.2 Coding Interview Data

Charmaz (2006) defined coding as the first step toward making analytical interpretations by identifying, sorting, and categorizing key information in "concise terms" (p. 45). I understood coding as "developing the vocabulary needed to tell the story (or multiple stories) of what was happening in the case" (Dyson & Genishi, 2005, p. 84). To begin this process, I reviewed my interviews a few sentences at a time to highlight codes and begin developing categories (or combinations of codes) (Saldaña, 2016). This process also allowed me to identify exact words and key phrases my participants used to describe their experiences. Known as *in vivo* coding (not to be confused with NVivo the software), this method preserves and honors the participants' voices and perspectives rather than masks them using researcher-generated keywords that may misconstrue the true meaning of what was conveyed in an interview (Saldaña, 2016). I felt this method of coding was important for the participant interviews and conversations noted during my observations as I sought to better understand their experiences during literacy activities from their perspectives. Charmaz (2006) noted that *in vivo* coding helps the researcher to "stay close to the data . . . starting from the words and actions of your respondents" (p. 49). Additionally, Saldaña (2016) wrote that *in vivo* coding can help researchers better understand children's lives since "coding with their actual words enhances and deepens an adult's understanding of their cultures and worldviews" (p. 106). For Theo's interviews, this type of coding would help me better understand how he understood multimodal meaning-making practices and Cate's instruction. Similarly, I also felt that *in vivo* coding was applicable toward Cate and her

professional knowledge as her words encapsulated years of training, practice, and education toward her teaching practices and her understanding of literacy and LD. For example, as I unpacked her understanding of multimodality in classroom practice, I identified words or phrases that she used repeated (e.g., identity, choice, combination of layers, flexibility, multiple entry points, etc.) as well as examples from her teaching experiences (i.e., the human body project that came up in multiple interviews and conversations).

Although NVivo was a helpful data analysis software to compile interview transcriptions, written field notes, photos, and codes, I found it a bit clumsy to use when it was time to write my dissertation. After an initial attempt at using the tables and concept maps I generated from NVivo from my codes, I turned to Microsoft Word to create tables that helped me reference key information more quickly. The transition between NVivo to Microsoft Word afforded me the opportunity to revisit my data during the dissertation writing process, which allowed me to further refine my codes, cross-reference extant literature, and organize my themes. Table 3.2 is an example of how I organized my interview codes into Microsoft Word. If an *in vivo* code was succinct and clear enough, I left it as its own code during the analysis without generating another term. On the other hand, I created a code to summarize key lines of interview data that did not have an in vivo code.

Table 3.2

Examples of Codes, Categories, Sub-Themes, and Themes from Interview Data

In Vivo Codes	Researcher Codes	Categories	Sub-Themes	Themes	Theoretical Model (Figure 3.4)	Research Questions
Build his confidence	Sense of accomplishment	Positive socioemotional outcomes	Learning goals	Meeting learning needs with multimodality	Knowledge about the student	RQ1: Implementation of multimodal meaning-making practices

Not a grand conversation	Difficulties with implementation	Misconceptions about multimodality	Understanding about multimodality	Pedagogical knowledge and perceptions about multimodality	Professional knowledge	RQ1: Implementation of multimodal meaning-making practices
I love the music, rhythm, and beats	Interest in music	Preferences with modes	Creative freedom and modal affordances	Transmediation and affordances	Knowledge about meaning-making	RQ2: Engagement with multimodal meaning-making practices
With Fresh Grade, I think the limiting piece is because it's digital.	Limitations	Constraints of technology	Technology as a distraction	Barrier to productivity	Literacy difficulties	RQ2: Engagement with multimodal meaning-making practices

Once I finished coding the interview transcriptions, I reviewed them again to start organizing my codes according to their connections with the research questions. This process entailed (a) reducing the *in vivo* codes into shorter terms to highlight the most pertinent information from segments of interview data (Eaves, 2001) and (b) identifying codes that could be grouped by common themes with pattern coding (Saldaña, 2016). From these pattern codes in my second round of analysis, commonalities began to emerge that allowed me to group the codes into categories (Creswell, 2002). After my initial categorization of codes, I reviewed the categories again to see if I could further condense the number of categories that aligned with my research questions (Saldaña, 2016). I also reviewed the interview transcripts again for "overlap and redundancy among the categories" (Creswell, 2002, p. 266). Throughout this process, I continued to refine my coding system and find "appropriate quotations that convey the core theme or essence of a category" (Thomas, 2006, p. 242). It was clear that some categories were representing broader topics (e.g., learning

goals in Table 3.2) and I saw these as sub-themes that would eventually help me develop the broader themes for the study (Vaismoradi, Jones, Turunen, & Snelgrove, 2016).

3.7.3 Coding Field Notes

Marvasti (2014) wrote that an inductive analysis of field notes requires moving from "the specific to the general, where the general would represent a concrete and objective finding that is logically and empirically backed by the analysis" (p. 360). Corwin and Clemens (2012) suggested a multi-step system for analyzing field notes: (a) initial data analysis to begin coding and identifying major themes, (b) detailed coding to "narrow" the analysis and "make it applicable to the literature" (p. 498), and (c) theme identification in the entire collection of field notes.

In order to code my field notes using the NVivo software, I typed up my handwritten notes as entries first. I coded my field notes using a system similar to that of Gibbs (2007), where I identified specific behaviors, events, activities, practices, objects, settings, and relationships associated with multimodal instruction and practices for my participants. These field notes were also coded according to my research questions. Unlike in my analysis of the interviews, *in vivo* codes were used less frequently in my analysis of my field notes unless I noted specific words or phrases my participants used during informal conversations that I wrote down as part of my observations. Similar to the interview data, I reorganized the codes from my field notes in Microsoft Word for faster access while writing this dissertation in order to begin developing categories, sub-themes, and themes. Table 3.3 is an example of how I coded my field notes using an observation I conducted on April 16, 2018:

> The class is listening to "The Jerry Cans Live from the Arctic" music video. Cate is trying to use the 360 degree view on YouTube but it keeps stalling a bit every time

she tries to change the angle. Theo calls out a few times during the video commenting on it stalling. Despite the tech issues, the class really enjoyed the video because of the song and the scenes depicting the daily lives and practices of Indigenous people.

Table 3.3

Examples of Initial Codes for the April 16, 2018 Observation

Researcher Codes	Categories	Sub-Themes	Themes	Research Question
Music video	Digital media	Teaching with multimodal texts	Pedagogical knowledge and perceptions about multimodality	RQ1: Implementation of multimodal meaning-making practices
360-degree view	Digital media	Experimenting with different modes	Pedagogical knowledge and perceptions about multimodality	RQ1: Implementation of multimodal meaning-making practices
Indigenous/First Nations music	Student interest	Exploring identity and choice	Pedagogical knowledge and perceptions about multimodality	RQ1: Implementation of multimodal meaning-making practices
Video stalls	Limitations with tech	Constraints of using district technological resources	Barriers to implementation	RQ1: Implementation of multimodal meaning-making practices
Calling out	Distracted behavior	A giant disaster zone	Barriers to implementation	RQ2: Student's engagement with multimodal meaning-making practices
Class enjoyed the video	Student interest	Building a class community	Implementation of multimodal meaning-making practices	RQ1: Implementation of multimodal meaning-making practices
Songs and scenes depicting daily lives of Indigenous people	Expository multimodal texts	Teaching with multimodal texts	Professional knowledge	RQ1: Implementation of multimodal meaning-making practices

During my data analysis, I also codified patterns of behavior. For example, in Table 3.3, "calling out" refers to one of Theo's patterns where he would get distracted during instruction, leading Cate or another adult in the classroom to redirect his attention. (This pattern became part of a larger theme of Theo's where he would call out to feel like part of the community but instead elicited a negative reaction [e.g., a rebuke] from Cate and his peers.) Theo's distraction contributed to Cate's perception of technology as a potential source of distraction and disruption during instruction—a limitation, in her mind, of instruction with technology and multimodal texts. I also maintained a similar table format for my field notes and my interview data so that I could easily compare them to help me triangulate my findings as well as refine my codes, categories, sub-themes, and themes that they applied to both sets of data. From my observational data, I also began creating categories that were not necessarily discussed during the interview data. For example, although Cate initially spoke positively of using multiple modes in her instructional activities, I generated a number of codes in my field notes that addressed Theo being limited to print as a primary mode. When I compared categories from the interview data (e.g., Cate talking about holding Theo accountable to his written work) and the photographic data (Theo struggling to write about his projects), I was able to see the pattern of interrupting Theo's multimodal meaning-making practices with print-based work. This eventually led to identifying a more salient sub-theme of Theo's practices being met with resistance, which eventually informed the larger theme of how his transmediative practices were being perceived by Cate and Theo's peers.

3.7.4 Qualitative Content Analysis of Photographs

I analyzed my photos using qualitative content analysis drawing from Rose's (2016) methods of compiling, selecting, coding, and categorizing visual data. Content analysis can be used with a variety of data (e.g., interviews and media); however, in the context of this study, I refer to content analysis as strictly for the photographic data only. This method is a "strongly rule-based procedure for reducing large amounts of data" (Flick, 2014, p. 378). Rose (106) added that the rules must be rigorously followed for the "analysis of images or texts to be reliable" (p. 85). The starting point of content analysis is to consider how the method addresses the "essential aspects of the research question" (Flick, 2014, p. 381). For this study, the essential aspects were Cate's implementation of multimodal meaning-making practices and Theo's engagement with multimodality during literacy activities. In Chapter 2, I noted that classroom literacy practices comprised of both visible and invisible aspects. With the photographs, I sought to capture the visible aspects of multimodal meaning-making practices, including the modes were used during instruction (e.g., print, movies, and images.). I also needed to further explore what was considered to be engagement on the part of Theo. For example, there was a limitation in writing about Theo's collaborations with his peers in my field notes. The photos helped me to capture other details such as facial expressions, body language, and physical distance after I utilized a social semiotics framework to analyze the photos. Paired with the field notes and interviews, I inferred power relationships between Theo and his peers, his knowledge about multimodal meaning-making, and his disposition towards the activities (e.g., boredom during written work versus excitement while using Bloxels and his reasoning). As such, my purpose for taking these photos was to enrich the field notes and interview data as well as to provide a visual of the

multimodal meaning-making activities that took place during literacy instruction, including the interactions between Cate and Theo, to deepen my interpretations of the data. Due to the rapport I had with Cate and Theo, I also needed to reduce bias and the potential to "[search] through images in order only to confirm" preconceived notions I had about my study based on my other forms of data (Rose, 2016, p. 87).

Qualitative content analysis is comprised of four key steps that are discussed in detail in this section (Rose, 2016):

1. Image selection
2. Developing categories for coding
3. Coding the images for themes and patterns
4. Analyzing the results

3.7.4.1 Image Selection. From my photos, I needed to determine which ones could be used for coding and analysis and ultimately shrink my data set into something more manageable. My first step in reducing the number of photos was to remove ones that were out of focus and the images that were too large to see finer details. Other photos that were removed were ones where Theo or Cate did not make prominent appearances. The most common occurrence of this was if they were captured in the corner of an image of the full class; their interaction in the picture would have been too small to fully analyze. The final criterion was removing photos that had neither Cate or Theo but were taken to reconstruct the day, which, at the time of the data analysis, had already been completed in the field notes. I often prioritized writing my field notes first before taking photos; however, there were instances when it was easier to take the photo first and revise my field notes later. For example, if Cate needed my help ensuring Theo stayed focus on his work, I quickly took a

photo of him during the literacy activity and put aside my field notes to guide him through his work until it was an appropriate time to return to writing my notes. I also had to separate photos of instructional activities from photos that I took in place of artifact collection, such as Cate's instructions on the board, her curriculum materials, and Theo's class work. These artifacts were renamed in NVivo to clearly identify them as separate from photos taken of the instructional activity. Although my participants did not take photos for me as part of this study, there were a couple of photos that Theo took to document the completion of his final projects. These photos were also separated and labeled as belonging to Theo, which I uploaded onto Workspace to share with his mother.

After reducing the number of images, there was still a lot of what Rose (2016) called "variation"—a whole range of literacy activities captured in each day's photos. Since the photos were collected during specific blocks of the day according to Cate's schedule, such as Daily 5 for English Language Arts, writing, and social studies, I grouped the photos as subsets according to that specific time, with the understanding that Theo's engagement with Cate's instruction depended on the context. For example, learning objectives were different for each subject taught by Cate, and the instructional materials changed throughout the day, affecting how Theo responded to Cate's instruction.

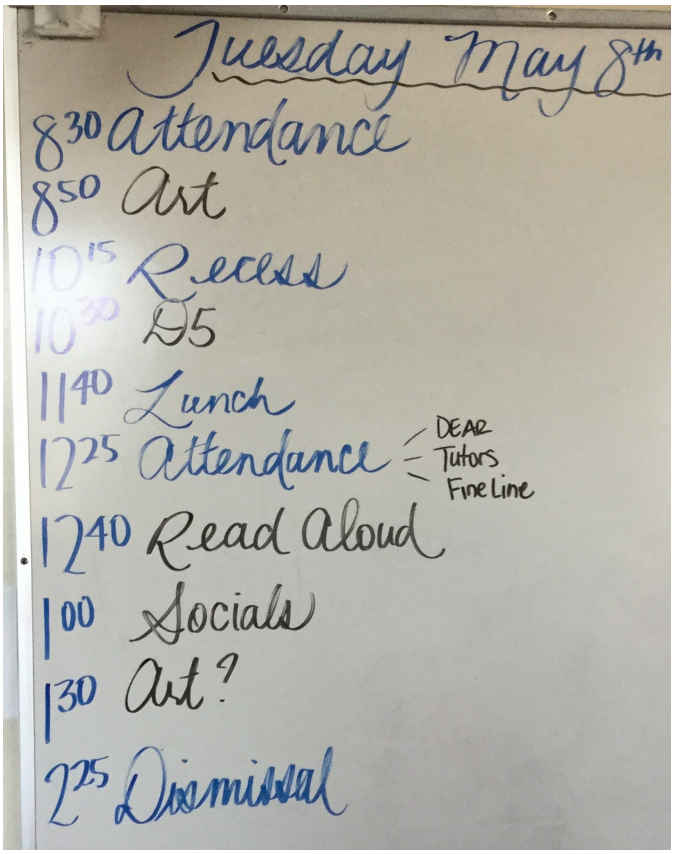


Figure 3.5 Cate's schedule on the board for May 8, 2018.

Using as an example the schedule for May 8, 2018, shown in Figure 3.5, the photos I took during the morning session of the Daily 5 (i.e., "D5 1" in Figure 3.5) were considered their own subset because the material covered during that time was specific to the teaching and learning objectives for literacy instruction. Activities during that time could have been reading groups, vocabulary learning, or completion of self-assessment pieces, and they often differed from activities done in afternoon time, during which outstanding work was sometimes completed or writing was taught. The afternoon session included the class read aloud and social studies ("Socials" in Figure 3.5), which included different texts, projects, instructions on the board, and materials used by students.

Within each of these subsets, I then further reduced the number of images by using a systematic approach in which I kept every third picture I took to represent my sample from

the day's collection of photos (Rose, 2016). A systematic approach requires a random number to be used to select the photos; selecting every third photo worked to reduce the photos but still generate a large enough data set to fully exemplify the multimodal meaning-making practices within that subset. Although there was a significant number of photos to work with, I also needed to be careful that I "preserve[d] the essential content" (Kohlbacher, 2006, Methods and Procedures, para. 2). Choosing every third photo to analyze resulted in a varied enough sample of photos without repeating the same content (e.g., capturing the same iPad app in most of the photos).

3.7.4.2 Developing Categories for Coding. Rose (2016) stressed that this stage of category development for codes is the most crucial since it informs the rest of the data analysis with the photos. I returned to my codes from the transcribed interviews and the field notes to develop a preliminary list of categories, which was also part of my "feedback loop" (Mayring, 2000) to ensure that I was finding coherence between the different forms of data. In total, I had about 40 initial categories of coding; however, not all were conducive to framing the analysis of the photos (i.e., "curriculum change" from the interview data codes). Some of my more relevant categories for the photos are explained in Table 3.4 on the following page.

Table 3.4

Examples of Categories from the Content Analysis of Photographs

Category	Description	Research Question
Content area reading/viewing	This category was generated from my field notes for activities that featured expository texts (e.g., Scholastic articles, interviews with Ai Weiwei, videos about sustainability, etc.)	RQ1: Implementation of multimodal meaning-making practices
Curricular expectations	This category was generated from my observations of activities where print was heavily featured as opposed to multimodality (e.g., scribing notes,	RQ1: Implementation of multimodal meaning-making practices

	focusing on reading and writing activities, completing FreshGrade posts, etc.). These activities were called "grade level expectations" because Theo's multimodal meaning-making practices were often disrupted by his difficulties completing Grade 4/5 academic work as noted by Cate in her interviews.	
Teacher collaborations	This category was created from the interviews with Cate, who talked about the importance of collaborating with teachers, and my observations of her working with a guest teacher in her classroom. Theo built a strong rapport with the guest teacher as well, further highlighting the importance of this category.	RQ1: Implementation of meaning-making practices
Classroom community	This category was derived from my field notes where I noticed a pattern of Cate organizing the class into small groups even during whole-class instruction (e.g., talking to groupmates at the table and looking at texts with a partner).	RQ2: Engagement with multimodal meaning-making practices
Hands-on creations	This category was derived from my observations of Theo completing projects that highlighted his multimodal meaning-making practices (e.g., his completed pulley from the simple machines unit).	RQ2: Engagement with multimodal meaning-making practices
Responding to texts	This category was created from my field notes and interviews with Cate about the importance of having Theo (and his peers) respond to the multimodal texts she used during her instruction (e.g., writing a paragraph, talking to a peer, drawing a picture, taking notes, etc.).	RQ2: Student's engagement with multimodal meaning-making practices

3.7.4.3 Coding the Photos. Content analysis alone is not sufficient as a methodology for deriving meaning from photos (Bell, 2004; Gluck, 1998). Manning and Cullum-Swan (1994) wrote that a shortcoming of content analysis is that it is unable to capture contexts of the data, which is why Rose and Mayring's frameworks were needed for my analysis. Context can be provided by "fitting the material into a model of communication," especially with regard to the text production, its sociocultural background, and the message itself (Mayring, 2000, Basic Ideas of Content Analysis, para. 2). Rose's (2016) site of production focuses on how the visuals were produced through the

technological modality (how the visual was made), compositional modality (the genre of the visual and the spatial arrangement) and social modality (the creator of the visual, the intended audience, and the reasons why the visual was made) (Rose, 2016, p. 25). Table 3.5 summarizes how I applied Rose's site of production to interpret the photographs.

Table 3.5

Application of Rose's Site of Production on the Photographs

Description of Photograph	Technological Modality (how the visual was made)	Compositional Modality (the genre of the visual)	Social Modality (the creator, the intended audience, purpose of the visual)
Theo working with two students at a long rectangular table with paper spread out in front of them.	Photographed during an observation of group activities.	Student group photo	Photographed by the researcher and shared with Cate and Theo's mother. Photo was taken to capture group collaborative activities and document the technology being used (iPads and Bloxels)
Theo's Post-It Note (pink) for his learning goals for the next time he works on Bloxels: "Next time we will do stage 2 then Tuesday we will do stage 3."	Photographed at the end of a Bloxels activity.	Artifacts (e.g., projects, assignments, and notes) produced by Theo	Photographed by the researcher and shared with Cate and Theo's mother. Photo was taken to document Theo's work during
Theo looking over Vincent's shoulder on the iPad with Gareth. The screen is on the Bloxels "design" mode.	Photographed during an observation of group activities.	Student group photo	Photographed by the researcher and shared with Cate and Theo's mother. Photo was taken to capture group collaborative activities and document the technology being used (iPads and Bloxels)
Theo is standing behind a seated Cynthia (her back is to him) as he is talking to her.	Photographed during an observation of individual activity.	Peer interaction photo	Photographed by the researcher and shared with Cate (the photo did not necessarily convey a positive interaction and was not shared with Theo's mother). Took the photo to document the technology being

			used (iPads and Bloxels).
Cate sits next to Theo to look over his written work in the duotang. Her hand is on his work as she scribes for him. He watches her as she writes on his notes.	Photographed during an observation of Cate reviewing Theo's work with him.	Individual instruction photo	Photographed by the researcher and shared with Cate and Theo's mother. Took the photo to document the written work expected of Theo during Daily 5 activities.

Mayring (2000) noted that inductive analysis is used in qualitative content analysis "to develop the aspects of interpretation, the categories, as near as possible to the material, to formulate them in terms of the material" as well as to enrich the research questions the content seeks to explain (Inductive Category Development, para. 2). After developing a framework for organizing my photos, I needed a way to translate the visual components of the photo into codes so that I could triangulate the content analysis with the analysis of the field notes and interviews. Because my focus was on multimodality as integral to literacy practices in the classroom, I drew from social semiotics to more accurately describe multiple aspects of a photo, including the people and their relationships with each other, the setting, the objects being used, and the actions taking place (Barthes, 1977; Kress & van Leeuwen, 1996; Ledin & Machin, 2018). For my photos, I looked at representational meanings (people, places, and things depicted), narrative structures (actions of the participants), and salience (eye-catching elements) (Jewitt & Oyama, 2011). These social semiotic features helped me to answer the key questions researchers should ask of the photos (Rose, 2016):

- What is the photo showing or depicting?
- What are the components (e.g., people, objects, and space) in the photo, and how are they arranged?
- What is the focal point in the photo, or what is the eye drawn to, and why?
- What are the relationships between people and their interactions in the photo?

Suchar (1997) added that, after selecting the photos, it is important to begin the process of "identifying concepts or categories in the photograph" through open coding, which summarizes units of information that can be retrieved as part of the data analysis (p. 38). In my study, this allowed for the visual elements of the photographs to be analyzed with the textual information from the field notes and interviews. To facilitate this process, I wrote out descriptions for the photos I had selected for analysis and summarized what was happening in each photo (e.g., "working with technology," "Cate's direct instruction with the whole class," "Theo working in a small group," "Theo being exhausted during literacy," "the classroom setting"). I then used the information in my field notes to supplement the information in the photos. For example, in addition to a photo, my field notes might have detailed the general mood of an activity, such as Theo's group being particularly quiet rather than engaging in discussion as Cate expected. Another example would be my field notes indicating that Theo was working by himself but not necessarily following the directions that Cate had given to him. Photos were then coded using NVivo. Mayring (2000) noted that this process of coding and categorizing requires a "feedback loop" in which categories are revised and "reduced to main categories" (Inductive Category Development, para. 3). The codes and categories generated from this content analysis served to identify themes and patterns in Cate and Theo's literacy practices. In order to apply social semiotics to the qualitative content analysis, I needed to consider how I was "describing semiotic resources" in my codes (Jewitt & Oyama, 2011, p. 134). However, I needed the categories from my interview and observational data because they draw from other theories. Jewitt and Oyama (2011) pointed out that visual social semiotics is not enough to explain what is happening in

the photos. Similar to the coding of my interview and field notes data, I created a table on Microsoft Word to compile the codes, categories, and themes that emerged.

3.7.4.4 Analyzing the Photos. Flick (2014) wrote that the final step of qualitative analysis consists of codes and categories being re-evaluated in order to understand how they address the research questions. Mayring (2000) also suggested comparing the analysis to the original material (the photos in this case) to reassess the categorization of the codes. I completed this process by using the photos I shared with Theo's mother. That set of photos served to inform Theo's mother of what happened during his school day. They were purposely selected to represent his different activities within Cate's schedule. The collection I shared with Theo's mother was also a smaller set, but they helped me to cross-reference my coding in a more efficient manner than returning to photos that were already coded with NVivo.

For my photos, I looked at representational meanings (people, places, and things depicted), narrative structures (actions of the participants), and salience (eye-catching elements, especially in multimodal texts) (Jewitt & Oyama, 2011). These social semiotic features helped me to answer the key questions researchers should ask of the photos as well as address what classroom literacy practices and forms of engagement took place between Cate and Theo.

Table 3.6

Examples of Codes and Categories from the Qualitative Content Analysis of Photos

Categories from Data	People	Place	Actions	Materials
Academic difficulties	Theo	Rainbow table, back of the room	Confused/distracted facial expression. Looking at class instead of work.	Scholastic article, pencil in hand.

Accomplishment	Theo, two preschoolers (little buddies [LB])	Library, sitting at a large table by themselves	All three focused on book. Theo is sitting in the middle. One LB has his arms crossed. The other LB is gripping the chair watching Theo.	Children's book with red and blue pictures
Content area reading and viewing	Cate	Classroom facing Cate's desk and smaller whiteboard	Cate is mid-speech; looking down at the laptop	MacBook, projector, speakers, whiteboard, video
Curricular expectations	Cate (back to camera)	Front of the class, facing large whiteboard	Cate writes instructions on the board about FreshGrade reflections; key questions about thinking and using proof to support ideas; text heavy	Whiteboard, instructions in red, blue, and black marker, covers the length and width of the board
Responding to texts	Theo	Back row of desks by the windows	Theo's hand is on his written work, looks at another student's worksheet.	Duotang, *White Water* worksheets
Viewing and observing	Cate, Theo	Park, on the bridge over the stream	Cate holding the wooden fence in mid-speech; T is looking at the trees behind Cate.	iPads

3.7.5 Memo Writing

Throughout the study, I engaged in memo-writing as a way of collecting my ideas and thoughts about the coding process as well as conceptualizing the data (Charmaz, 2006; Flick, 2014). Corbin and Strauss (1990) suggested that memo-writing can also contribute to the "formulation of theory and its revision during the research process" (p. 422). Additionally, the memo-writing helped me to reflect on my data in terms of my own feelings, beliefs, dynamics with my participants, decisions about coding, and any emergent themes or patterns that unfolded during my analysis (Jones & Alony, 2011; Miles, Huberman, & Saldaña, 2013). During the data analysis, memo-writing helped me to keep track of why some categories and sub-themes were brought together as an overall theme. I often used memos to make note of how the sub-themes and themes answered the research questions and

if they did not, what aspects of the data were relevant to the study. For example, although there was limited literacy instruction during mathematics time, I made note of the multimodal meaning-making practices that Cate employed. She briefly talked about helping the students find ways to represent mathematical concepts without numbers and writing, but I did not have enough observational and interview data to justify creating categories and sub-themes from the mathematics instruction. Instead, I wrote memos to myself about how to connect Cate's perspective about teaching math to her broader understanding of multimodality. I used my memos to help me connect outlier information back to my research questions.

3.8 Final Stage of Data Analysis

During the final stages of the data analysis and after triangulating my data, I created a table to keep track of how I transitioned from codes to categories to sub-themes and finally to themes (see Table 3.7). At this point, I already established my final categories (e.g., academic difficulties, teaching needs, limitations of multimodal texts, etc.) from multiple rounds of coding across all data sources. In order to generate sub-themes, I went through a process of organizing similar categories together and noting which categories were difficult to group (Vaismoradi, Jones, Turunen, & Snelgrove, 2016). With the outlier categories, I sought to find ways to explain why they did not necessarily fit together. Some categories were reanalyzed by the codes to confirm if they were indeed outliers or mislabeled. During this stage of the analysis, the codes and categories encompassed all three forms of data sources in this study and I was developing sub-themes and themes that spoke to the overall findings as they related to the research questions.

I also used this table to organize my findings for each research question in Chapters 4 and 5. By this phase of the analysis, it was evident that some categories became sub-themes that best captured multiple aspects of a theme. I also combined sub-themes into one standalone theme, but not every theme in the final analysis included sub-themes (Vaismoradi et al., 2016).

Table 3.7

Examples of Codes, Categories, Sub-Themes, and Themes from the Final Analysis

Codes	Categories	Sub-Themes	Themes	Theoretical Model (Figure 3.4)	Research Questions
"Difficulties across the board academically"	Academic difficulties	Learning goals	Meeting learning needs and goals with multimodality	Knowledge about the student	RQ1: Implementation of multimodal meaning-making practices
"[Teachers] having confidence in teaching with multimodal resources"	Teaching needs	Understanding about multimodality	Pedagogical knowledge and perceptions about multimodality	Professional knowledge	RQ1: Implementation of multimodal meaning-making practices
Supporting ideas with proof from text	Expository texts	Teaching with multimodal texts	Implementation of multimodal meaning-making practices	Beliefs about literacy	RQ1: Implementation of multimodal meaning-making practices
Difficulties modifying Discovery Education Techbook	Limitations of multimodal texts	Lack of options	Barriers of implementation	Professional knowledge	RQ1: Implementation of multimodal meaning-making practices

Enjoys reading books about animals because of his father's interests	Student interests	Choices and preferences	Theo as a learner	Sense of community	RQ2: Engagement with multimodal meaning-making practices
Struggles to follow Cate's instruction about activists artists during whole-class instruction	Viewing/ reading print	Engagement during whole-class instruction	Demonstrating communicative competence with print	Literacy difficulties	RQ2: Engagement with multimodal meaning-making practices
Navigates Discovery Education Techbook with little trouble	Strengths with technology	Individual competency with multimodal texts	Meaning-making practices beyond print	Knowledge about meaning-making	RQ2: Engagement with multimodal meaning-making practices
Theo's partner takes away iPad during Bloxels	Dynamics with peers	Competence and resistance	Transmediation and affordances with creating multimodal texts	Participation during literacy activities	RQ2: Engagement with multimodal meaning-making practices
Gravitating towards a device when "he's stuck" during writing	Written work	Technology as a distraction	Barriers to productivity	Participation during literacy activities	RQ2: Engagement with multimodal meaning-making practices

As research methodologists noted, transitioning from codes to themes is a murky, abstract, and often unclear process (Jonsen & Jehn, 2009; Mathison, 1998). The themes were constantly revised and reworded to avoid having too many themes, but I also wanted to make sure I had enough categories to indicate a theme was somewhat sound or accurate. I found that using the theoretical model (Figure 3.4) provided clarity on how the theories and literature confirmed the themes. It was also a way for me to incorporate Cate's perspective during the final member check with Figure 3.4 into the final analysis.

3.9 Evaluation of the Research as a Single Case Study

The quality of my study was evaluated using Mertens and McLaughlin's (2004) framework for researching students with disabilities, who are often viewed as a marginalized and vulnerable population of children. Mertens and McLaughlin drew on their work as well as the work of qualitative research methodologists (Guba & Lincoln, 1989) to develop a set of criteria that speaks to the quality of case study research. In this section, I address the credibility of my research in terms of the length of persistent observations and substantial engagement with the participants; member checks and triangulation; transferability; as well as researcher subjectivity and reflexivity.

3.9.1 Length of Observations and Substantial Engagement

The length of this study was shortened from six months to three and a half months due to delays (prolonged ethics approval between UBC and the school district, unanswered inquiries by the principal to enter the school, and waiting for consent forms to be completed). As such, I needed to maximize the number of visits to Cate's classroom. The number of observations per week (i.e., three to five visits) and the length of time spent in the classroom during each visit (i.e., three to six hours) allowed me to collect enough data to reveal repeating themes and patterns. These consistent observation sessions and the long periods of time spent in Cate and Theo's classroom allowed me to observe "long enough to identify salient issues" (Mertens & McLaughlin, 2004, p. 105). During this time, I developed positive working relationships with both Cate and Theo, which helped to facilitate conversations about multimodal meaning-making practices. This amount of time spent in the classroom also allowed me to collect information about the classroom community, as well as the ebb

and flow of their daily activities, to contextualize my study because I often stayed long enough to experience nearly a full day's schedule.

3.9.2 Member Checks and Triangulation of Data

I addressed validity through data triangulation and member checks as well as through ensuring the duration of my observations was long enough to capture important information. Hammersley (1992) defines validity as "the accurate representation of features of a phenomenon that an account is intended to describe, explain, or theorize" (p. 258). I first addressed validity through data triangulation, which requires the use of multiple forms of data and tools to study the unit of analysis, which was framed as what Cate and Theo were doing during literacy activities (Mathison, 1988). This was achieved by collecting interview data, writing field notes, and taking photos of both Cate and Theo's experiences with multimodal instruction. I also scheduled visits with Cate to ensure I observed different facets of her instruction. For example, I observed Theo and Cate reading in groups, writing with the Bloxels application, researching on Discovery Education, and building simple machines. This data triangulation allowed me to collect a range of experiences with multimodality in different contexts of literacy instruction.

Member checks also played a crucial role in preserving internal validity. I conducted member checks with my participants throughout and after the study to ensure their experiences were being represented accurately in my interpretation of the data (Schwandt, 2007). Kvale (2006) notes that member checks can "attempt to reduce [researchers'] dominance over their research subjects by giving their interpretations back to the interviewees for validation" (p. 485). This was particularly important when working with Theo because he was a student. I often checked in with Theo by asking him clarification

questions about his work and his interests. During interviews, I also occasionally paraphrased what he said to me, explained my observations, and asked if he agreed with what I said. I was not able to read the interviews back to Theo because of the limited time I had with him (15 minutes per interview) and he was expected to be due back to class promptly to rejoin his peers. Theo occasionally took an interest in looking at some of the photos I took but otherwise, he preferred to continue with his activity during the observation and subsequently, I did not ask him to review the photos with me. If he expressed an interest to see a photo I took, I let him see it quickly without interrupting his work. With Cate, member checks often occurred informally in conversation during breaks in our observations (e.g., recess, lunch time, after school), but they also occurred more formally during scheduled interviews. After the initial stages of analysis, I also held a post-study interview with Cate during which we reviewed her experiences over the course of the study. Interviews, in particular, played a large role in member checks as experiences were revisited and clarification questions were discussed (Roulston, 2010). I kept in contact with Cate during the writing of this dissertation and checked in with her if I was representing her experiences properly, especially when constructing the theoretical model of literacy practices (Figure 3.4) and developing the categories and themes at the initial stages of writing this dissertation. As I mentioned earlier, I was unable to complete a final member check with Theo like I did with Cate because he moved to another city and his mother had limited time for continued involvement with the study.

Consistent processing of my data through explicating and refining codes also enhanced trustworthiness in my study (Barbour, 2014). The process of coding and re-coding helped me to reduce bias in the representation of the data and the participants (Charmaz,

2006). As I noted in the previous section about data analysis, I completed data triangulation by comparing the codes and categories derived from the field notes, interviews, and content analysis of the photos. There were some themes that were consistent across all three forms of data (observations, interviews, and photos), such as Cate's effort to build a classroom community. However, there were occasions where I noted contrasting experiences between Cate and Theo as a form of contradiction in my data (Mathison, 1988). For example, when Cate mentioned she thought technology was a distraction for Theo, I observed Theo being productive working on Toontastic or the Discovery Education Techbook. The photos then captured his proficiency and engagement with each of these applications, further suggesting he was not necessarily distracted. During my initial coding process, I conducted an inductive analysis to allow codes and categories to emerge from the data and the participants' perspectives. As I compared my data during the triangulation process and subsequently began to write this dissertation, I used a deductive approach to compare my findings from the raw data with the sociocultural and literacy theories that frame this study (Fereday & Muir-Cochrane, 2006). For example, for Cate's beliefs about LD, I referred to literature about teacher perceptions about disabilities.

After my initial coding and analysis, I proceeded to generate themes and more abstract concepts from my findings by grouping together categories that spoke to similar ideas as a form of data convergence (Mathison, 1988). Because I drew from multiple theories for this study, I referred to Figure 3.4, the theoretical model about literacy practices from the previous chapter, to help me organize and align the themes with the broader theories that Cate helped me to review at the end of the study when I conducted a member check with her. At this stage of thematic triangulation, I was looking for ways to connect to theory.

3.9.3 Transferability

Transferability is also associated with external validity according to Guba and Lincoln (1989), who write about generalizing results of a study to other situations. Mertens and McLaughlin (2004) note that this requires the researcher to write "extensive and careful description of the time, place, context, and culture" (p. 107). Throughout the study, I gathered as much information through observations and interviews as I could about my participants and the school as well as the neighborhood, especially because part of Cate's instruction with her students involved changes in the local community. As I noted earlier, replication of this study would be difficult due to the limited number of participants and the unique circumstances of Cate and Theo. However, through the layers of description in this dissertation, other readers of this study may be able to "determine how similar their own conditions" are compared to my study (p. 107) and generalize appropriately.

3.9.4 Reflexivity and Relationality

Due to this study being qualitative in nature, I acknowledged the social construction of data in my study through reflexivity and relationality. Hall and Callery (2001) defined reflexivity as addressing "the influence of investigator-participant interactions on the research process" and relationality as addressing the "power and trust relationships between participants and researchers" (p. 258). With these concepts in mind, I constantly questioned my role as the researcher during the data collection and analysis. In terms of reflexivity, I recognized that, despite my goal of highlighting my participants' experiences and perspectives, it was also my role to interpret their actions, words, and intentions and determine what information would be featured in this study. To mitigate bias, I kept a journal of my reflexive notes during the course of my study, including my feelings of being in the

classroom as well as issues and tensions that occurred during the data collection. My memo-writing also contributed to my reflexivity as a researcher, especially during the post-study data analysis when I was no longer seeing my participants regularly.

In terms of relationality, I acknowledged that I was a researcher without a disability studying a young student who was seen as having a disability (Sullivan, 2009). I never had some of the experiences that Theo encountered because I was not seen as a student with a disability in my academic history. I became interested in my research topic because of my previous experiences as a classroom teacher, but I also recognized that the identity of Theo as a learner was greatly dependent on how adults perceived him. Theo simply being associated with the LD designation would conjure up notions of ability and academic achievement (Hacking & Hacking, 1999). This would include how I interpreted his experiences and how I decided to represent his knowledge in this study despite working closely with the data to reduce my own preconceived notions of his literacy learning. Consequently, I also needed to confront my own beliefs about disability and childhood and focus on Theo's experiences rather than my own knowledge and theoretical lens. For example, as a former classroom teacher from Massachusetts during the height of standardized testing, I was expected to follow specific instructional protocols to address the needs of students with LD. There was one student, in particular, who was labeled as being a "very low" reader. When I let him borrow a large non-fiction book about pigs (to the horror of the principal, who suggested more leveled books), he was delighted. He explained to me I let him pick something he liked rather than choosing for him. These experiences in the classroom made me realize the importance of letting the students have a chance to talk about their learning rather than assume their disabilities hamper their experiences. The student

from my own fourth grade classroom, Sam from the pilot study, and Theo in this dissertation study were all seen as having a LD, but their experiences and perceptions of themselves as learners varied greatly.

3.10 Role of the Researcher in the Classroom and Reciprocity

Upon entering the classroom for the first time, Cate and I agreed that I would be introduced as a guest or a volunteer helper that was completing a project to learn more about teaching from Cate. (However, I was introduced to other teachers, the educational assistants, and guests to the classroom as a researcher from UBC.) As a volunteer helper, I fulfilled a reciprocal role in the study in which there were mutual benefits and trust between my participants and me as I gained access to information from my research site, the classroom, and the narratives of my participants (Diver & Higgins, 2014; Harrison, MacGibbon, & Morton, 2001; Trainor & Bouchard, 2013). As a form of reciprocity, I also shared my photos with Theo if he wanted to see them as well as Cate and Theo's parents through Workspace as way of helping them to keep track of Theo's progress during literacy activities. For Cate, this helped her retrieve any information that was easily lost (e.g., instructions and prompts written on the board). For Theo and his parents, they became memorable tokens since he moved to a new school after the end of the study.

My role to the other students in class was as Ms. Chang, and they accepted me into the fold and allowed me to observe their work and interactions. As a participant observer, I was involved in many of the students' activities, such as joining them during Little Buddies reading time, when Cate's class read to preschoolers from the nearby Montessori preschool, or helping the students with their work and keeping them on task. This became expected of

me because it seemed strange to the students when I was not helping them in their own classroom space.

I also acknowledge that there was a dualistic nature to being both researcher and helper in the classroom. While gathering data as a researcher was my main priority during my classroom visits, I also switched and became "Ms. Chang, the helper" by making sure Theo was focusing on his work or helping him to follow directions. I tried to support Cate after her direct instruction by making sure Theo and his classmates followed the procedures she outlined, especially if time was limited and the students were expected to get assignments and projects completed. As I wrote in my field notes on multiple occasions, I sometimes felt conflicted about this helper role because, at times, Cate explained a task one way, and I interpreted it another. On occasion, Cate clarified to me what she was expecting of her students so that I could help them more efficiently.

In the classroom, I was also involved with management issues, such as addressing conflicts and making sure students were paying attention. Mostly, I tried to support Cate by upholding the classroom decorum she expected of her students. Although I was a former teacher, familiar with classroom management and gentle speech to students about their behavior, I was a bit more hesitant and uncomfortable with the role as "guest" in Cate's classroom despite our partnership throughout the study. As I wrote in my field notes, I was not always comfortable being in the middle, but this position was unavoidable given the dynamics between students and adults in general. Even though I was concerned that this compromised my position as a guest researcher in the classroom, this did not seem to affect my rapport with Theo's classmates. I also respected students' level of engagement with me. For the students who were not as talkative with them, I tried to give them more personal

space. (Other roles were less problematic to me, such as serving as the "informational technology person," helping students with devices and applications.)

My roles with Theo also evolved over the course of the study. I explained to Theo from the start that I was learning more about teaching from Cate, who chose Theo to be part of the project. When he gave his assent to participate, he understood that this was a project, and I would be gathering information about his learning. Although this seemed like a more formal dynamic between Theo and me, his friendly nature meant he also viewed me as a trusted adult with whom he could talk about his day or share his troubles. For example, on one occasion in May, while Theo was building his simple machine and I was helping him, he turned around and told me he was worried about his parents' "friendship" and wanted them to argue less. This came out as natural conversation for Theo, but I was left feeling uncomfortable. Cate, who was in earshot, turned to let Theo know these conversations should be held quietly and confidentially. Despite some uncomfortable moments, I felt this research dynamic worked well for the three of us, especially as we got to know each other better throughout the study.

3.11 Chapter Summary

In this chapter, I outlined the case study research design and data collection method, the steps taken to prepare for the study, and the data analysis process. I understood case study as a collection of my participants' interpretations of their experiences, and my role in this case study is to explore their classroom literacy practices through observations and field notes, semi-structured interviews, and photo documentation. I described in detail my participants and the setting of the study as well as my pilot research experience with the teacher participant in this study.

Data collection for this study consisted of observations and field notes, semi-structured interviews, and photo documentation. The observations of multimodal events were important because I was able to witness Cate and Theo's engagement with meaning-making practices. The semi-structured interviews with both participants helped me to better understand their multimodal meaning-making practices (e.g., beliefs and attitudes about literacy and multimodality). Finally, the photo documentation provided more context and information about specific modes being used during literacy instruction. I analyzed the data using inductive and deductive analysis to transition from codes to categories and finally to the themes I discuss further in the next chapter about Cate's literacy practices with Theo. Agar (1996) called this transition between inductive and deductive analysis as abductive reasoning to identify emerging concepts in the data that do not easily align with existing theoretical frameworks. In the early stages of writing this dissertation, I created a theoretical model (Figure 3.4) from my literature review to guide my abductive analysis to connect my data and findings with extant literature. I also expanded the model to account for findings that needed more theoretical support. Data and methodological triangulation were completed to find alignment between all three forms of data as well as discrepancies.

In the next chapter, I present my findings about Cate's implementation of multimodal meaning-making with Theo, including how she organized her instruction (e.g., whole-class, small-group, and individual instruction), how she understood multimodality, and the specific instructional approaches she implemented with Theo in mind. I also address Cate's reasoning for her pedagogical decisions with multimodality. My findings are presented thematically and include excerpts from my interviews with Cate, vignettes from my field notes, and photos I took that showed what Cate and Theo were doing during literacy activities.

Chapter 4: Cate's Classroom Literacy Practices

This chapter presents the findings of my first research question: What are the multimodal meaning-making practices the teacher implements during literacy instruction to meet the needs of the student with learning disabilities? With my unit of analysis as multimodal events and practices, this chapter focuses on Cate's instructional activities she implemented with Theo (multimodal events) as well as the knowledge and beliefs that shaped her instruction (multimodal practices). The findings in this chapter are organized by themes to address Cate's broader awareness about multimodality and how she planned instruction to specifically target Theo's needs. There are four themes that are discussed in this chapter:

- Meetings learning needs with multimodality
- Pedagogical knowledge and perceptions about multimodality
- Implementation of multimodal meaning-making practices
- Barriers of implementation

As described in Chapter 3, some themes are represented by multiple sub-themes drawn from the categories. The themes are situated in the theoretical model I presented in Chapter 2. In Figure 3.4, I understood the practices of teachers to consist of their professional knowledge (e.g., about pedagogy, multimodality, classroom management, etc.), beliefs about literacy, beliefs about LD, and knowledge about the student (e.g., academic progress, learning needs, family life, peer groups, etc.). These components lead to shared knowledge about literacy practices as well as unspoken beliefs that are lesser explored or explained but may still impact how teachers implement literacy practices. I noted in the model that

teachers' practices are tied to the students' practices because of their shared interactions during literacy instruction.

The first section addresses Cate's perspective of how multimodality meets Theo's learning needs. In the next section, I discuss Cate's pedagogical knowledge and perceptions of multimodality and how she structured literacy instruction time in her class. The third section explores how Cate implemented multimodal meaning-making practices in her instruction by using multimodal texts, building a classroom community, experimenting with different modes, and organizing small-group and individual instruction with Theo. Finally, I conclude this chapter with a section about the barriers Cate experienced with the implementation of multimodal meaning-making practices and how these challenges affected Theo's learning.

4.1 Meeting Theo's Learning Needs with Multimodality

One of the most prominent themes that arose from collaborating with Cate was her focus on meeting Theo's learning needs and achieving goals during her time with him in the classroom. It was clear from talking to Cate that she knew a great deal about Theo ("knowledge about the student" in Figure 3.4), including his family life, his academic and social difficulties, as well as what would help him feel a sense of accomplishment in her class. When I first interviewed Cate in March 2018, she mentioned that she selected Theo as the focal student because her goal was to examine how he was responding to her multimodal meaning-making practices. She noted that he was a "very good fit" for this study because he needs to communicate his thinking in different ways (Interview, March 15, 2018). I understood this as Theo's multimodal meaning-making practices as being seen as assessments of academic progress, especially since Cate mentioned "articulating and

show[ing] his learning" as being a priority (Interview, March 15, 2018). Subsequently, Cate needed to evaluate the efficacy of multimodal meaning-making practices in some way in order to find alignment with her own instruction, which as she noted in August 2018, was constantly in flux and changing because of the diverse needs in her class.

Cate's beliefs about LD (also Figure 3.4) was grounded in the learning of language as well as how schooling can magnify student difficulties through a lack of access to interventions that can improve students' learning and experiences in the school community. During my initial interview with her, I asked her to elaborate on Theo's difficulties, and she responded that "he just has difficulty across the board academically"—in social studies, science, math, and language arts (Interview, March 15, 2018). She explained that his struggles with reading print-based texts led to his academic challenges in other subjects. Cate pointed out that Theo simply did not have the focus to "get through reading a problem or reading information about a strategy" even though he was fairly strong at decoding words. She noted that, even if she was reading with Theo during one-to-one instruction to minimize distractions, his "comprehension [was] just not there." Theo also struggled with writing—especially with topic generation, following through with a task from beginning to end, and spelling vocabulary words—according to field notes from March 15, 2018. Cate explained that Theo had a tendency to "flip-flop" on his ideas and often struggled to choose an idea and stay with it. When I told Cate about Theo showing me his Word Work, a worksheet focused on vocabulary development and spelling patterns, and having difficulty applying the spelling patterns, she explained that Theo struggled with the "critical piece"; he did not see his mistakes, analyze them, and implement a strategy to correct them. In my field notes from my observation of Cate on April 10, 2018, I noted that she frequently sat with Theo to adjust his

work to better align with her instruction, and she even wrote prompts for him at the top of his notes to help him remember his ideas from their conversations. When I compiled the photos of Cate working with Theo, I noticed that she was frequently working with him on print-based tasks, including scribing for him, writing down a list of tasks for him to complete, directing his attention to read the text in front of him, or organizing his worksheets so that he could more easily retrieve them during literacy activities. Because Cate was often working with Theo on his focus and organization, I noted that it was difficult for her to teach other strategies or content during one-to-one instruction with him because of their limited time together and because Theo seemed tired as he tried to focus on Cate's directions (Field notes, May 15, 2018).

However, she was also very clear that Theo's LD was also impacted by circumstances in the school district and Theo's experiences with the teaching staff. As such, her beliefs about LD were also tied to her knowledge about the student according to the theoretical model in Figure 3.4. In addition to Theo's difficulties with processing language and communicating in print, Cate noted that the lack of interventions available to him also affected how she perceived LD. She reflected on Theo's time in the school and pointed out that, had the paperwork been filed properly and his LD designation been in place, Theo would have been eligible for more structured support (Interview, June 27, 2018). She noted there was a "dignity piece" to this for Theo because his struggles could have been addressed earlier, allowing him to show "his best self" to the school community. Cate pointed out that she should have had clarity about his designation by Grade 5, but, instead, Theo received no services for most of the year and, "systematically, things fell apart" as he was also removed from the pull-out reading group he was in and the childcare services that organized

“friendship groups” for Theo to participate in. Because there was an overwhelming number of students eligible for these services, the lapse in Theo’s paperwork prevented him from being considered for these services. Cate concluded that “he’s been waiting a long time to get the support that he needs because, basically, it comes down to a piece of paper here or there. He’s going to Grade 6, and he doesn’t have a specific kind of support. If he had [the services] he should have had, would we be in this position that we are right now?” (Interview, June 27, 2018). Because there was little support for Theo in the classroom, Cate was responsible for both Theo’s individualized instruction and managing a class of students with diverse needs and interests. A noticeable pattern in my photo documentation was how often Cate moved through the classroom in a series of photos taken from the same activity as she met with a number of groups or had a line of students waiting for her as she worked with Theo.

Despite Theo’s struggles with print, Cate voiced that it was important to get to know Theo as a learner first. She noted that there were many general societal assumptions made about Theo’s gender and his learning as a boy with LD. With the influx of technology in the classroom, she said it was easy to get caught up in the assumption that “the digital speaks to boys” (Interview, June 27, 2018). Although Theo’s interest in technology was regularly noted throughout the study, Cate recognized that simply giving him a device to work on was not going to help with his productivity. She saw that Theo needed hands-on learning experiences because “material choice” was important in being “flexible” in allowing the students to represent their learning in a variety of ways (Interview, June 27, 2018). However, she also had to consider how to implement technology in a way that did not distract him from his learning. Cate was also conflicted about the amount of screen time appropriate for Theo and his peers. She often offered the use of technology as a choice during Daily 5, but she also

wanted students to know that devices were not the only tools available to them. On the other hand, the shortage of devices in the school also impacted her beliefs about giving students a choice. When students really needed devices to finish projects or research their interests, Cate was concerned the lack of devices in her class caused her to overrule her students' preferences; she explained,

> When so much [choice] comes through a device, you think [of] when the tech is down, or when they're being used by another class, or a portion of the class is using the iPads. And this kid decides that they're doing reading choice, but their reading choice is connected to a device. You sort of think there [are] a lot of issues around access. I think, for some of those spontaneous, in-the-moment things, when it's really sparked by curiosity or their enthusiasm, it can get lost. (Interview, August 15, 2018)

Although Cate recognized the affordances of teaching with multimodal materials, she also had to manage her own expectations of her practices. Cate said that her understanding of multimodality from her professional experiences was framed in terms of students with diverse abilities coming together to have a "grand conversation about something or share something that is complex" (Interview, August 15, 2018). However, she pointed out that all of her students had "so many balls in the air," reflecting on their own identities as learners, and such expectations about grand conversations were not always realistic. Cate often responded to multimodality in her teaching practice positively, but she also seemed conflicted about its implementation as she juggled the many needs in her classroom.

4.2 Cate's Pedagogical Knowledge and Perceptions about Multimodality

In this section, I discuss Cate's professional knowledge about teaching and

multimodality. First, I explore Cate's perceptions about multimodality, which was influenced by a variety of factors including her personal beliefs about literacy, BC's curriculum, and collaboration across the school district. She understood multimodality as respecting students' choices in expressing their interests and identities and the importance of bringing those values to the forefront of her teaching. Secondly, I describe how Cate organized her literacy instruction time (otherwise known as Daily 5 or Language Arts with the students) to provide more context about the classroom setting. Cate's professional knowledge (from Figure 3.4) framed the findings in this section; however, there were also intersections with her beliefs about literacy, LD, and her knowledge about Theo as a student.

4.2.1 Cate's Understanding of Multimodality

Cate's ability to implement multimodal meaning-making practices with Theo was based on what she knew about him as a learner. In order to better understand Cate's implementation of multimodal meaning-practices with Theo, I needed to explore her perceptions of multimodality and her beliefs about literacy. As I noted in Chapter 2, my units of analysis were the multimodal events during her instruction and the multimodal practices because Cate's instructional design was also heavily tied to her beliefs, values, attitudes, and previous experiences that informed her professional knowledge about multimodality.

I came to understand Cate's perspective about multimodality as involving student interest and choice, valuing students' identity, and giving up a sense of control so that her students can experiment with different modes. This was a combination of Cate's professional knowledge, beliefs about literacy, and knowledge about the students from Figure 3.4. In my first interview with Cate, I asked her what sort of multimodal activities took place in the year so far. This conversation quickly unfolded to Cate's observations about her students'

interests. She noted spending more time on music, lyrics, and poetry at the beginning of the year after a school-wide event with the Aboriginal Education department in which guests performed music that spoke to the struggles of the bands in the local area. Cate explained that she carried the school wide event into her classroom because of the students' collective interests. She observed that "they are all really into music right now. They're sort of at that age where they've got their favorite artist[s] and their favorite songs and that kind of stuff. So, being able to get them to connect to the lyric aspect—almost poetry—but coming from the music that they're enjoying" (Interview, March 15, 2018). Music was also a strong interest of Theo's as he enjoyed creating music in GarageBand and demonstrated his proficiency with the application during the activist art unit. When I asked him why he liked GarageBand, he responded that "I get to make music and make beats and you can make a lot of cool stuff like rapping and put your words in it if you wanted to but I just only put beats in it and it's a pretty good [application]" (Interview, May 28, 2018).

One of the first activities I observed in Cate's classroom was the students' work with Bloxels, a video game creation application (as shown in Figure 4.1). With Bloxels, students could create eight-bit video-game characters and settings either directly on the Bloxels application or using a set of small, colorful blocks (resembling color pixels on a screen) and a patented grid that could be scanned and uploaded onto the Bloxels application. Aside from the open-endedness of the application, which allowed her "to push any [content area] topic because [the students were] able to create around that topic," she observed that the Bloxels kits "work well because it connects to something that the kids have an interest in" (Interview, March 15, 2018). In other words, Cate felt she was able to utilize Bloxels no matter what content area she was teaching to, and the students were able to express their understanding in

ways that spoke to their interests in the kits. She particularly liked Bloxels because there were two different ways to create content. The first option was to build the visuals in the application itself, insert music into the scenes, and change the colors. The second option was to build the scene, character, and other story elements using the little blocks and the black grid. The application uses the iPad camera to scan the blocks and uploads it into the application where the students can continue building their story (Field notes, March 16, 2018). This gives Theo different ways to create content during a shared experience with a small group of usually 3-4 students. Cate encouraged Theo to use the blocks and the grid because he needed to slow down his thinking and be more mindful of his design choices (Interview, May 3, 2018). She noted that, because Bloxels included a number of moving visual pieces, Theo was more drawn to designing each element and was able to express his creativity with technology but also not rush through the story-creation process.

Throughout these first observations of Theo using Bloxels with his peers, I saw him switching between the application and the blocks fluidly. For example, in between building the scenes on the grid, he switched to typing details into the story/game: “Your the first person exploring the land. Be careful you have bad eyesight!!!” (Field notes, March 16, 2018).

Figure 4.1 A student using the Bloxels application on the iPad and Theo building a scene using the blocks and grid.

When I asked Cate why choice was important, especially for Theo's learning needs, she explained that she felt it was important to be flexible in allowing him and his peers to find different ways to represent their thinking as well as figure out what to do when they encounter difficulties with certain modes (Interview, June 27, 2018). For example, in the same interview, Cate recalled a time prior to the study when Theo chose plasticine for his human body project instead of using Lego, which was a material he worked with often: "It was a total disaster and it didn't show what it needed to show [in the completed project] but it was like 'Okay, we'll just keep looking [for new ideas], we'll just keep looking, we'll just keep looking.'" Cate later emphasized in a different interview that she saw multimodality as important in the application of learning, which was why Theo needed opportunities to see what modes worked best for him (Interview, August 15, 2018).

In my final interview with Cate in August, I asked her to elaborate on her understanding about multimodal meaning-making practices during literacy instruction. She summarized her practices as giving up a bit of teacher control in the classroom to allow the students to explore and work at their own pace. She noted that while she welcomed opportunities to work with her colleagues in her grade group or school, she felt it was more important to create authentic learning experiences that met her students' interests:

> I didn't want to dedicate the amount [of time to] planning that was like sitting around a table and us [teachers] hashing out how we were going to do this [activity]. It was sort of like we're going to do that [activity] but [my class is] going to do that in our own way. I think because I just don't really care sometimes about what's going on in other classes, I'm just going to be like "Okay, here's where we started, and it went this way, but that's fine because we're just in it as our own class community and it's not related to passing on resources to somebody else or having to do something in a particular way…. Maybe my kids were talking about things differently than other kids' projects from other classes [but] you can see what's important [to my] class…. They're still able to share and make connections and ask questions and what not. I think, for me [and] the multimodal piece, [you] really just kind of let it go sometimes. You just have to feel that you're confident in what's going on in your room and it doesn't matter what's going on outside of it. For core competency work where somebody's sewing or somebody's writing something, it's whatever way they're going to show how they're going to show [their understanding]. I'm comfortable with that, but I know that [for] other classes they're comfortable with everybody doing the same thing at the same time. (Interview, August 15, 2018)

From my formal interviews, informal conversations, and member checks with Cate to confirm my understanding of her perspective, I began to understand multimodality from her point of view as needing to break out of preconceived notions about what literacy learning looks like in an academic sense. For example, her discussion about representing meaning in different ways indicated she did not see print as the primary modality for her students. Creating opportunities for students to explore their interests and make sense of multiple modes was part of Cate's teaching responsibilities. In Theo's case, his choices, like with the plasticine for his human body project, were at times challenges for Cate that she recognized she needed to negotiate as part of her practice. Her goal for Theo was to help him engage in his modal choices meaningfully even if they were choices that conflicted with her observations and assessment of his learning. Ultimately, the core of multimodality in Cate's point of view was about respecting students' choices in how they wanted to represent their ideas.

4.2.2 Literacy Instruction in Cate's Classroom

Between March and June, I conducted 35 observations with Cate and Theo, which afforded me the opportunity to immerse myself in the classroom environment. As part of my observations, I was interested in how Cate structured her literacy instruction to implement multimodal instruction, which I also considered to be part of her knowledge about instruction and context (Golombek, 1998) as both intersected. This was partially echoed in Stein's (2008) work about multimodal pedagogies with diverse learners as she noted that teachers need to "open up the space for students to produce multiple perspectives on the same subject…. This can be accomplished through the careful designing of classroom tasks and a conscious attention to engaging with students' diverse semiotic resources" (p. 74). As such, it

was important to consider what was “the space” that Cate and Theo worked in during literacy activities and what activities took place during this structured time.

As I noted in the previous section, Cate’s understanding about multimodality centered around students’ interests and choice, which meant that the classroom was often a busy environment as students worked together on projects or independently to complete their own assignments. Cate implemented a literacy instruction model known in the school district as Daily 5 (Boushey & Moser, 2014), which was also used by many of her colleagues (Interview, August 15, 2018). Daily 5 consisted of a number of activities that the students were expected to complete each week, such as vocabulary development work (known as Word Work), story writing or creating (like with the Bloxels kits), composition of reflections and peer feedback, as well as book clubs during which students discussed a shared picture book or novel in small groups and completed corresponding written activities related to the book. Because Cate noted that many of her colleagues also used Daily 5, this was a form of shared knowledge in Figure 3.4 but she also made changes to the framework based on her teaching needs or her professional knowledge.

Fundamental ideas behind Daily 5 are to give students choices in their literacy activities (Boushey & Moser, 2014) and instill a sense of independence in them as part of their literacy learning. Since each student in Cate’s classroom worked at their own pace and completed different activities during Daily 5, routines were important for Cate and her students. Cate often rotated among students, holding conferences and completing assessments, leaving the majority of the students working on their own or in small groups. One of Cate’s bulletin boards in the back of her classroom (see Figure 4.1) was dedicated to Daily 5 activities, which she updated periodically, and the students were reminded to check

the board if they needed help or guidance with which activities were still works-in-progress and which activities were viable options to be completed next if they finished an assignment. Because of the multiple activities going on simultaneously, Daily 5 was often a period of chatter and noise as students shared their ideas with each other or moved around the room to find the appropriate space and materials to finish their work.

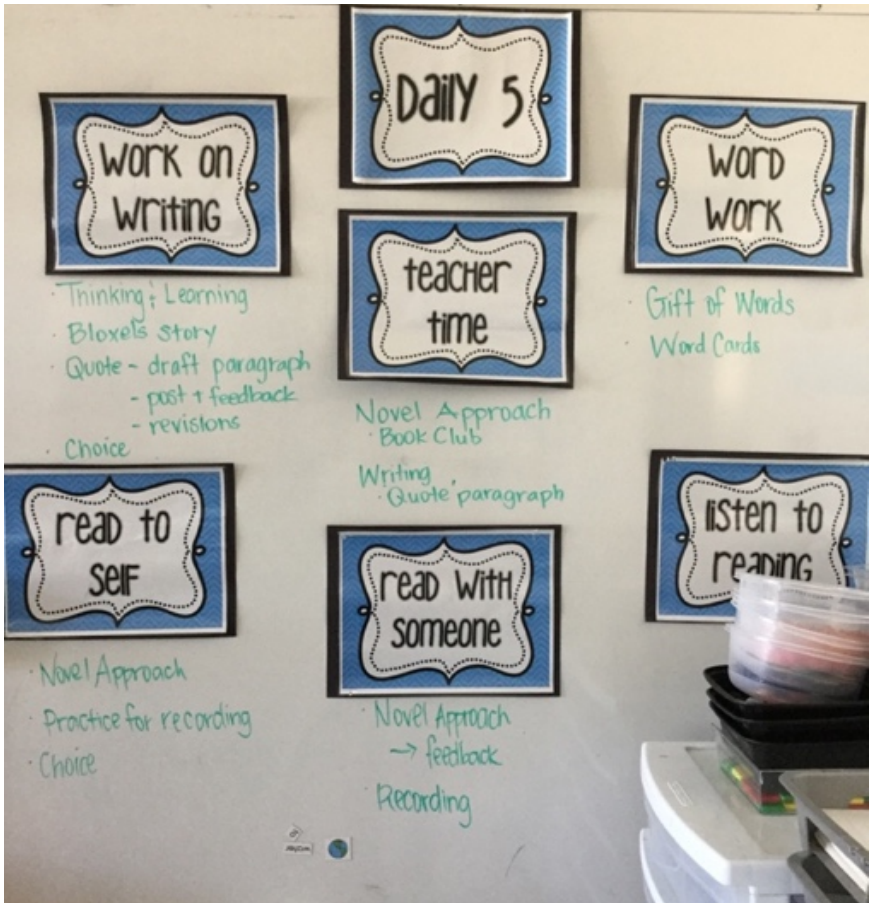


Figure 4.2 The Daily 5 board updated with options for literacy activities. ("Novel Approach" refers to student book clubs.)

Although Daily 5 centered on students' independent and small-group work, Cate also led weekly lessons on reading and writing skills as well as reviewed and scaffolded students' understanding of content in social studies, science, and math. Cate often taught literacy as part of cross-curricular instruction. For example, during one of my observations, students

were analyzing a social-studies article about energy sources, searching for specific text features and information, to practice reading non-fiction texts and to prepare for writing a persuasive essay on the best and worst energy resources. Cate also taught students how to view and analyze a variety of texts during Daily 5 to help them build their understanding of the subject matter at hand and transfer these skills to their own independent work. In my content analysis of the photos, I noticed that Cate was frequently "mid-speech" at the front of the classroom, guiding students towards specific information in the multimodal texts to help scaffold their understanding. This indicated to me that much of her instructional time was spent teaching the students how to use and find information in the multimodal texts before letting them practice the skills in their small group or individual work.

One of the timeliest changes in the revised BC curriculum (discussed in Chapter 3) that supported Cate's practices was the flexibility in the new curriculum that allowed her to create activities that met the diverse needs of her students. Cate noted that this flexibility was important to her with regard to Theo because it gave her the opportunity to widen her range of tools to support his complex learning needs. More importantly, there was more room for her to teach literacy across all of the content areas, which also allowed Theo and his peers to work deeply with a variety of materials in a number of contexts. She pointed out that this flexibility was impossible in the previous curriculum with its prescribed learning outcomes; she was spending a great deal of time dealing with the minutiae of each outcome, limiting the time she could spend on other learning activities (Interview, August 15, 2018). Cate was able to make these changes to her whole literacy program based on a number of similar needs in her class. Earlier in the year, she realized she could not teach a "language-based" Novel Approach (Novel Approach being the student book clubs)—which generally centered around

print-based literature—because Theo and his reading groups had such a wide range of reading levels and abilities (Interview, May 3, 2018). With the room afforded in the revised BC curriculum to include different multimodal texts, Cate felt she had more options for explaining content in different ways to bridge gaps in Theo's understanding of printed text.

Understanding Cate's structuring of her daily literacy instruction is important because her literacy practices shifted depending on specific contexts of instruction with Theo—whole-class, small-group, and individual. Because there was constantly a mix of students working with Theo and multiple transitions between shared and individual activities, Cate had to balance meeting Theo's specific needs with those of the rest of the class.

4.3 Implementation of Multimodal Meaning-Making Practices

In this section, I discuss the instructional approaches Cate employed in her classroom practice as well as her understanding of why and how these approaches met Theo's learning needs in some way. I also reiterate Theo's learning needs, which were summarized earlier in this chapter, and situate his needs in the context of the instruction. Referring to Figure 3.4, this was considered an intersection between professional knowledge and knowledge about the student. This section also explores Cate's practices as she shifted between whole-class, small-group, and individual instruction, which is important to address because the implementation of multimodal meaning-making practices with Theo varied according to who else (i.e., students, other staff, guest teachers, etc.) participated in the literacy activities. I also separated the different contexts because with my unit of analysis as the literacy activities, I was able to triangulate my findings by comparing Cate's practices with Theo during different instructional contexts (e.g., time, space, and people) (Denzin, 1978). Once again, this helped me to find any similar or inconsistent patterns to further contextualize Cate's practices with

Theo (Mathison, 1988). From my interviews with Cate, observations of her instruction, and photo documentation of her teaching materials, I interpreted her instructional strategies as teaching with multimodal texts, building a classroom community, creating hands-on activities and experimenting with multimodal meaning-making, and facilitating guided instruction in small group or individual instruction with Theo.

4.3.1 Teaching with Multimodal Texts

Upon entering Cate's classroom in March 2018, it was clear that multimodal texts played a significant role in her literacy practices. In the context of this study, multimodal texts are defined as digital and non-digital content that combine a variety of modes together (Anstey & Bull, 2018; Serafini, 2011). Although I observed Cate using a variety of texts in her instruction (i.e., picture books, Scholastic articles, YouTube videos, and podcasts) and Cate talked more in-depth about using other texts such as song lyrics, poems, and stories in her initial interview on March 15, 2018, I noticed from my content analysis of photos that a large portion of Cate's instruction, especially during whole-class contexts, revolved around expository multimodal texts. Cate often used these texts for prolonged periods of time so that the students were able to revisit the texts multiple times to deepen their background knowledge. For example, the Scholastic articles were available to the students for weeks during their inquiry units and Cate posted them on the whiteboard with the magnet to encourage students to look at the information.

She often introduced a topic with these types of multimodal texts during whole-class instruction because she needed to teach or model how to listen and view for information, strategies she deemed crucial for her students' learning since they were constantly exposed to a variety of texts during class time to meet the standards of the English Language Arts

curriculum (BC Ministry of Education, 2019). One of the first activities I observed at the start of the study was the students working together in small groups, analyzing photocopies of an image depicting Aboriginal people meeting European explorers for the first time in Canada (Field notes, March 8, 2018). Cate explained that she viewed multimodal texts as assets in her instruction because they provided students with "other entry points" into the content they were studying (Interview, May 3, 2018). For Theo, Cate noted that visual aspects of multimodal texts were critical to Theo's learning because of his difficulties with reading and comprehending print-based materials. I noted in my photos that Cate's whiteboards were always filled with her writing, which I later coded as part of grade level expectations for Theo and his peers. I noticed that with each multimodal text that she taught came a set of directions that needed to be followed by the students. For example, when the students were reading Scholastic articles for social studies units and visual analysis was the focus, there were directions written on the board to identify big ideas in the title of the article, the illustrations or photos, and highlighted or bolded texts. This indicated to me that Cate wanted the students to not only gain some background knowledge about the content but also to practice some reading or viewing strategies. Because the multimodal texts were so varied in her practice, that meant she needed to constantly teach to different skills or support their understanding in a variety of ways.

An example of this can be seen in one of Cate's anecdotes she relayed to me. At the beginning of the year, Cate read *Sometimes I Feel Like a Fox* and *Animals of the Salish Sea* to the class as read-aloud books. She had chosen these books because she was comfortable working with Indigenous and First Nations stories from her undergraduate experiences and teacher training work in Aboriginal Education, and she felt they fit in well with their class

study about community and identity (Interview, March 15, 2018). Cate and the students analyzed the qualities and characteristics of each animal in the stories, and the students identified animals they believed strongly aligned with their personalities. She asked the students to consider which characteristics were important to them and how they could develop or strengthen those qualities throughout the school year. During these read-alouds, Cate observed Theo being more actively engaged during discussions because there were no right or wrong answers. He was able to discuss the book and the qualities of each animal comfortably, especially since the visuals in the books were not figurative depictions that required a level of analysis he was still developing. Instead, the static images of the animals delivered straightforward information he could easily comprehend, enhancing his confidence.

Cate acknowledged that she wanted to find ways for Theo to contribute more in class with his strengths in visual analysis. She used images in texts to help Theo understand print so that he could "build some of that background . . . [and] have a discussion or . . . start to participate with that knowledge" (Interview, May 3, 2018). Discussions were an important practice for Cate because they helped the students in the classroom to share knowledge from their diverse perspectives. For example, during the activist art unit that started in April, Cate showed a video of an interview with renowned artist, Ai Weiwei, who spoke about his sculpture of a raft carrying refugees. Cate noted that she had a number of students who had just arrived in Canada within the past couple of years from refugee camps, and she wanted to promote ways for them to talk about their experiences (Field notes, April 11, 2018). Cate paired this video with a podcast of Ai Weiwei talking about a mural he created, which he dedicated to the memory of the young students who died in the Sichuan, China, earthquake

of 2008. Cate mentioned that these two multimodal texts provided the students with a "combination of some layers [to] pull from what has just been built as a background" (Interview, May 3, 2018). She periodically paused the video and the podcast to ask the groups to discuss some of their observations and thoughts about Ai Weiwei's art.

Cate noted that, although she frequently implemented discussions during whole-class instruction, she also recognized that the group conversations may not always have helped Theo. She observed that her other students could take on different topics and ways of thinking that might have been difficult for Theo to follow (Field notes, April 10, 2018). Additionally, according to my field notes from April 10, 2018, Theo was drawn to both the Ai Weiwei video and the podcast, but he struggled to understand the information from both texts as evident in his body language as he nervously tapped his fingers or fidgeted in this seat. From my field notes on April 11, 2018, when Cate asked the groups to summarize what they had heard from the podcast, she noticed that Theo had difficulties paying attention and repeatedly answered, "I don't know," to his group members. Theo's response prompted Cate to remind him to listen for information by establishing a question they wanted to address—for example, listening for keywords and phrases that addressed what Ai Weiwei's message of change was with his art. The group then listened to the podcast again. In the follow-up discussion, I noted, in my field notes from April 11, 2018, that Theo still struggled to establish a purpose for his listening of the podcast and continued to fidget quietly in his seat. However, although he was not able to participate in recalling and summarizing verbal information from the podcast, he was still able to connect his background knowledge about earthquakes to the topic. As per my field notes from April 11, 2018, during the same group discussions, he talked to his group about the struggles of people leaving their home countries

as well as how frightening the earthquake was for the students in the school. He also tried to imagine the challenging conditions that the refugees and the students had to live through based on what he saw in the video and heard in the podcast—a skill Cate had been teaching all year long. Although he was still developing his understanding of activism, the refugee crisis, and the destruction of the school, Theo was able to participate in these group discussions in some capacity even though he initially struggled with the multimodal texts.

The activist art unit later progressed to contemporary music groups like The Jerry Cans, a folk and country music band from Iqaluit, Nunavut, who also performed traditional throat singing in Inuktitut, the language of the Inuit people. Their music shared aspects of their culture as well as the challenges of living in the Far North. In addition to the brief profile in the article from Scholastic, Cate played a music video/documentary on YouTube that the group had created with the Canadian Broadcasting Corporation, which also had a 360-degree viewing function that allowed her to show the students different perspectives and viewpoints in the video. For example, in one scene, the band's music played quietly while two people worked in a kitchen. As I wrote in my field notes from April 16, 2018, Cate was able to pan the video to show that these individuals were actually cleaning and gutting fish on the floor of the kitchen. As Cate rotated this scene, the students saw a family of adults and a child on the other side of the kitchen also preparing fish and eating together. The lively music and this panning function immediately captured Theo's attention during whole-class instruction. Cate asked the students to keep notes of their observations from the video, which was difficult for Theo, who wrote keywords or short phrases such as "throat singing" and "the art is music." However, viewing the video provided Theo with some visual information

to work with as Cate summarized important information about the band and the messages they conveyed through their music and lyrics.

Cate believed that instruction with multimodal texts should include using quality texts to help students identify digital non-fiction texts, particularly websites, that are trustworthy and reliable. Cate pointed to the Discovery Education Science Techbook as an example of a source for quality texts—texts that promoted student learning. Because the Techbook used a variety of modes, students became increasingly familiar with what well-researched and well-presented videos, audio, animations, graphics, and written material looked like when it came time for them to find their own resources. Her view of quality in multimodal texts signaled to me that literacy for her was also about being conscientious about the materials she and the students were working with. This echoed one of the competencies from the BC Ministry of Education (2018c), who noted that students should be able to critically analyze and reflect on a wide range of texts.

To help her students make use of multimodal texts, Cate modelled for them how to use the texts and then allowed them to access her curated textual collection during their Daily 5 work sessions. Her collection of multimodal texts included music, videos, and websites, organized by unit topics and shared with the students on Edmodo, an online learning platform. Cate did not specifically teach students how to evaluate information on websites, but, through her careful selection of materials, she retained control over what materials her students viewed independently and in small groups in hopes of reinforcing features of well-researched texts. She noted that it was important to have texts that the students could work with not only to enhance their representation of ideas in multimodal ways but also to help them identify when they misrepresent information (Field notes, June 20, 2018). For example,

one of the final class projects was to create posters about certain types of plants that would later be displayed in Peabody Park, a large forest space across the street from the school. Cate had a list of specific information she wanted to see on the posters and uploaded websites about the plants that included pronunciation guides, First Nations names of the plants, as well as their features (e.g., size, leaf shape, and type of berries). She utilized websites with information from First Nations and Indigenous perspectives about the park's ecosystem because she frequently drew upon these perspectives in her instruction. She explained to the students, as noted in my field notes from June 20, 2018, that these websites were acceptable resources to use for the posters because Wikipedia or other websites may have contained inaccurate information or may not have had any First Nations or Indigenous perspectives.

Cate's curation of these multimodal texts was important for Theo's learning because it helped to alleviate some of his difficulties with staying focused on his work. Theo was a savvy user of mobile devices and digital multimodal texts. He was capable of doing his own Web searches as well. However, many of the websites in these searches were above his reading level. Cate's collection of websites worked well for Theo in the creation of his poster because he had had limited time to complete the project after having been absent for days. Cate found that, even with the lack of time spent on this activity, Theo was able to read and process the information from the websites, conference with a peer to check his understanding, and apply his knowledge to produce the poster with little frustration, as noted in my field notes from June 20, 2018. As the websites were closer to Theo's reading level, he was not mired in Web searches that overwhelmed him, and he had time to complete "more meaningful work" (Interview, May 3, 2018). Cate observed that Theo often needed more

time to think through his understanding of multimodal texts, and he needed opportunities to work with the text more than once. It was especially important to allow him to view the multimodal texts a few times with his peers because he was able to layer his understanding gradually rather than be overwhelmed with receiving too much information to process at once. Cate felt that Theo was more engaged in his projects when he worked with multimodal texts that were accessible to him, which raised his confidence in his learning, and he was less inclined to opt out of the activity.

4.3.2 Building a Classroom Community

Throughout my interviews and talks with Cate, there were reoccurring discussions about the importance of building a community of learners that recognized and respected multiple representations of learning. This was especially important in regard to Theo's learning because he was a personable student who looked to share experiences with his peer groups, but he had trouble establishing friendships with them (Interview, March 15, 2018), which again, reflected her strong knowledge of Theo as a student. Cate recognized that it was important to meet Theo's academic learning and social needs as part of her instruction and she hoped to model strong friendships for her students. Strengthening the community within her classroom was important to Cate because she recognized that the students needed to be mindful of their capabilities as learners, but they also needed to appreciate their peers' diverse backgrounds, interests, experiences, and learning needs in order to facilitate learning experiences that were equitable and meaningful. For Theo, this was particularly important because he was always "desperately looking for community" (Interview, August 15, 2018). As mentioned in Chapter 2, and as noted in my field notes from April 10, 2018, Theo was a friendly child who often greeted, by name and with a quick wave, every student and teacher

who passed him in the classroom or in the school hallways. From my frequent observations of Theo, I noted that he was the closest to Aidan and Abby, but he also made efforts to connect with many of his peers through small talk about mutual interests (i.e., playing Fortnite™ and other video games), although they were not always receptive of his efforts as they shied away from conversation with him (Field notes, June 4, 2018). Compounding Theo's academic difficulties were his challenges interacting with his peers as Cate observed that he had issues

> determining what [was] appropriate sometimes and what [was] too silly for his age level or what [behavior was] "in somebody's face" that people would think of as crossing the line. Sometimes people [got] offended by [him] and he [didn't] realize he [had] offended them. (Interview, March 15, 2018)

Given Theo's difficulties, Cate wanted the classroom community to recognize that everyone had skills they were working on to improve themselves as well as strengths that could contribute to each other's learning. As such, Cate's implementation of multimodal meaning-making practices was also geared towards strengthening social relationships in the classroom as well as helping Theo "establish trust" with his peers when they worked together (Interview, June 4, 2018).

Cate reinforced the importance of community by taking the students to Peabody Park, which was a forest space across the street from the school, making it a convenient location for Cate to take the students. The park featured meandering trails, creeks, and a variety of plants for the students to explore. Cate believed it was important to visit the park more because the neighborhood was experiencing a lot of construction and part of the park was destroyed to make way for a new transit line. Cate decided to use these changes as part of her

outdoor inquiry and connected literacy with social studies and science. Her objective was to guide the students to explore spatial meanings in the forest as they studied the structures, the landscape, and the ecosystem. When I asked Cate about the impact of the weekly visits to Peabody Park on Theo, she emphasized it was important for him to experience the park with the class to learn more about their local community (Field notes, April 20, 2018). It was clear to me that the park was meant to be a shared experience to address the diverse learning needs of Theo and his peers as Cate explained, "I think it was really important for them to have that connection to the place where we go to school and where [the students] live to be able to prioritize some of the sights and language pieces [in their learning]" (Interview, August 15, 2018).

At the park, Cate assigned students to work in groups of four. In my field notes for April 20, 2018, I wrote that I observed each group brought an iPad outside to take photos of a spot they chose to observe from fall to spring. Students chose spots with plants and berries, and they took note of their changes throughout the seasons. In addition to the iPads, the students also brought clipboards with them to write down observations and notes of the forest. Cate encouraged the students to take notes using a variety of modes, such as writing, diagrams, and sketches. Although Theo preferred visual modes and discussion to reinforce his understanding, he liked to keep written notes in a list form during these outings because a list took less time to complete than drawing, especially as he juggled the clipboard and the iPad. He also told me in his initial interview that he did not consider himself to be "a very good drawer" (Interview, April 10, 2018).

Theo was deeply engaged with the park as he discussed the changes he noticed with his classmates as well as the effects of the seasons on the plants and the land. Cate believed

that going outside together as a class contributed to creating shared experiences that Theo and his classmates could participate in and connect to in their work. Cate pointed out that "this is a shared little piece that they can have conversations about, that they can make connections to when they read somebody else's poem, or they look at somebody else's weaving, or they look at somebody else's art" (Interview, August 15, 2018). Thus, Cate felt that going to Peabody Park together solidified the classroom community in a way that contributed greatly to their understanding of each other's work. More importantly, she felt the students' sense of community needed to extend beyond the classroom as well with their visits to Peabody Park. In her final interview for the study, Cate reflected on her experiences with outdoor learning:

> I think it was really important for them to have that connection to the place where we go to school and where they live. For me, it's like you've got the curriculum piece, and you have the community, and you have the place-based learning aspect of it. When the kids can see kind of the validity that everything in their community has a role, and there's knowledge that we can gain from that forest space, it's kind of reflected in everything. (Interview, August 15, 2018).

Although Theo experienced difficulties with reading, writing, and focusing on his work, Cate observed that he was able "to articulate [his observations] very clearly because [the park] [was] a resource that he [was] looking at and experiencing more than once." More importantly, exploring Peabody Park with Cate gave Theo another way of gathering information that was not always shown in his written work. Cate noted that Theo's short lists were not nearly as detailed as some of his classmate's observational notes; however, when it came time to write their poems for Peabody Park, Cate saw that he had very strong pieces of

information tied to his poem, and it was clear that he needed more creative ways to share his work and his experiences in the park. Similarly, when he created a poster for the park at the end of the year, he connected with little difficulty his observations from the park, his discussions with a peer, the photos from his iPad, and the websites Cate uploaded onto Edmodo. Cate concluded that drawing on connections made in the park was not difficult for Theo because of the repeated visits, which helped his recall and understanding when it was time for him to communicate what he learned.

With the weekly visits to Peabody Park as a clear example, Cate felt she pushed herself to "test things out" with outdoor spaces (Interview, August 15, 2018), much like the opportunities for experimentation in the classroom. Cate noted that many of her colleagues did not visit the park during the school year out of fear they would not have enough instructional time to focus on core content areas. However, Cate saw this opportunity of teaching outdoors as taking a risk because she knew she could not plan every detail while they were outside, but she felt the benefits outweighed the risks. She knew from her experiences in the park that these outings would have a meaningful impact on her students' learning and be especially helpful for Theo, who needed an environment that did not magnify his academic difficulties. She reflected on these visits as a way to build her confidence and learn from the experiences as well as model for her students that trying out new activities requires persistence because they may not always be successful at first. For Theo, in particular, Cate often spoke about helping him find strategies to "push through a problem" (Interview, August 15, 2018) when he encountered content or skills he found difficult. When I spent time with Cate and Theo in the park, I noticed that one of the benefits of going outside together was that all the students were learning new information about the forest

space. It was much harder to take photos of Cate and Theo outside because everyone was spread out in a large space. However, one of the trends I noticed in my photos was how often Cate directed Theo and his peers to observe specific spots of interest in the park and her focus on touch as a modality. She encouraged students to not only look at the trees and plants, but to gently touch the berries, feel the leaves, and place their hands on the bark of the trees to experience the various textures of the forest. Because the majority of the students' attention was on the plants and the surroundings, and less on text-based work like inside the classroom, there was less of a focus on Theo's difficulties by his peers. Despite some of the social awkwardness between Theo and some of his peers, I noted there were fewer incidences of him being brushed off by his peers when he attempted to communicate with them. Instead, the students were able to share bits of information about what they learned in the park. They were also able to switch between tasks, such as observing the space, writing notes, or taking photos. More importantly, Theo took ownership of the photos he took of the park and reacted excitedly about the opportunity to work outside.

4.3.3 Experimenting with Different Modes

Cate carried this theme of community and individuality in other activities through hands-on projects in the classroom. To Cate, it was important that her implementation of multimodal meaning-making practices included time to learn new skills as part of the process of creating something with a variety of modes. This indicated to me that Cate's beliefs about literacy involve encouraging the students to experiment with different modes and her professional knowledge about multimodality reflected her beliefs. Even though Theo struggled with focus and often jumped from topic to topic, Cate felt that it was important for him to find modalities he was comfortable with. Throughout my observations of Theo, I

noted that he was particularly excited to work with tactile materials (e.g., fabrics, LEGO blocks, cardboard/other recyclable materials, etc.). My observations coincided with one of Cate's interviews, where she recalled a sewing activity, she did with the class earlier in the year. The students worked with another teacher's mother, who was an expert sewer, on identity tiles, which Cate explained were depictions of one "key piece [from each student's] identity they wanted to share with the larger community" (Interview, March 15, 2018). All of the students created their own tile about what they felt was important to them (e.g., family, religion, friends, sports and hobbies, or school). None of the students had much experience with sewing, but Theo was able to participate in this activity because they were all learning how to sew together, and the activity did not call attention to his difficulties with reading and writing. As a result, Theo was able to build his confidence through the shared experience of working with new materials. When Cate showed me the identity quilt made up of all the tiles, she pointed out that all the tiles looked similar. No one's tile was considered better or worse because the focus was on the process of making something together (Interview, March 15, 2018).

Figure 4.3 The quilt of identity tiles featured prominently in Cate's classroom.

Experimentation during hands-on activities became a recurring theme in my interviews with Cate and in my observations of her instruction. It became apparent to me that experimentation was not just about trying something new as a cohesive classroom community, but also about respecting the students' choice of materials, which became part of getting to know Theo's learning needs. Cate specifically mentioned that the time students spent with different materials was part of the "whole-class experiences" (Interview, June 27, 2018) mentioned in the previous section, signaling her focus on building a community around communicating in different ways. Since Theo struggled with communicating his learning in written form, Cate wanted to provide him with opportunities to work with a variety of materials. The goal was to help him "speak to something from the heart or from his background experience or from something that we've done in a way where the learning wasn't what he feels is academic" (Interview, March 15, 2018). Cate believed it was important for Theo and his peers to work with different materials together because it helped them to think through the communicative potentials of what they were working with as well as reflect on what they would like to do in the future. It was evident that part of Cate's beliefs about multimodality and literacy was helping students to discover their strengths as makers of meaning. Cate expressed that part of the experimentation process was to help students "find what they're comfortable with" (Interview, August 15, 2018) to represent their thinking. For students with LD like Theo, Cate said it was important for her to be "more open to letting the kids help you define what it is they need" (Interview, August 15, 2018) in their learning rather than forcing students to use specific resources that may not fit their abilities and needs during a limited amount of instructional time.

Cate also recognized that, if she pushed projects that required students to work together and be reflective of their choices, she would need to provide students with access to as many materials as she could afford to collect. During the mid-point of the study, Cate started the simple machines unit in science, which culminated in the students building their own machines. I noted in my field notes from March 8, 2018, that, weeks prior to the start of the unit, there had been a collection of recyclable materials (e.g., cardboard, boxes, paper towel rolls, and tissue boxes) in the classroom. Cate explained that, from her experience, before students (including Theo) would be able to meet curricular expectations of learning, they would need a significant amount of time with the materials.

> We had materials that we played around with because I knew, coming up, we would be doing simple machines, so I was starting to put out the cardboard and the recyclables because they need to practice before you say, "I really want you to show me some really important ideas [using these materials]" and not just be frustrated that you're trying to do something with toilet paper rolls or cereal boxes. (Interview, June 27, 2018)

The hands-on projects during the activist art and the simple machines units were paired with digital multimodal texts (activist art with the podcast and videos; simple machines with the Discovery Education Techbook). As mentioned in an earlier section, Cate often modeled how to view and listen for information when she worked with these texts during whole-class instruction in hopes of scaffolding understanding for all the students. She noted that such whole-class activities were sometimes "messy, and they [would] have to be drawn out over time," but "kids have to see a teacher struggle, ask questions, and figure it out

together" as part of the learning experience with multimodal instruction (Interview, August 15, 2018).

Cate's classroom was always bustling with classroom activity, but she welcomed guests to her class to work with her students. She felt it was important to have a teaching community that appealed to her students' interests in a way that was different from her own practices (Field notes, May 11, 2018). This continued to speak to her focus on finding ways for the students to experiment with different modes as each teacher or guest used different materials in their instruction. Some of the guests were brought in by the district, and some were personally invited by Cate. Regardless of who invited the guests, Cate felt it was important that the students drew connections between their everyday learning and the guests in the classroom. Cate recalled her collaboration earlier in 2018 with the teachers from Aboriginal Education Services, a collaboration she tied to the visits by Michelle, a teacher who recently published math textbooks from an Indigenous and First Nations perspective. By coincidence, this connected to Theo's discovery of his own Cree and Métis heritage shortly after the study began.

Michelle's visits were positive experiences for Theo. During her first visit, she brought in her new textbooks, which, according to my field notes from May 11, 2018, had been written for Grade 3–6 readers. Theo and his classmates had an opportunity to preview the books, read some passages of interest, and write feedback for Michelle. Although this experience revolved around a print-based text, Theo was able to engage with the photographs, connect with Indigenous perspectives and share his experience of the text in a way that was valuable for other students and for Michelle, who wanted to forward the feedback to her publisher. More importantly, Cate observed that, because Michelle

acknowledged Theo's feedback, he felt he contributed to the activity in a positive way. During the second visit, as noted in my field notes from May 30, 2018, Cate worked with Michelle to design a sash weaving and fraction activity. While Michelle presented on the symbolism of the different fabrics used for the sash from a First Nations perspective, Cate taught fractions using the colors and patterns of the fabrics to represent one whole sash. Theo excelled at this activity as he enjoyed working with the fabrics, but he was also deeply interested in learning more from Michelle about First Nations perspectives.

In June 2018, Cate welcomed undergraduates from the University of British Columbia's Geering Up Program, which delivered engineering and science workshops to classrooms across the province. During this particular workshop, two undergraduates brought in a 3-D printer, 3-D pens, and laptops with a design program installed for the students. According to my field notes from June 5, 2018, Theo's intense interest in technology led him to have thoughtful discussions about the 3-D printer with the undergraduates. The class was challenged by the two undergraduates to design a room based on many creative and imaginative specifications. However, the students had never used this program before and had to learn while working on their design. Theo was quickly able to navigate the design program as well as help his partner, and, together, they were able to create a room. In a sense, the Geering Up workshop gave Theo an opportunity to display his strengths as well as utilize technology in a way that did not distract from his learning. More importantly, Theo was able to share his knowledge with his peers in a meaningful way, which was a priority for Cate throughout the year.

4.3.4 "Tightening the Feedback Loop" During Small-Group Instruction with Theo

In this section, I talk more about the multimodal meaning-making practices implemented during guided instruction with small groups and individual instruction with Theo. As I mentioned earlier, Cate recognized that Theo struggled with whole-class instruction, especially with a number of discussions happening between her and the students. Her hope was that Theo would at least get some information during these whole-class activities and participate in the activities without losing too much confidence. I noted in my observations that Cate often built in small-group activities even within whole-class instruction. As such, part of her professional knowledge included organizing the students in different groupings and applying instructional methods that met the needs of the group. When I asked her about what she thought about working in small-groups with Theo, she explained that she thought of it as a way to "tighten the feedback loop" in his learning by returning to strategies or content she had taught before (Interview, April 27, 2018). In these groups, Cate felt that she could better orient Theo's attention to information in the multimodal texts as well as give him additional opportunities to express his understanding in a smaller shared group setting. I considered Cate's small-group work with Theo to be part of her differentiated instruction, which helped Theo because he needed "additional supports, tailored activities and explicit and extended instructional time with the teacher. In [differentiated instruction], all learners focus on the same essential understandings, but are provided with multiple access routes to make sense of and demonstrate these understandings" (Tobin & McInnes, 2008, p. 3). During my observations of Cate and Theo during small-group instruction, I noted that one of the ways she tried to strengthen Theo's

understanding of multimodal texts was to reinforce comprehension strategies for Theo and four to six other students in the group. She noted that, regardless of the materials she was working with (e.g., devices, multimodal texts, or textbooks), small-group work was considered to be a more controlled method of teaching, during which she was able to maintain Theo's attention far longer than during whole-class instruction (Field notes, June 4, 2018). More importantly, Cate felt it was important for Theo to know that "he has something to share [and] he's representing his thinking" (Interview, August 15, 2018).

From the start of the study, Theo was also working on finishing the book *White Water*, which was about an African American boy experiencing racism in the 1950s. Cate noted that the book was a bit difficult for Theo because the images were more figurative than literal compared to the animals from *Sometimes I Feel Like a Fox* and *Animals of the Salish Sea.* Also, from field notes taken April 27, 2018, he had difficulties understanding how to make inferences from the text and illustrations. Much of Theo's book-club work for *White Water*—as noted in my field notes from April 17, 2018—was left unfinished, including identifying key vocabulary words from the book, summarizing passages, keeping track of major themes, writing about the characters' different perspectives, and generating discussion questions. These activities were a collection of worksheets that Theo was expected to complete during and after his reading of the book. However, because reading for him took so long, he was only able to complete a few written prompts at a time. When it came time to find a peer in the book club to review his work, many of them were already finished and had moved on to a new book.

However, after repeated reminders by Cate to finish his worksheets, a full discussion was finally able to be called for the *White Water* group. During this time, she guided the

group toward understanding racism, injustice, and discrimination. When I asked Cate about Theo's participation in the book club, she responded that she recognized Theo was trying to "string [his understanding] together from the verbal information he was hearing in the group" (Interview, May 3, 2018). She admitted that, sometimes, she was not sure she understood what Theo was saying because "he [would] get off from what he intended [to say]." However, she found him fairly focused during their group discussion, and he was able to add to the conversation as his peers discussed their background knowledge together. Cate further elaborated on Theo's work, recalling,

> I felt that he was able to contribute in that group conversation. He had things that were pertinent to say, and, because it was a small group, he was able to keep [his ideas] on track. The things he had to add were meaningful and helpful to the other people in the group . . . . They've been able to take what they had during their conversation about the book club and then work together to create their own [written] piece, but they were able to still share their ideas. I feel that, at least with those layers, he's able to show to himself that he can follow a thread all the way through and come out with a bit of deep thinking and being able to share his understanding with some clarity in a way that isn't far off from where other kids in the room would be with that book. (Interview, May 3, 2018)

Although group work was a regular practice in Cate's classroom, she noted there were some difficulties with keeping them on track with curricular expectations. Cate shared that Theo and his peers needed to be guided together to view, analyze, and critically evaluate the multimodal texts she shared with them on Edmodo for the activist art unit. For this particular group, Theo worked with four other English Language Learners because they all needed

scaffolding to understand the multimodal texts Cate used in her whole-class instruction. She expressed,

> I think the limitations with that for this particular kind of mini-inquiry was that we were all having to do it at the same time. I think that the independence piece—we're not there yet—where I can feel that I'm not having to really keep track of where the kids are doing things independently—"Have you watched this?", "Have you listened to this?" And so, as a whole group, that feels like it can slow things down. Sometimes, you're losing kids because they can't manage it as a whole group. (Interview, May 3, 2018)

Cate noticed that Theo and his group were overwhelmed with the information and needed a lot of guidance with how to organize their ideas and questions. Throughout the units of study, I observed Cate needing to teach or model specific skills to help students organize the information and keep track of their learning. For example, she paused videos to repeat what the speaker was talking about and modelled making connections between the speaker's quote and the resources they had worked with throughout the unit. Theo was often grouped with English-language-learning students, which Cate explained was because they were all "trying to figure out those very beginner concepts" of reading and processing academic texts. She also pointed out that she felt small-group instruction was important for their learning, but she "struggl[ed] with being on top of the small-group instruction because there [were] so many different needs" (Interview, June 4, 2018). She noted that some of her students in class had no formal school experience prior to arriving to Canada. Theo, for the most part, did not seem to notice or at least did not comment on the language abilities and differences of his peers in the group. When Cate called the groups to meet with her, Theo was happy to join his

peers and rarely demonstrated an unwillingness to participate (Field notes, April 24, 2018). Cate also talked to me about how accepting that particular group of students was of Theo's learning needs compared to his peers who were not English Language Learners. From my perspective, I felt that Cate was circling back to what she felt would best meet Theo's needs. For one, she believed there was common learning needs between Theo and his peers. Secondly, she saw it as a "safe" group for Theo to work in because he felt comfortable, which helped him develop a sense of accomplishment and pride in his work. Her observations and insight about Theo working with English Language Learners spoke to Cate wanting to promote active participation in her groups.

In my observations of Theo, I also noted his frequent absences, which made it difficult for him to catch up with his work. Consequently, one of Cate's objectives was to help Theo catch up with his reading during small-group work, especially in regard to multimodal texts that the whole-class used for their projects. For example, Cate often started her units of inquiry with a series of articles published by Scholastic as shown in Figure 4.4.

Figure 4.4 Scholastic articles about Ai Weiwei's art (top) and A Tribe Called Red and their music (bottom) displayed on the whiteboard.

Theo often struggled with these texts because they were primarily print-based despite the use of pictures in the articles; however, the discussion generated in the group helped him to better understand more complex concepts as I noted in my field notes on April 24, 2018:

> Theo is seated next to Cate, who catches him erasing his writing on the chart. He misses her prompts about looking at Ai Weiwei's blurb in the article, and she stops him from erasing. She explains that the artists or the art that they're making are able to change things. She highlights Theo's observation that artists want greater things in the world because art can change the world. Cate leads them through different forms of art in the photos including sculptures, metal work, and flags, and notes that the common theme is that each artist wants change. When Cate asks what is the art by A Tribe Called Red, Theo quickly volunteers music. She prompts him to elaborate on his response, and he says First Nations music, which Cate affirmed as Indigenous-styled music and language. When asked what was the message of their music, Theo

answered that they wanted to take their culture back. Cate furthers this conversation by adding that the Indigenous groups face racism and prejudice. A Tribe Called Red wants to elaborate that their culture and language is important when other people demean them.

During the discussion, Theo struggled when Cate transitioned from talking about A Tribe Called Red's music back to Ai Weiwei's art, but he used the images to jog his memory so that he could continue his note-taking with Cate. One of Cate's concerns was Theo's ability to retain information; however, it was clear during these small-group meetings that other modes like visuals and music helped him to draw connections and contribute to the conversation.

4.3.5 Individualized Instruction for Theo

Cate explained to me at the beginning of the study that Theo was a student who "chugged along" (Interview, March 8, 2018), who tried hard to academically and socially fit into his classroom community, but he also recognized that he was not producing work of a quality similar to his peers. As I noted in my field notes from April 27, 2018, he at times struggled to maintain his stamina during the school day as he was frequently tired from waking up early for school and from keeping up with the pace of instruction and interactions in class. Cate noted that, because of these issues compounding his learning, she needed to apply a more structured approach with Theo, checking in with him to see how he was understanding the content as well as how he was applying his background knowledge to the materials. I viewed this as a combination of Cate's professional knowledge and her knowledge about Theo as a student from Figure 3.4 since she needed to tailor her individual meetings with him based on his needs and interests.

Cate's one-to-one instruction time with Theo was often limited because of her work with other groups and leading whole-class instruction. As I noted in Chapter 3, because Theo did not have an educational assistant or intervention services for literacy, Cate made an effort to meet with Theo consistently, but she noted this was difficult because there were so many needs in her class. From my observations, I noticed that much of Cate's time alone with Theo was spent focusing his attention on the learning criteria for a literacy activity or project as mentioned in this chapter. I wrote in my field notes for May 30, 2018, that, in order to slow down his thinking and help him to be more mindful of his project planning, Cate often asked Theo to first use paper and pencil to draw or write some notes down to anchor his thinking; this was despite her recognition that Theo's drawings were a bit rudimentary compared to his peers. To help him keep his focus during individual check-ins, Cate often restricted Theo's time on devices because she believed the technology was a "total distraction" for him (Interview, May 3, 2018). She mentioned that she had been careful about using devices with Theo because of her experience with him during the human body unit. She recalled that letting Theo complete an inquiry about the human body using online resources was a distraction for him because "there were different links to follow, and it was down a rabbit hole" (Interview, May 3, 2018). She connected this story to Theo's experience with Bloxels, which he enjoyed so much that he often forgot what he was working on. She concluded in the same interview that "the device can be an issue for him."

With her concerns about using devices with Theo, I noticed that Cate's implementation of meaning-making practices in one-to-one settings with him often involved a delicate balance between print modalities and multimodal texts that met his learning needs. Although she tried to ground his thinking by scribing for him or asking him to take notes,

Cate recognized that limiting him to just writing was insufficient for his needs and his interests when he experienced difficulties and frustration with his work. I noted in my field notes from April 23, 2018 that as Cate circulated around the room, she noticed Theo was struggling to read the Scholastic article about A Tribe Called Red, a First Nations music group with a hip-hop sound, despite his interest in music and chose to work on other Daily 5 activities instead. In an earlier one-to-one meeting at the start of Daily 5, Cate asked Theo to read the article and keep track of his notes on Post It Notes to stick to the article, which he had done, but his notes consisted of mostly "I wonder" questions instead of a synthesis of key points from his reading. This indicated to her that he was not engaged with the text even though she had led a whole-class activity with a video by The Jerry Cans, another First Nations hip-hop band, which excited Theo. From my perspective, Theo struggled to summarize what he read without help, but Cate felt he had enough practice over the course of the school year to be able to write about what he read, especially in short note form on Post-Its. Hoping to encourage him to finish the article in a timely manner, she directed him to watch one of their music videos on the MacBook with a copy of the article in front of him to help him identify some information from both texts. I noted in my field notes for that day that Theo was far more interested in the music video than the article. It was unclear to me whether or not Cate felt he returned to the article in a way that satisfied her expectations (we did not have time to talk much afterwards). However, Theo explained to me in a later observation that he was going to create his own song for his final activist art project instead of an originally proposed poster. Although he was not gleaning as much information from the articles as Cate hoped he would, the exposure to other multimodal texts, like the music videos, reinvigorated his interest in the unit. As he noted in his interview on April 10, 2018,

he liked the topic even though he was unclear about some of the content, but he did not like art much because he considered himself to lack drawing skills. Cate was not necessarily framing art as only drawings or paintings since the unit covered a range of different forms of artistic expression; however, Theo's initial understanding of the topic was a bit narrow. Incorporating music videos into the unit encouraged him to create a song on GarageBand to share a message of peace and happiness for bullied children. The music video became a resource that helped Theo to generate a workable idea for his final project, and he was able to share his understanding of activism through modes that matched his interests.

Although Cate felt Theo was spending more quality time with multimodal texts, she also acknowledged that the limited time during the day and the school year negatively impacted her instruction and her work with Theo. With the revised curriculum's focus on analyzing and interpreting different modes of information, Cate observed,

> For their core competencies for their art and making those picture-book connections, it was, like, I just thought this was a really rushed term since we got back from spring break. It just felt really, really rushed, and so things kept getting pushed. I think the issue for him [was] being able to have enough time to really come at things more than once so that he [got] what he need[ed] out of [the multimodal texts]. (Interview, June 27, 2018)

With Theo moving to another school, Cate wondered how well she prepared him for his next teacher. Cate noted that most of her instructional time was spent viewing and analyzing multimodal texts as well as teaching students to express their learning through a variety of modes. She recognized that she was not able to address all of Theo's difficulties with reading and writing print even though he made a lot of progress over the year in terms of sharing his

learning in creative ways. With different expectations of literacy between teachers, she wondered how Theo would apply the strategies he learned in Cate's class in another teacher's instructional context.

4.4 Barriers of Implementation: Technology as a Disruption

Some of Cate's knowledge about literacy was also shaped by her experiences with the limitations of working with multimodality in the classroom. Cate defined limitations as a number of constraints with multimodal materials and technologies during her instruction. In this section, I describe the challenges that Cate encountered and their impact on Theo's learning experiences. She noted that, although using devices and digital content was supposed to enhance her instruction, she also felt hampered by these forms of technology because she had to manage the disruption they caused for all the students during a limited amount of instructional time. There were many times when she had to fix or troubleshoot the devices as part of her instruction, which interrupted Theo's learning. Although Cate wanted to ease Theo's frustration, she conceded, "[Y]ou can't predict all the times that [technology's] going to misbehave" (Interview, March 15, 2018). From talking to and observing Cate during these technological disruptions, it was evident that learning how to handle the glitches and problems was intertwined with knowledge about Theo as a learner, beliefs about literacy, and beliefs about LD as she tried to balance curricular expectations.

4.4.1 Constraints of Using District Technological Resources

In an effort to provide teachers with more technology to be used in the classroom, the Seton school district purchased sets of robotics and coding devices that were designed to be used by students. Cate readily signed these kits out whenever they were available because she knew many of her students enjoyed these devices. However, although these gadgets and

kits were appealing to Cate and her students, their durability soon became an issue for Cate as she realized that the broken pieces of technology could not be easily replaced because of a lack of funding. Given the fact that the technologies were shared resources, Cate believed that it was her responsibility to protect and preserve these devices when they were used in her classroom because they were ultimately investments made by the school district (Interview, March 15, 2018).

During her initial interview, Cate recounted an experience with the Ozobots, robots that could be programmed to follow a map through codes developed by students. Cate had previously utilized the Ozobots as part of her read-aloud with *The Wild Robot*, having students create story elements with the maps to respond to the book. As students were finishing up their group projects, Cate explained to me that one of the Ozobots had broken after it had dropped onto the floor as another class used it, which made Cate feel worried about using the robots in her class. As her class finished their projects with the Ozobots, she recalled that three of them fell onto the floor, and she had to remind the students to be careful. When one of the Ozobots spun out of control, Cate concluded that it had probably been damaged after hitting the floor a number of times. The state of the Ozobots quickly became a concern as she explained that some of the students' projects were interrupted because they had to reset the Ozobots during the limited time they had with the robots. For Theo, whose memory of this activity involved the robots going crazy, Cate felt the breakdown of these gadgets took his attention away from her teaching and learning objectives.

Unfortunately, many of these devices do not seem to be designed to survive typical classroom environments as I noted a month later when I joined Cate and her class in the

library for an orientation to another new robotics and coding kit called Spheros. Spheros, as the name implied, were small, spherical robots designed to roll around on large, flat surfaces. An iPad application controlled the navigation of the robots like a remote control. During this orientation, according to my field notes from March 15, 2018, the librarian explained to Cate that the robots needed to be used on only carpet because debris on tiles could potentially scratch and damage the sensors. To the students, the librarian warned that they needed to be careful with the robots to make sure they did not bump into furniture, other robots, or people. (The librarian had turned down the speed of the Spheros robots during the demonstration so that the students could not operate them at their highest speed.) I followed Theo and his partner during this orientation and noted that, although he was careful with his navigation, it was difficult for him to avoid getting his robot lost among the other ones rolling around in the same space. It was clear this particular robot needed to be handled with much care.

4.4.2 Lack of Options

For Cate, keeping Theo on track with his literacy learning included making sure he had access to the same or similar materials as his classmates; however, Cate experienced a lack of options with finding or modifying these materials. With the Discovery Education Science Techbook, the platform utilized multiple modes to deliver content, but Cate could not modify the Techbook to better suit Theo's needs. Cate explained that she used the text-to-speech function in the Techbook for Theo so that the articles were read to him through headphones, but, because his reading level was considered below fourth grade, the reading of the text was too much for him to comprehend even though he was able to view a lot of visual information in the Techbook to build up his background knowledge. Even though the Techbook was marketed to Cate as having two reading levels, she did not notice the two

being vastly different for Theo. When I asked Cate about her options for modifications, she explained that:

> You can assign bits and pieces, but, if I'm assigning a chunk of reading, it would be, like, a complete paragraph, but I can't whittle it down in a way that would maintain its meaning. You still read a dense paragraph. You might not read three of them, but it's still one dense paragraph. (Interview, March 15, 2018)

Furthermore, although the Techbook gave Theo options to access material closer to his reading level, the material itself did not align with the topics they were studying in the fourth grade. For example, Theo could find third-grade material in the Techbook, but there were no resources about the human body or simple machines, which were considered to be fourth-grade topics. As a result, Cate looked for other materials, such as levelled texts and websites, to supplement Theo's reading and viewing of the Techbook. However, when she exhausted her resources, she concluded that there were "only so many resources at so many levels" for Theo.

Even with the increased investments in digital resources and technologies by the district, Cate felt she needed more resources to teach the content areas. She explained that, if she walked into the school's book room or looked online for resources, she was "stumped" about what to pick and choose from because there were not enough resources in the school and too many websites online that did not tie into the curriculum (Interview, August 15, 2018). There were also few textbooks that Cate could use because they were outdated, and some textbooks were even removed from the classrooms, such as her previous math resources that had a number of discrepancies. In order to replace some of the resources, she worked with the school's teacher librarian to identify books that could be used for Theo for

some of her units. Cate concluded that, because of the shift away from using textbooks, she felt "challenged to launch lessons" since the books were no longer viable materials that informed her instructional design or provided more information for her students (Interview, June 4, 2018).

Cate supplemented the lack of school resources with other digital multimodal texts; however, encountered other technical difficulties. During the viewing of The Jerry Cans music video on April 16, 2018, I wrote the following in my field notes:

> The class is listening to "The Jerry Cans Live from the Arctic" music video. Cate is trying to use the 360-degree view on YouTube, but it keeps stalling a bit every time she tries to change the angle. The video is also zooming in and out of angles that Cate didn't intend to show, which causes more lag time.

Cate later commented in an interview that she found the function interesting and wanted to use it to show the students more visual information since they clearly enjoyed the music video. However, it became a frustrating experience because of the interruptions and having to wait for the video to restart. Because of the distraction, Theo and a few of his classmates began to call out because they were eager to see more of the video. As the class grew restless, Cate had to redirect their focus and simultaneously try to get the video restarted.

4.4.3 Issues with Devices and Applications

Sometimes, disruptions with technology were due to system issues on the devices themselves, such as problems with the device settings or coding that prevented Cate and her students from using them effectively. In one of my observations of a Bloxels activity, the students experienced technical issues around the creation of their own multimodal texts. As

mentioned earlier in the chapter, Bloxels gave students the option of designing a story directly on the application or building the visuals on a grid using small, colorful blocks. Although the process of scanning and uploading the designs from the grid to the application was intended to be seamless, Theo and his group encountered an unusual problem that had no real solution other than trial and error. As noted in my field notes from April 16, 2018, after Theo's classmate finished creating a character with the blocks and the grid, Theo offered to scan the design onto the application. However, a malfunction in the application caused the character to be uploaded upside down. Theo and his classmates scanned the character repeatedly until it finally uploaded right side up, but the colors were distorted in the process, and they had to fix the design through the application. Consequently, because of the trial-and-error process, a large portion of the time was spent fixing this glitch before they could continue designing other elements of their story.

For a week in mid-May, Cate instructed the students to update their FreshGrade posts by uploading any outstanding work and written reflections. As mentioned before, Theo experienced difficulty presenting information in writing, and typing was one way to address this difficulty. On May 11, 2018, according to my field notes, Cate handed Theo one of the school's shared laptops to get him started on his work quickly; however, he experienced system glitches with both laptops that were given to him. The first laptop was inundated with messages from the Sophos anti-virus program that prevented Theo from accessing his files. The only options available were to "Ignore" or "Report" the issue, but neither choice actually resolved the problem. Eventually, he had to give up working on the first laptop. Cate then found a second laptop for Theo to use but, upon logging in, the laptop unexpectedly froze, and he had to restart the system before continuing his work.

Although there were times these technical issues were resolved during class time, there were occasions when the resolution of these issues was out of Cate's or the students' control. These issues were generally rooted in the applications' main servers or their programming. For example, in my field notes for June 11, 2018, I noted that, when the students were switching between the Discovery Education Science Techbook and FreshGrade, which shared the same district login system, Cate was told by the students that their devices were logging them back into the account of the previous student who used the device even though that student had already logged out. Cate then suggested clearing the browser's history and data, which did not fix the issue. A full day later, when I returned to observe her class again, the glitch still had not been fixed, and Cate informed me that it was a district-wide issue, and she was becoming increasingly concerned about the students' privacy. However, they still needed to use the devices because they were finishing up projects before the school year ended in a few weeks, and Cate had to send out her reports to the parents. Ultimately, Cate had no choice but to continue using both platforms even with the potential privacy issues.

During this glitch, according to my field notes from June 14, 2018, the students were also in the midst of uploading their social studies work to FreshGrade. Theo used Toontastic to create a story about working in a cannery. However, the iPads in Cate's classroom required specific permissions in the device settings to be adjusted before the animated stories could be uploaded onto FreshGrade. At that time, Cate was already dealing with a glitch affecting the uploading of stories from iBooks to FreshGrade, so she was not able to address the Toontastic issue. Theo had to wait for a classmate with knowledge of this issue to help

him fix his iPad and finish the upload. Thus, Theo lost time completing his other FreshGrade posts.

4.4.4 "A Giant Disaster Zone"

With the number of multimodal activities occurring simultaneously in Cate's classroom, she noted that, at times, the limited space could have been an issue for Theo's learning. During her final interview, Cate recalled,

> Sometimes, when you walk into the classroom, it's like a giant disaster zone. You've got kids who are full on building something or painting something or making something. And you've got other kids with a laptop out, and they're typing it up like it's a report or it's a story or something that's going to be printed on paper. And so, for kids like Theo, that can be distracting. It's also learning how to focus in a [frenzy]. (Interview, August 15, 2018)

Theo used noise-cancelling headphones to drown out the noise of the classroom, but the number of headphones available was limited in Cate's classroom. If a few students decided to use them first, he had to work without them. As a result, sometimes Theo worked in the hallway or moved to an empty stairwell on the other side of Cate's classroom. The issue with both spaces was that they were high-traffic areas, and it was difficult to predict whether or not Theo had enough time to work undisturbed before teachers and students passed through those spaces. For multimodal activities, Theo needed to make do with whatever space he found himself in. For example, when Theo was trying to edit his cannery story in the stairwell, he had to lean over the device to carefully listen to his narration and then re-record some parts while people were walking up and down the stairs. Additionally, finding space for

Theo outside of the classroom also meant that he was separated from Cate, which meant he missed important information or instructions.

In addition to finding adequate space for Theo, Cate noted that, at times, finding the right technology added to the disorganization in her classroom. The school shared a set of newly purchased iPads that had the updated applications installed, including ones that Cate frequently used, such as Bloxels, Ozobots, and the Discovery Education Science Techbook. Because the students' projects were saved on these specific iPads, Cate had to negotiate for some of the devices:

> I sent down my class iPads [to the library] because I have six. [The other class] was just doing research, so I sent her my six so that we could get enough of the other ones for my class because [the library iPads] had the app that we needed. It's a lot of shuffling stuff around sometimes. (Interview, March 15, 2018)

This example of Cate switching devices with the librarian and another teacher spoke to the limited resources available in the school despite the recent upgrades to the devices.

4.5 Chapter Summary

In this chapter I discuss the themes from my data analysis that informed the findings for my first research question. The themes included: 1) meeting Theo's learning needs; 2) pedagogical knowledge and perceptions about multimodality; 3) implementation of multimodal meaning-making practices; and 4) barriers of implementation. These themes were generated by combining categories after intensive coding as detailed in Chapter 3.

I began this chapter with a summary of Theo's learning needs and how Cate saw multimodality as a way to meet his needs. She recognized that Theo needed different ways to communicate his thinking and felt it was a priority to integrate multimodality into her

instruction, especially because he struggled academically across all subject areas. She also discussed her beliefs about LD as being difficulties with language; however, she pointed out that some of Theo's issues were also exacerbated by the lack of intervention services offered to him by the school district. Without the proper support, Cate felt Theo was unable to show "his best self" to his peers, which affected his ability to create more friendships in her class. Cate noted that with all these difficult circumstances, it was important to get to know Theo as a learner and help him utilize the resources in her classroom in a way that has a meaningful impact on his academic work and his life.

In the next section, I discussed Cate's pedagogical knowledge and perceptions about multimodality as well as how she structured her literacy instruction time to provide more context about her views about literacy. Cate understood multimodality as involving student interest and choice, valuing students' identity, and giving up a sense of control so that her students could experiment with different modes. Student interest and choice was particularly important to Cate because she wanted Theo to be able to speak to the topics that he enjoyed as well as engage in multimodal meaning-making practices with his peers that highlighted his understanding of their shared academic work. However, as Cate allowed Theo and his peers to explore different meaning-making practices, she also learned to give up some of her teaching control. She recognized that the students worked at their own pace and she needed enough flexibility to allow them to work through their ideas and their uses of a variety of modes. In the same section, I also shared an overview of how Cate structured her literacy instruction time. It was important to provide this context because Cate often rotated between whole-class, small-group, and individual instruction with Theo. Cate used a literacy program called Daily 5, which emphasized the importance of student choice and individuality while

strengthening reading, writing, and comprehension. I considered Daily 5 shared professional knowledge between Cate and her colleagues because she noted that many teachers in her district used this program. However, with the revised provincial curriculum offering her more flexibility and space to explore multimodal materials, Cate shifted from traditional language-based instruction alone to instruction featuring a wide range of tools and content to address the diverse learning needs of Theo and his peers.

I described Cate's implementation of multimodal meaning-making practices as well as some of the activities that took place during my time in her classroom. During whole-class instruction, Cate was unable to spend a significant amount of time with Theo. However, Cate explained that she tried to integrate a number of strategies to tend to Theo's learning and socioemotional needs including teaching with multimodal texts, building a classroom community, and experimenting with different modes. Multimodal texts were a regular feature in Cate's instruction as she often planned activities around a number of stories and expository texts, such as Scholastic articles, YouTube videos, the Discovery Education Techbook, and a variety of websites. The multimodal texts served as focal points for provoking discussions with the students and delivering much needed background information for the content area topics (e.g., social studies and science).

With the different multimodal texts and work with modes, it was of utmost importance to Cate that she established a strong community that valued diversity and different ways of learning. She noted that Theo was always looking for a community to belong to but that he experienced some social difficulties despite his affable nature. Theo was also aware of his challenges, which was why Cate felt it was important that the class learn to experiment with different multimodal materials together so that they could reflect on

their strengths as a community and as individuals. She also regularly engaged her students in discussions about their background knowledge and understanding of content in order to help them listen to each other's perspectives and to offer Theo other ways of gathering and expressing his own knowledge. Cate additionally included weekly visits to Peabody Park across the street from the school so that her students could explore their neighborhood while also building shared experiences that could contribute to their language learning in the classroom. Theo was particularly drawn to the park because he enjoyed being outside and learning more about the space with his peers. Not only was the strengthening of student friendships important, but also the building of relationships with those outside the classroom as Cate modelled learning from guests by collaborating with school district personnel and delving further into topics about community and identity.

Small-group instruction with Theo often revolved around reading and viewing multimodal texts, which were challenging for Theo because of his difficulties with print as well as his ability to remain focused on a text long enough to gather information when he read alone. Theo gravitated toward book-club groups because he was able to participate in discussion and share his ideas verbally. During these group meetings, Cate reinforced content that was taught during whole-class instruction. Although she was able to spend more time with Theo during small-group instruction, she was also aware that he lost track of ideas easily as his peers engaged in discussion. It was important for Cate to keep Theo on task by helping him to take notes and reiterating main ideas for him to remember. Cate admitted that it was difficult to engage in these group meetings because there were so many different needs in her classroom. As a result, Theo was often grouped with English-language learners who were also developing their comprehension of academic texts and language. Cate noted that

some of the difficulty working with Theo and his peers with diverse learning needs was not just in their language or ability differences but also in their management of a variety of materials for inquiry projects. This necessitated Cate reviewing materials during small-group instruction when the expectation was that students would view resources in their own time.

Individualized instruction with Theo was often print-centric with some technology use as a means of scaffolding his understanding. Because Theo often lost sight of Cate's criteria for his assignments, Cate spent much of her time checking in on him to make sure he was not distracted or confused. She realized that working with multimodal materials helped Theo to organize his thinking; however, she used paper-and-pencil activities to help him map out his ideas before using any form of technology. Although Cate was concerned that technology was a distraction for Theo, she also recognized there were benefits to using them during individual instruction. For example, when Theo was unable to generate ideas for his activist art project, Cate showed him music videos to activate his interest. She also selected Bloxels to be one of the primary content-creation applications in her classroom because there were tactile pieces that slowed down his thinking before he used the application.

Although Cate acknowledged that technology was part of her literacy practices and her instruction with Theo, she also noted some barriers to using them effectively. Many of these issues were glitches in the devices or applications that prevented Cate and her students from using them productively, which then distracted Theo even more. More importantly, Cate noted that creating a classroom space that was open to experimenting with multimodal materials meant that Theo was often left to work in a noisy and crowded space. She termed this a "giant disaster zone," which often resulted in Theo having to work with noise-cancelling headphones, move to a hallway space, or find an unoccupied corner of the room in

which to work. In my next chapter, I explore Theo's engagement with multimodal meaning-making practices in the classroom and talk more about his knowledge and interest in working with a variety of modes and materials.

Chapter 5: Theo's Engagement with Multimodal Meaning-Making Practices

This chapter presents the findings for my second research question: How does the student with learning disabilities engage with meaning-making practices during literacy instruction in the classroom? In this chapter I focus more on Theo's responses to Cate's instruction as the multimodal event, which helped me to better understand his multimodal practices (e.g., his knowledge about modal affordances). Data about Theo's multimodal meaning-making practices was collected through interviews, field notes, and photo documentation as I focused on what Theo was doing during Cate's instruction and his understanding of his multimodal meaning-making practices. Because of the brief time I had with Theo during interviews (no more than 20 minutes per month as requested by the school district), I relied heavily on my observations and informal talks with Theo recorded in my field notes and photo documentation to gather information about Theo's multimodal meaning-making practices. I explore five themes in this chapter:

- Theo as a learner
- Demonstrating communicative competence with multimodal texts in print
- Meaning-making practices with multimodal texts beyond print
- Transmediation and affordances with creating multimodal texts
- Barrier to productivity: Technology as a distraction

Similar to Chapter 4, some of the themes are further explicated through a discussion of sub-themes.

In the first section, I describe Theo as a learner, including his interests and his family as well as Cate's goals for Theo as she implemented multimodal meaning-making practices. In the next section, I discuss the communicative competences with print-based practices that

Theo needed to demonstrate his understanding of multimodal texts during whole-class instruction. The third section addresses Theo's meaning-making practices with multimodal texts beyond print where I noted that although he experienced difficulties making sense of the texts in group contexts, he was able to navigate the texts during independent work. Having observed many multimodal projects over the course of the study, I describe Theo's practices of transmediation in the fourth section and his understanding of modal affordances. This section also discusses the ways Theo demonstrated competency in his multimodal meaning-making practices but was met with resistance in the classroom. I also describe Cate's interpretations of Theo's transmediative practices as she assessed his creations of multimodal texts in this section. Despite the resistance to Theo's practices, he used multimodality as a way to enter the classroom community and interact with his peers and teachers by using his work to facilitate conversations. Finally, I discuss how Cate saw technology as a form of distraction for Theo (as opposed to disruption in the previous chapter), which became a perceived barrier to productivity.

Similar to Chapter 4, I relate the findings in this chapter to the theoretical model about classroom literacy practices in Chapter 2. In Figure 3.4., I noted that the practices of students with LD are shaped by their literacy difficulties, sense of community (in the classroom, at home, or elsewhere), knowledge about meaning-making (e.g., modal affordances, technology, etc.), and their sense of self as a learner (how they perceive their learning). Each of these components affect how their participation in the classroom literacy practices with their peers. Students' practices are also affected by teacher-student interactions, which contribute to their work with multimodality.

5.1 Theo as a Learner

In the previous chapter, I highlighted Theo's learning needs from Cate's point of view as well as some of my observations of his engagement with multimodal meaning-making practices. In this section, I focus more on Theo as an individual with his own interests. When observations with Theo began on March 15, 2018, I noted in my field notes that he was an easy-going and friendly student who was excited to work with another adult (me) in the classroom. Cate explained to me that Theo always gravitated towards adults because he felt they valued his opinions and experiences (Field notes, March 16, 2018), which also spoke to his sense of community in the school as noted in Figure 3.4.

Although I was not necessarily collecting data about Theo's home literacy practices, Cate provided me some information about his family life to give me some context (Field notes, March 8, 2018). I referred to this as Theo's sense of community in Figure 3.4. As I mentioned in Chapter 4, Theo had been at Knoll Elementary School since second grade. He also had an older brother in the school who was a year ahead of him in Grade 6. Theo's mother and I interacted very little because of her busy work schedule. I only ran into her once at the school during the duration of the study. However, I sent her a selection of photos that I collected of Theo's day through Workspace (UBC's cloud storage) to give her an idea of his classroom life. I also asked for her approval of the photos before analysis and gave her the option of removing photos she did not want to be part of the study. Because of the photos, we were able to maintain monthly contact with each other through emails.

It was clear at the start of the study that Theo thoroughly enjoyed using technology. Cate mentioned to me that sometimes it was difficult to allow Theo too much time on a device because he would immediately focus on the visual aspects without paying attention to

her instruction. Cate further explained that Theo's mother told her there was a "tech ban in his house" because Theo was getting "too worked up" engaging with the technology (Interview, June 4, 2018). Theo told me he liked being on computers because he could play games, but his computer at home was a "really old one, [and] we can't find the battery [to the computer]" (Interview, April 10, 2018). Cate observed that the restricted access to technology at home further fueled Theo's interest in working with devices in the classroom. She pointed out that Theo was a quick learner when it came to technology as he was able to apply his previous experience with video games to learning how to use the Bloxel kits to create stories with little help from her (Field notes, April 16, 2018). I quickly noted that Theo's knowledge about meaning-making had strong ties to his interest in technology at home and at school.

During my initial interview with Theo on April 10, 2018, I got to know more of his interests. At the time of the study, he was on a city-wide youth soccer team and his grandfather often accompanied him to his games. He added that he also liked to run around the school and play tag with his friends when Cate allowed them time to go outside and take a break. I also tried to understand Theo's preferences for literacy-related activities, especially during Daily 5, which helped me understand his sense of self as a learner in my model (Figure 3.4). He told me that he liked the vocabulary development activities (Word Work) as well as Bloxels, which Cate confirmed to me during her March interview. As I mentioned in the previous chapter, when we talked about the activist art unit, Theo told me he liked art but he was a "horrible drawer," which was why he preferred coloring activities at home and in school (Interview, April 10, 2018). He also liked to build structures and told me about the time he finished a volcano at home that even erupted with fake lava everywhere. In the next

interview I conducted with Theo, we spoke a bit more about the multimodal texts that Cate used in the activist art unit. When I asked about her use of the Scholastic articles, he said he only "kinda liked" reading them because he did not like "reading history and true stuff" (Interview, May 24, 2018). I asked him what he liked to read and he answered comic books, graphic novels, and texts about animals because his father has pet tarantulas, scorpions, and praying mantises as well as a Siamese cat named Peanut at home. From my first two interviews with Theo, I gathered that he had a sense of his struggles in the classroom as he sometimes avoided directly answering my questions about his academic work and Cate's instruction. He often used "kinda" as his only response to questions about activist art and I needed to ask for more details, but he really wanted to speak more about his personal experiences and practices. I noted in my post-interview notes that Theo's face lit up in excitement when he talked about his father's pets (Field notes, May 24, 2018). From Theo's interview transcripts, I found it difficult to pinpoint exactly how Theo felt about himself as a learner in the classroom, but I noted that he felt the most confident talking about his literacy practices outside of school and alluded to some difficulties during Cate's literacy instruction. His knowledge about meaning-making was also tied to his hands-on work, such as constructing the volcano.

When I asked Cate about Theo's learning in the classroom, she admitted that in hindsight, she struggled quite a bit trying to figure out how to support his needs. She told me "there was a lot of give-up[-and-]step-away-from-it"-type behaviors from Theo resulting from a perceived lack of confidence. It was a "very practiced process for him" to opt out of an activity (Interview, August 15, 2018). As such, her goal for Theo was to help him build up his confidence, as I talked about in the previous chapter, as well as to help him gain a sense

of accomplishment in his learning. Throughout my observations, Cate and I talked about her efforts to reduce Theo's avoidance tendencies and find ways for him to share his understanding as well as complete projects. In my initial interview with Theo, I wrote in my notes that Theo was happier talking about projects he managed to finish on his own at home such as his coloring Spider Man poster and writing a long story out on paper (Field notes, April 10, 2018). Consequently, it was important to Cate that her implementation of multimodal meaning-making practices contributed positively to Theo's socioemotional development. At the end of the year and the study, Cate reflected on Theo's progress and noted that he was able to "build up some stamina, some problem-solving [skills], some confidence in himself so that he could push through [his] challenges" (Interview, August 15, 2018).

5.2 Demonstrating "Communicative Competence" with Multimodal Texts in Print

I borrowed the term "communicative competence" from Saville-Troike's (2008) *Ethnography of Communication* to analyze Cate's instruction with multimodal texts and her expectations of Theo and his peers during her instruction. Communicative competence is defined as speech communities that have their own set of social and communicative rules and they are "reflected not only in which segment of their linguistic knowledge they select, but which interaction skills they utilize, and which aspects of their cultural knowledge they activate" (Saville-Troike, 2008, p. 51). I extended communicative competence to Cate's instruction of multimodal texts because in order for Theo to participate in this particular speech community of the class during her instruction (the multimodal event being Cate teaching about content in the multimodal texts), he needed the language skills, the interaction with peers, and background knowledge about the topic. Cate often summarized and reviewed

key information from the texts through spoken and written modes to scaffold the students' understanding as per the guidelines of the Ministry of Education, who recommended "a variety of comprehension strategies before, during, and after reading, listening, or viewing to guide inquiry and deepen understanding of text" (p. 21). Figures 5.1 and 5.2 are examples of how Cate delivered content and summarized multimodal texts.

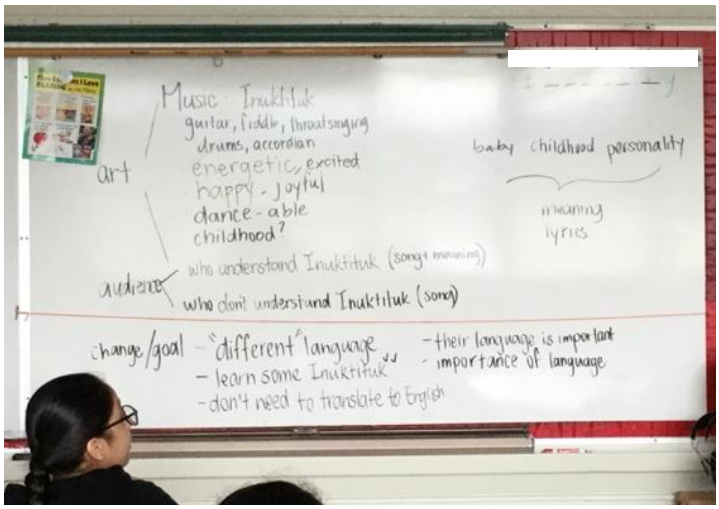


Figure 5.1 Cate's written notes about The Jerry Cans' music video during activist art.

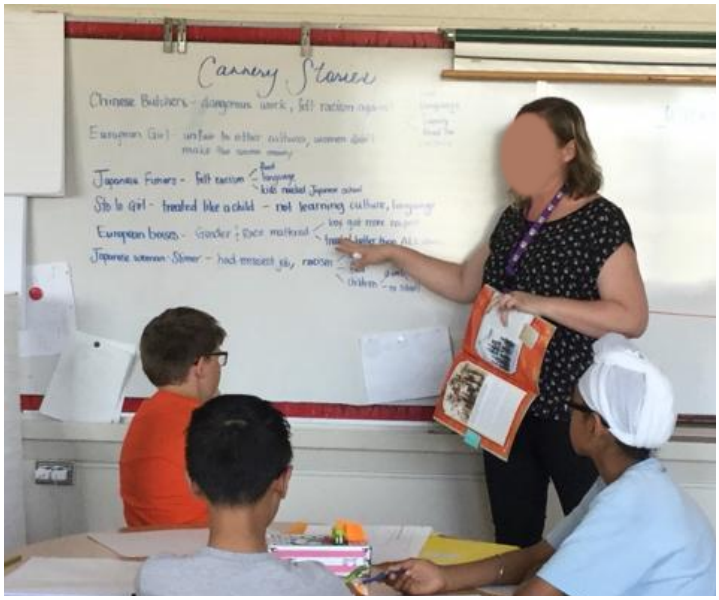


Figure 5.2 Cate verbally explaining the article about immigration and the canneries in BC while writing on the board.

The other reason why I used communicative competence to frame this aspect of Cate's instruction was because of the heavy reliance on print and speech to review the content of the multimodal texts. It was during these print-centric whole-class activities that Theo experienced the most trouble following Cate's instruction and subsequently, he was still developing the communicative competence needed to participate in these whole-class activities. Theo often experienced difficulties gathering information from speech during whole-class instruction as I mentioned in Chapter 4 with Cate's assessment of Theo's learning and in my observations of his work. However, in order to demonstrate his communicative competence with multimodal texts, he was also asked by Cate to represent his understanding in print as well. She had the expectation that Theo would respond to multimodal texts in writing, whether on paper or on a device. At the beginning of the study, Theo was working on the picture book, *White Water*, and he was expected to complete a series of worksheets using the focal text. However, it appeared that Theo was avoiding his work because of the writing component, as noted in my field notes from April 27, 2018:

> Theo is trying to find context clues for keywords in *White Water* as part of his Novel Approach work for the day. However, he yawns a number of times and is slightly slouched over as he flips through the pages in the book a bit listlessly. The directions on the worksheet ask him to choose a page he wants to work on, but he is having difficulty finding a page to stop on.

Although there were images in the picture book to support his comprehension, it was a complicated story with dream sequences and imaginary details. The images depicted metaphorical information that, as I noted in my field notes from April 27, 2018, Theo struggled to understand despite his comprehension of the literal details in the print-based

information (e.g., character names, descriptions about the setting, and conversations between characters). In the *White Water* reading activity, Theo had to differentiate between printed words that were considered to be keywords and printed words that were context clues, which proved to be difficult for him and further prevented him from writing his responses down in the worksheet. Instead, he flipped through the pages of the book, which also made it look like he was searching for information, to mask his difficulties with the keywords and the context clues. Compared to these individual reading activities, Theo was unable to hide or mask his difficulties during small group work the same way he could during his independent work or even during whole-class instruction when other students recorded ideas or spoke for him. As Cate worked with Theo in a small group context, she noted that, since Theo struggled to piece information together, conversations held during book groups about the focal text were sometimes difficult for Theo (Interview, May 3, 2018) even though as I noted in my observations in the previous chapter that he was often excited to meet with his group. During group work on the book *White Water*, Theo was able to add to the conversation in a meaningful way about injustice and prejudice; however, he needed Cate to scaffold his understanding and facilitate the discussions to help him clarify his thoughts.

I noticed in my content analysis of the photos during guided instruction and my field notes that there was a pattern of Cate scribing for Theo when she worked with him in small groups and one-to-one instruction. I saw Cate scribing for Theo as affecting his sense of self as a learner because this was a practice she rarely did for other students in his reading group. The scribing was meant to help him organize his thoughts, but it also meant Theo had to think on the spot and work through some challenging questions asked by Cate. There were also times when working in these small groups exhausted him. For example, when Theo and

his group met to talk about their chapter book, *How to Save Your Tail,* during book club, I wrote in my field notes from June 1, 2018, that Theo's attention began to wane despite his initial excitement about reading a chapter book for the first time:

> Cate check[ed] in with the group and [told] them to move on to a new topic of discussion. She [told] them they need[ed] a new goal and to read up to page 43 by Monday. Most of the students mark[ed] their pages and update[d] their ideas on their charts. Leah (the EA) [was] sitting with Abby, but she [had] to focus Theo's attention to write down his ideas and ask[ed] him to reread Chapter 2 to add to his notes because they [were] mostly blank. He [put] his head down on the desk with his chin on his papers as his back [was] slouched over. Instead of listening to Leah, Theo play[ed] with pencil lead and then decide[d] to switch to writing with a pen.

When Theo worked with print-heavy texts like the Scholastic articles, picture books, and novels, he did not have other modes to scaffold his understanding like in videos or in music pieces. When he felt challenged or frustrated with the texts, Theo was unsure of how to become more motivated to start his writing without other modes to help him piece key information together like sound bites. I noted in my field notes on May 2, 2018 that Cate recorded the group's discussion so that Theo and his peers could use the recording to help them remember information "if they got stuck" in writing their paragraph about why Michael, the main character from *White Water*, was a brave boy for standing up against racist laws. However, when Theo went to retrieve the iPad for the recording the following day, Cate promptly told him to put it back:

> Theo knows he needs to work on the *White Water* paragraph during Daily 5 and got up to get the correct iPad with the group recording. Cate quickly noticed him

shooting up from his seat to quickly find the iPad and tells him that it's only for when he gets stuck and he hasn't even tried to write yet so it's just him getting the iPad for the sake of getting it. Theo doesn't really understand why he can't have the device because he does feel stuck but he puts the iPad back into the closet (Field notes, May 3, 2018).

Cate later came to Theo and his reading group (they were sitting together to write their paragraphs) and talked to Theo about his ideas about Michael. She also helped him write down the sequence of his ideas to organize his thoughts. Eventually, Theo was able to complete his paragraph without the help of the recording and he did not attempt to retrieve the iPad again. From this experience, I found it a little confusing to gauge when was considered an appropriate time for Theo to utilize devices to support his learning and when it was considered to be detrimental to his work. In my photos, I noticed that whenever Theo was required to respond to his reading in print such as the paragraph writing, he was often limited to having other print to support his ideas (notes on Post-Its or Cate's scribing), rather than the multiple entry points that Cate spoke of in her initial interview.

Theo's perspective of writing stories by hand, as he explained when I spoke with him, was that writing "takes a long time—like, very long" (Interview, April 10, 2018). Theo avoided talking about his written work, choosing to discuss his interests in other modes instead, such as coloring his drawings, working on devices, or doing hands-on projects at home. Theo was also self-conscious about his written composition work in class and, when asked about his writing, he assumed his ideas were wrong. He was quick to erase his writing and start over again, and, as I wrote in my field notes from April 24, 2018, this often resulted in him feeling stuck about his ideas and losing valuable class time to complete his Daily 5

activities. Because written work was often paired with reading, Theo tried to find ways to work around doing both, as noted in my observations from my field notes from April 23, 2018:

> After lunch, the second half of Daily 5 [began], and Theo move[d] to the Rainbow Table to work on the article about A Tribe Called Red. He spen[t] some time adjusting the writing on his Post-It and seem[ed] to be having a hard time focusing his attention on the article. He [told] me he doesn't want to read the article because "it'll take too long to read it, and no one will read it anyway."

Despite his reluctance to write, Theo opted to use writing as a way to speed up his work if he perceived another mode as taking too long to use. As mentioned in Chapter 4, Theo's class would occasionally go on outings to Peabody Park. During these outings, Theo would need to take note of his observations, and, when given a choice between different modes, Theo would often choose to write keywords down in a list rather than draw or sketch his observations. However, as I noted in my field notes from April 20, 2018, after writing his list, Theo would quickly return to taking photographs on the iPad and talking to his group about what was observed in the park.

5.3 Meaning-Making Practices with Multimodal Texts Beyond Print

As I mentioned in Chapter 4, Cate often used multimodal texts as a way to introduce topics, stimulate student interest, and facilitate discussions. She often paired the viewing of multimodal texts with small-group and whole-class discussions to reinforce the students' understanding of what they read, watched, and heard. Her rationale behind using a variety of texts was to address the diverse needs of her class as well as to help Theo scaffold some of his understanding so he could participate in the discussions. However, I found that Theo's

literacy difficulties were, at times, magnified during whole-class instruction, mostly because of his struggles processing information from multimodal texts and communicating his understanding with his peers. His work seemed more focused during small-group and individual work with the texts. In this section, I talk about Theo's engagement with multimodal texts during whole-class instruction, small-group/partner activities, and independent work. I address some of Theo's knowledge about meaning-making (as noted in Figure 3.4) during his work with multimodal texts.

5.3.1 Difficulties with Sense-Making in Group Contexts

In Chapter 4, I talked about Cate's practices with multimodal texts, including her frequent use of expository texts during whole-class instruction. Cate saw these texts as providing Theo with "multiple entry points" into the content area topic (Interview, May 3, 2018), usually social studies and science, and she hoped that Theo would gather bits of information to help him participate in the classroom activities with his peers. She recognized that Theo would struggle during whole-class instruction, so it was important that she led frequent discussions with the class and in small groups to help scaffold Theo's understanding of the content.

In my observations, I noticed that Theo had difficulties grasping some of the concepts and themes that Cate focused on even if they had been studying the topic for weeks. I saw this as difficulties with making sense of the texts as a group. In order to be an active participant in whole-class activities with multimodal texts, Theo had to discuss comprehension questions with peers, view the multimodal text, listen to Cate, draw key pieces of information from the text and from previous activities, and focus on the information that Cate directed their attention to as part of her teaching objectives. As such,

the communicative competence I wrote about in the previous section was also applied to non-print activities, which affected Theo's participation in the classroom. For example, during my first observation, Cate showed a short-animated film about an Inuit hunter seeing a European explorer for the first time. As I noted in my field notes from March 8, 2018, Theo seemed drawn to the animation and the whimsical nature of the movie as he laughed along the comedic parts. However, it became clear throughout the study that he still grappled with discussing and understanding some of the topics (e.g., land ownership, civil rights, and push-and-pull factors of immigration). Between March and May, Cate taught about immigration, which was studied through multiple perspectives using a variety of texts such as articles from Scholastic, animated videos, and podcasts. The first perspective was the reaction of Aboriginal peoples to the arrival of European settlers to Canada. The second regarded the ongoing refugee crisis during the activist art unit. The third perspective focused on the arrival of people from all over the world to Canada, looking for opportunities and financial stability, which culminated in a project about the canneries in BC after a field trip to a local fishing port. Although Cate meant for these different perspectives and multimodal texts to contribute to a greater understanding of immigration, Theo struggled to remember what immigration meant and needed a peer to remind him that the term meant people moving from one country to another, as noted in a field note from May 3, 2018. Cate informed me that, while other students in the class had a recent immigration story, Theo did not, and he was still trying to understand the concept of push-and-pull factors that influence or force people to move from one country to another (Interview, April 11, 2018).

During some of the multimodal text viewings with the whole class, Theo looked withdrawn and admitted that he was not always sure of Cate's intention for using some of the

multimodal texts during her instruction (Interview, May 24, 2018). In my content analysis of photos of the whole-class activities with expository multimodal texts, I noticed that his facial expressions and body language frequently conveyed that he was distracted, confused, and even overwhelmed by the text as he covered his face with his hands or slouched over in his seat. For example, although Theo responded positively to the animated film about the Inuit explorer, he seemed uncertain about multimodal texts that conveyed more serious information, such as during the activist art unit with Ai Weiwei's artwork. Figure 5.3 shows and describes how Theo responded to listening to a podcast as an example of his reaction to texts he had difficulty understanding. Because Theo's face is blurred out here, I included field notes from April 11, 2018 to capture his response to the multimodal text during that observation:

> This podcast from *The Guardian* features Ai Weiwei talking about his backpack art in response to the earthquake in Sichuan, China, that demolished a school and killed many children. The podcast features a cover photo of Ai Weiwei's backpack art, and the rest of the information is presented in spoken form. Cate has to pause the podcast periodically to explain some of the vocabulary and the difficult concepts (government and the lack of transparent communication to citizens). Theo seems to be listening as he faces Cate and the projector, but he is also fidgeting a bit in his seat and occasionally stares at the blank piece of paper in front of him. Sometimes, his face looks a little pinched or strained as if he was worried or dazed. After the podcast, I checked in with his group, and they said they weren't entirely sure what they were listening to.

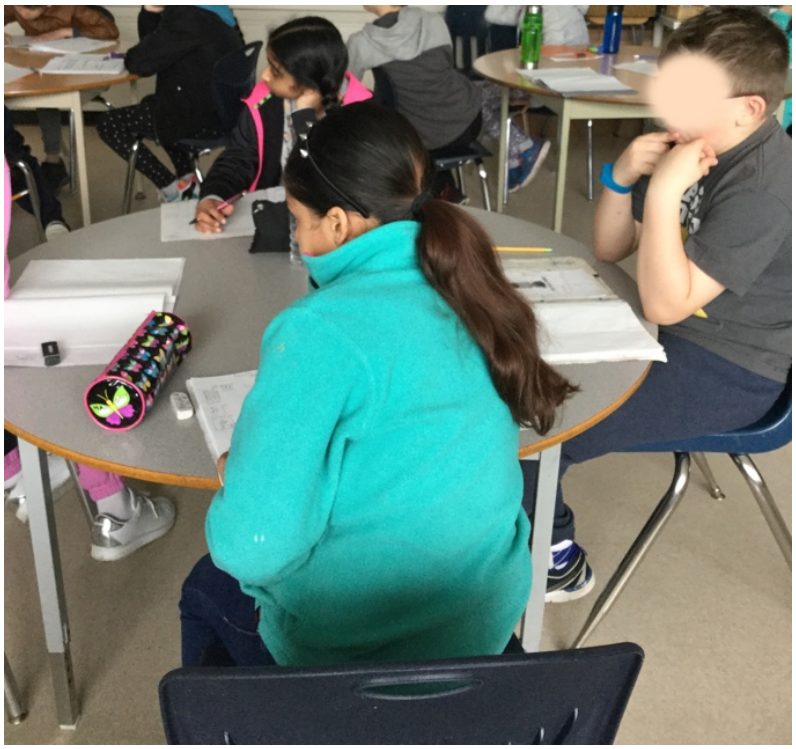


Figure 5.3 Theo (right) listened to a podcast and seemed unsure of what to write as part of his notes (duotang of paper in front of him).

When Cate asked the students to discuss the podcast and share their connections to the text, Theo responded that the victims of the earthquake must have been screaming when the building came down. However, I noted in my field notes from April 11, 2018 that Theo was unable to recall information from the podcast that Cate just shared with the class and he struggled to make connections between the podcast and other texts that he read, heard, or viewed with his classmates. He relied on his classmates to answer Cate's questions, which was in direct contrast to what Cate was saying about Theo gathering pieces of information to help him participate. Although the use of a multimodal text during whole-class instruction allowed Theo to engage in the discussion about the earthquake, he had difficulty synthesizing information from the podcast with previously learned information. Theo had a similar response to a video about children and their efforts toward sustainability during the Earth Action unit. As Cate showed the video of children talking about their efforts to help the

environment, Theo watched with his face cradled in his hands, and he looked a bit sullen as one of his groupmates took notes about the video. Although he was watching the video, he seemed to also be trying to avoid working with his group to write down notes about what he saw or heard. His one observation during this time was "the Earth is special" without any supporting details from the video, and his groupmate attempted to complete his notes for him. As I mentioned in my field notes from May 2, 2018, it looked as though he was struggling to simultaneously watch the video and write down notes during the viewing of the multimodal text.

From my observations of Theo watching multimodal texts with the class, I realized that he was struggling to follow through with the information despite Cate's hope that he was building his background knowledge. Although there were multiple modes displaying information, there was a lot of stimuli for Theo to focus on. When it came time for the groups to write down notes and share ideas with each other, I noted in my field notes from April 11, 2018, that Theo often seemed tired or opted out of the activity by repeating what someone else said. It seemed like the use of multimodal texts during whole-class instruction posed a barrier to Theo's ability to participate in discussions and highlighted Theo's awareness that he struggled with these activities. As I noted earlier in this chapter, Theo told me that he did not like nonfiction texts that focused on "true stuff" (Interview, May 24, 2018). He did not elaborate further and at the time, I understood it to be his reading preference since he indicated he liked reading about animals and also because many expository texts were difficult for him to understand, as Cate pointed out in her initial interview on March 15, 2018). In my content analysis of the photos of multimodal texts that Cate used with Theo and his peers (coded as content area reading and viewing), I noticed that

many of the photos captured Cate mid-speech with Theo looking uncertain or slouching over slightly. Over time, I realized that Theo was trying to listen to Cate as she verbally summarized the texts to bridge some gaps in the students' understanding (including Theo), but he was not making the same connections to the modes that Cate or even his peers were drawing information from. For example, the podcast relied heavily on oral information and there was only a photo of the "backpack art" displayed during the entire interview (see Figure 5.4). There were few visual cues to help him draw connections with some of the complex vocabulary in the interview to him scaffold his understanding.

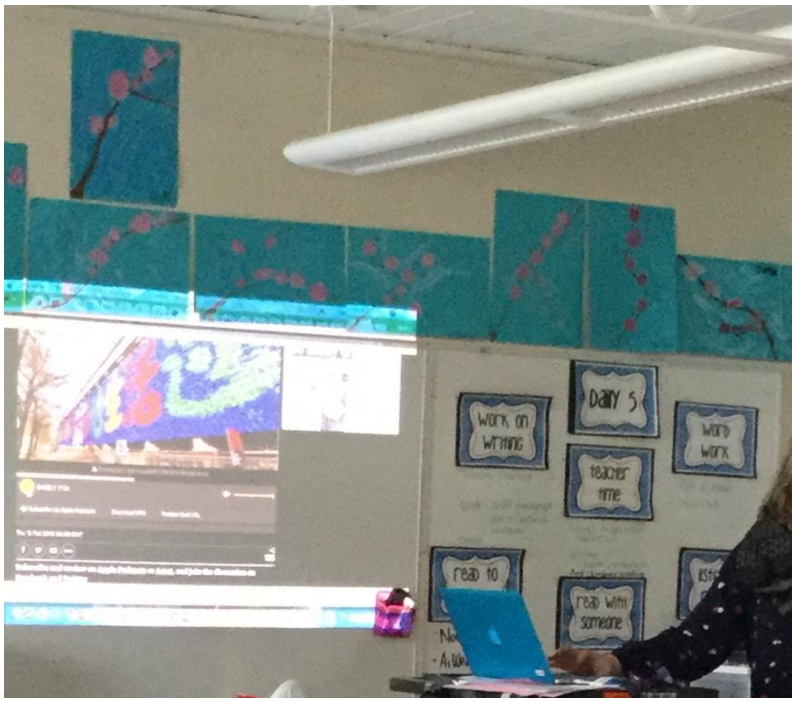


Figure 5.4 Cate displayed the Ai Weiwei podcast with a photo of the "backpack art" in tribute to the lost students from the Sichuan earthquake.

5.3.2 Developing Individual Competency with Multimodal Texts

When Theo worked in small groups or by himself, I was able to observe more of Theo's direct engagement with multimodal texts, which highlighted more positive aspects of his sense of self as a learner and his knowledge about meaning-making. When I talked to

Cate about the benefits of using digital multimodal texts with Theo, especially with the Discovery Education Techbook, she explained that, "I think the asset part comes with the visual part and the engagement piece…. It's not dependent on if I was just going to give him [an] article to work from" (Interview, May 3, 2018) because he could interact with the graphics, video, and audio information. With Theo's interest with the digital texts, he was very excited to work with the Techbook as he noted in his interview on May 28, 2018:

> I like the videos [on Discovery Education] and that's how we learned about the body stuff. When I was doing my science project called [the] muscular system, I really did not know how to draw a real body. [Discovery Education] is helpful because there [are] videos on how the muscular system works and how they don't work.

At the start of the study, I had no prior experience with the Techbook as it was not used during my pilot study with Sam and Cate. The Techbook was formally introduced to the Grade 4/5 students in September 2017 and by the time I started the study in March 2018, Theo was adept at using the platform. In addition to videos and images, the Techbook also had an entire collection of articles and activities about simple machines in forms such as written text, animations, timed reflection/discussion questions, multiple-choice quizzes, long- and short-answer questions, as well as matching activities (e.g., devices to descriptions), as noted in my field notes from May 22, 2018. Cate noted that another benefit to using the Techbook was that these multimodal texts were examples of quality texts that the students were expected to reproduce themselves with the drawings of their machines, their peer discussions to support their ideas, the construction of their own machines, and their narrated self-assessment in the form of a video to be uploaded onto FreshGrade (Interview, August 15, 2018).

Cate did not use the Techbook during whole-class instruction because it was better suited to be viewed on the iPads or MacBooks in small groups or partner settings due to the interactive components of the text. There were a limited number of devices for the students, which was why they frequently shared the tablets while interacting with the Techbook. Cate explained to me that the Techbook was purchased by the Seton School District to support the provincial science curriculum (Interview, March 15, 2018). She added that it has been a great resource because there are multiple forms of media embedded within the same platform whereas last year during the pilot study, I recalled she showed a YouTube video about simple machines to the class.

My first observation of Theo on the Discovery Education Techbook was at the start of the simple machines unit in May. Because it was a science unit, Cate was able to shift away from using the Scholastic articles as the anchor texts, which Theo struggled with during the activist art unit, documented in the previous chapter. Theo was able to partner with his close friend, Abby. Cate observed that Abby and Theo were similar learners who were creative, but they could get "mired in the details of things" if they worked together (Interview, May 3, 2018). Cate pointed out in the same interview that there was a high possibility that they would not be able to finish their work, which was why they rarely worked together as a pair. I noticed that Abby sometimes avoided her work, much like Theo, and her stamina for the activity was low. (It was reported that Abby was constantly exhausted from a lack of sleep.) Abby needed frequent redirection from her educational assistant, Leah, to maintain her focus and keep her on track to finish her work. For this particular activity with the Techbook, Cate instructed the class to watch the introductory set of videos that explained what simple machines were and how to identify them in everyday

objects. Theo and Abby started their work in the busy classroom, with Leah supervising them, before they had to move out to the hallway, where it was quieter, and they could better hear the videos in the Discovery Education Science Techbook. During this collaboration, Theo took charge of logging in, navigating the menu options on the screen, and contributing to discussions when prompted with a guiding question on the screen. As I wrote in my field notes from May 22, 2018:

> Theo and Abby [were] asked by the prompt to discuss simple machines that they use[d] in their daily lives. Theo talk[ed] about getting on his grandpa's bike. Abby remarked that she makes her own fidget spinners. They [were] drawing connections to the wheel and axle as simple machines. After watching the video, Theo realize[d] they need[ed] to mark the video as completed so Cate [would know] they [had] watched the video and finished it. Leah compliment[ed] Theo for being observant and smart for seeing the [completion] notation in the corner of the screen.

They later moved back into the classroom when they needed help figuring out where to access the quiz activities, and they asked another student for help, with Leah mediating this interaction. Despite the slight interruption to their work, Theo remained committed to finishing the Techbook videos and activities about simple machines, and he was able to transition back to his work with Abby easily after locating the quiz activities (see Figures 5.5, 5.6, and 5.7). Eventually, another iPad became available for Abby, and they chose to sit side by side to complete the quizzes together. Despite shuffling back and forth between the spaces and looking for help to troubleshoot the platform, both Theo and Abby were able to remain focused on their work.

Figure 5.5 Theo and Abby watching the simple-machines video together.

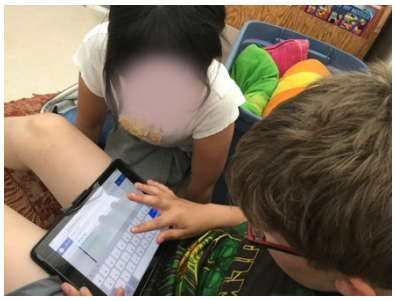


Figure 5.6 Theo logging into the Discovery Education Science Techbook.

Figure 5.7 Theo completing a matching activity in the Discovery.

My field notes and content analysis of the photos indicated that Theo was able to have a productive collaborative partnership with Abby, despite Cate's concerns that he would be distracted by the device and working with a close friend with similar learning difficulties. Theo looked far more confident using the Techbook compared to a non-digital text like the Scholastic articles, which I discuss more in the next section. When I compared my field notes to my content analysis of the photos, I noticed that Theo was following instructions on the screen that focused his attention to the video and the guiding questions. There was also a list of videos that kept track of which ones were viewed by Theo and which ones needed to be viewed, which further helped Theo to stay on track and complete the tasks that Cate asked of him. Initially, I thought that the shared experience with a partner and Leah helped maintain his focus because there was someone else watching him complete his work; however, when he was on the Techbook by himself, he remained focused and interested in his viewing and reading as well (I discuss this more in the next section). Compared to Theo's work with print-based texts that I discussed earlier in this chapter, there was a clear difference in his response with the Discovery Education Techbook. The interactive piece of the digital multimodal texts kept Theo focused and engaged. With the videos, for example,

he was able to talk about his understanding about simple machines whereas during the book groups, he was mostly limited to print as the primary mode of expressing his learning. It appeared that Theo found learning complex information more appealing with digital multimodal texts and devices; it also appeared that he was able to apply his visual-analysis skills more efficiently with the actions in the videos compared to viewing still or passive pictures on paper like in the Scholastic articles. However, as I noted in the previous chapter, Cate felt there were limited options to customize digital multimodal texts to better meet Theo's needs, especially with regard to text-to-speech functions in the Techbook as the function only allowed for whole paragraphs to be read at a time rather than shorter sections. Regardless, it seemed that Theo was working around some of the barriers by accessing information through other modes (e.g., watching the videos demonstrating key concepts about machines).

I found that Theo was far more effective with digital multimodal texts when he worked independently because he had control over the pacing of the information. For example, when Theo watched a music video by A Tribe Called Red, his multiple viewings allowed him to pick out and remember some details. Theo recalled that he liked the video because "it ha[d] tons of music, and I just like[d] it. I liked all the dancing, the beats, and music, and the guys on the skateboard" (Interview, May 24, 2018). His observations conveyed that he had paid attention to the audio and visual modes within this video and was able to formulate opinions about it. More importantly, he was drawing connections between the different modes and his personal interests. However, I also noted that Cate was conflicted about Theo spending time watching the same video over and over again. Although Cate noted in her practices with Theo that he needed multiple viewings of texts or artifacts to

process information (Interview, May 3, 2018), I wrote in my field notes on April 23, 2018, that she stopped Theo from watching the video because he had not completed his other Daily 5 work. When I asked her why she transitioned Theo away from the music video and the laptop, she answered that the multiple viewings were not helping Theo to gather more information; "he was watching it just to watch it again and he wasn't getting any more information out of it" (Field notes, April 23, 2018). Cate then sat with Theo to help him read the article about A Tribe Called Red and asked him to write down questions he had about the reading.

From May to June, Cate used portions of Daily 5 in the morning and the science block in the afternoon to work on simple machines with the students. This unit was an opportunity for Theo to work more extensively with the Discovery Education Science Techbook, which also catered to his proficiency with technology. The articles from the Techbook were increasingly print heavy as the unit progressed, so Theo drew most of his understanding from the videos and the animations depicting how each simple machine worked. Throughout this unit, as noted in my field notes from May 30, 2018, Theo expressed his understanding of simple machines through completing the interactive quiz activities in the Techbook, discussing with a partner what he knew about simple machines and what he had learned about them from the Techbook, and planning his simple machine. Theo had more practice identifying important ideas later on during the same Daily 5 when Cate realized that Theo had not yet read an assigned article in the Techbook; Cate showed him how to highlight key phrases and vocabulary words in the Techbook to help him to understand the content of the article. Cate explained to me in passing that she wanted Theo to "practice identifying key information by using the highlighter" (Field notes, May 30, 2018).

The highlighting function had a few glitches, which resulted in Theo selecting the same phrase or word multiple times before he was able to use the function properly. However, he was still able to maintain his focus on the text despite the glitch whereas, in whole-class instruction with a multimodal text, he may not have successfully maintained such focus.

5.4 Transmediation and Affordances with Creating Multimodal Texts

Although Theo encountered difficulties responding to multimodal texts in print as I detailed at the beginning of this chapter, he was far more interested in working with a variety of materials to express his ideas. In this section, I discuss four major categories that emerged from my data analysis about Theo's multimodal meaning-making practices during his projects that he worked on during the study: 1) the juxtaposition of competence and resistance; 2) modal affordance as a form of creative freedom; 3) difficulties of interpreting and assessing transmediative practices; and 4) entering the classroom community with multimodality. In the context of this study, transmediation is defined as "a process of knowledge transformation," during which the sign maker (Theo, in this case) represents his ideas through a continual review of affordances and limitations of the modes available to him to produce new content (Mills, 2009, p. 58). Siegel (1995) pointed out that students have to interpret the content, develop some understanding of it on their own, and then translate their ideas between language and other multimodal forms of expression. As such, there is rarely a direct correlation between one mode to another, but the creation of a new sign system to express understanding. Throughout the projects, I noted the interactions between Cate and Theo and how they negotiated their individual and collective understanding of Theo's transmediation of his multimodal meaning-making practices.

5.4.1 The Juxtaposition of Competence and Resistance

Over the course of the study, Cate utilized content creation applications, such as Bloxels, GarageBand, and Toontastic as mentioned earlier in this chapter, to engage students in multimodal storytelling. Theo often gravitated to these applications because he enjoyed designing the visuals and listening to music. As I noted in Chapter 4, the first application I observed him working on was Bloxels. My first observation session of Theo in March was also my first time seeing Bloxels in action. My content analysis of the photos included a grouping of Bloxel related activities and one of the apparent trends in that set of data was how colorful the blocks and the application were with yellow, purple, blue, red, orange, green, black, and white amidst a backdrop of the grey desks and the black iPads. I immediately understood from Cate and Theo the appeal of using Bloxels. I found that the interactivity of the application was not well captured in the photos; however, I noted Theo's engagement with the application in my field notes on March 15, 2018:

> Theo is trying out a scene in the story [on Bloxels] to see how it "plays out." His fingers are pressing the control buttons on the screen quickly. He laughs loudly as he plays the game and expertly maneuvers the character up the magenta and orange mountain on a purple backdrop.

When I asked Theo about Bloxels during his initial interview on April 10, 2018, he excitedly told me that, "I love Bloxels! [It is] actually a really cool game. You get to build, you play the real game, and there's a mini laser thing that [makes] sounds."

Despite Cate speaking to the benefits of using content creation applications and Theo demonstrating significant competencies while working with visual and audio modes, there was some resistance to his work and capabilities. In Figure 3.4, I saw this as activities that

limited his participation despite being an active meaning-maker with the applications. When Theo worked with Bloxels at the beginning of the study, Cate explained to me that she liked the application because it also came with tactile materials (a grid and tiles) that helped slow Theo's thinking to help him be more mindful about the story. Cate hesitated to let Theo work with the Bloxels applications at times because when she first introduced the kits,

> [h]e got so churned up about having the device that I had to get him off the device and doing the tactile building part [on the grid with the blocks]. He was just going too high speed, and he wasn't able to settle into what the focus was or what the job was or what he wanted to accomplish. (Field notes, April 10, 2018).

Although the tactile materials addressed Cate's concerns about how quickly he was working on Bloxels, I noted that his work was limited to one scene or one character at a time because the grid did not afford him much space. I noted in my field notes from April 10, 2018 that Theo's competencies were also treated as a limitation in his work as he was quite proud of his ability to create multimodal texts, but he was also restricted in some way with the grid and tiles.

More importantly, he was also demonstrating some of the learning goals that Cate wanted Theo to work on including problem-solving and pushing through a challenge. When Cate checked with Theo and his group on March 16, 2018 about their plans for editing their Bloxels story, I observed the following:

> After Theo finished typing up a call out cloud for the story, he goes back to working on the grid putting tiles together while Angela takes over editing the scene on the iPad. She suggests taking out blocks to make the story less confusing because it was from a peer feedback review when another group tried their game. Theo says they

should take out the lava blocks from a different scene because it posed too much of a challenge for the character to get through the scene because the character has bad eyesight. However, he tells Angela that he wants to add more paint blocks because the character cannot move through the scenes without some sort of pathway. Because he is working with the tiles and not on the iPad, he determines that the only way he'll know is to try it out on the application.

As I noted in the previous chapter, Cate informed me that she recognized Theo enjoyed using Bloxels but he was opting mostly for the visual and engagement or gamification piece of it while he constantly built up the story. This was partly accurate; however, Theo also made it known that he liked the sound effects. When he added the print narrative piece that was mentioned in Chapter 4, "Your the first person exploring the land. Be careful you have bad eyesight!!!," I noted in my field notes on March 16, that he concentrated on ensuring the character development was being fleshed out when the group realized that there was a limited way of designing the character to be more obvious that she had poor eyesight.

Although Theo was clearly able to use Bloxels well, he experienced resistance from his group mates during the collaboration. For example, when Theo worked with Angela and Leslie, I noticed that Angela was more direct about the details that needed to be included in the story while Leslie, an English-language learner, was quieter and contributed to the group efforts by playing the game after the revisions were completed. Theo and Angela often disagreed about taking turns on the iPad. During the initial interview, Theo expressed that he loved Bloxels, and he liked using the iPad, but he did not like working with Angela because

> [s]he usually does everything and doesn't let us do anything. I just let her do her own work, and, the last time we were doing Bloxels, we made a deal that, if she wants to do work and not let us do it, then we won't be in her group anymore, and [we'll] be in someone else's group. Then she said, "Okay, I'll let you do some stuff," because she doesn't want to do stuff by herself. (Interview, April 10, 2018)

Despite having this prior communication with Angela about being fair and taking turns on the iPad, she still took charge of the group effort and often told Theo what details needed to be included in the story during his turn. As I noted in my field notes from March 16, 2018, although Theo disagreed with Angela, he struggled to come up with his own suggestions, which meant Angela's ideas were integrated into the story instead.

For the second Bloxels story, Cate assigned Theo to work with Vincent and Gareth in hopes that their shared interest in video games would result in a smooth partnership since he was not particularly keen on working with Angela and Leslie again because of their dynamics during the first Bloxels project (Field notes, April 13, 2018). During this partnership, I noticed how visual details in the Bloxels application helped Theo to identify information that may have been missing or out of place as well as keep track of how his multimodal compositions were unfolding. Theo did not identify his visual inclinations as an affordance himself, but Cate noted in his work with Ozobots that he was able to keep track of information that needed to be reorganized because all of the visuals were mapped out on paper and on a device. As a result, Theo was able to easily modify his work to better align with Cate's criteria and expectations for the Ozobots project. Similarly, when I observed Theo working with Vincent and Gareth, Theo quickly noticed that the purple portal in their story had been changed to orange by another group that was piloting their game for feedback.

Gareth and Vincent had been focused on finishing the game and creating a conclusion when they went back to look at the portal. They were initially hesitant to respond to Theo's observation, preferring instead to complete their designs first. However, when the boys looked back at the scene with the portal, they were surprised to find that Theo had been right, and they all agreed to change the portal back to its original color. I noted that although Theo had difficulties contributing to the textual components of the story, he contributed key details in the design process and provided feedback on the visuals for his group.

There were other forms of resistance even in the new group. Theo was more buoyant in this new group and was excited to get started on this new story; however, as the group combined their ideas for the characters, settings, and plot, I noted in my field notes from April 16, 2018, that there was a pattern of Vincent taking the device out of Theo's hands to input his own ideas and suggestions as well as adjust details he did not agree with. In many of the photographs taken of this group, Theo was often positioned to the side of Vincent as Theo pointed out details or looked over Vincent's shoulder to see how their story was unfolding, implying that Theo took on a secondary role to Vincent despite Theo's ability to contribute to the group's story with his design ideas and his strong technical proficiency with technology.

In terms of collaborations in the classroom, Cate explained that she believed small-group work helped her students to learn from each other as well as bridge gaps in their understanding, especially when using multimodal texts. When I asked Cate about Theo's work in his groups, she commented that his social difficulties were still a major obstacle for him despite his outgoing personality. She noted that he had not "built a lot of trust in those groups" (Interview, May 3, 2018) and his peers were still learning to work with his

personality and his difficulties. As a result, Cate tried to group Theo with students she felt supported his needs and provided him with "forward momentum" to help keep him on track with his work (Interview, May 3, 2018). However, these collaborations also required Theo to negotiate how much of his contributions were included in the final product. Cate did not assign specific tasks to each student in the group and, as such, it was the students' responsibility to determine what work needed to be done on the story and by whom. Consequently, Theo's role in his groups and his contributions were constantly in flux as his peers without LD tended to direct the group's work.

Another form of resistance was aligning Theo's multimodal meaning-making practices with academic work. I noted early in the study that there was a pattern of switching Theo to print-based activities because Cate felt this would slow down his thinking (Interview, March 15, 2018). For example, Cate asked Theo to plan his final project for the activist art unit in writing first, which resulted in a plan that was vague in details. When I talked to Theo about his poster and tried to help him generate some ideas, he still struggled to brainstorm the visuals he wanted on the poster and the materials he needed to express his message to the school community, as noted in my field notes from April 17, 2018. However, when he decided to use GarageBand instead, I realized it would be difficult for him to plan his song by writing it out on paper.

I noticed a similar occurrence with the cannery story project when he worked on Toontastic and was able to build a story competently. As I noted in the next section, he was very aware of the design options that Toontastic afforded him. However, I wrote in my field notes from June 6, 2018, that Cate was still concerned that Theo was building continuously without looking at her criteria for the story. Theo had a lot of details in his story, but not a lot

of connections made to the content information. Again, Theo's competence with the application also became a limitation. For Cate, despite the sheer amount of effort put into the creation of a multimodal text, missing criteria meant incomplete work. From Theo's perspective, however, the aesthetic of his story was the focus of his work. A result of these two divergent understandings of completed work was that Theo was often asked to stop and reconsider what he was doing, as I noted in the following excerpt from my field notes from June 6, 2018:

> Cate check[ed] in with Theo and [saw] him watching his story over and over again. She notice[d] he [didn't] have any of the "must-have" criteria in his story, and he ha[d]n't looked at the checklist, which [was] written on the board behind him. She [told] him to edit his story and think about factors that push and pull people to a new country. He [had] to go back and write his ideas down on paper. Cate [told] him, "You're nodding, but I'm asking you to share what's the push because people don't leave [a home] if things are good." Theo respond[ed] that maybe his character [was] homeless and [didn't] have any money, so Cate clarified that his character may [have needed] to find work elsewhere. He decide[d] to focus on creating a scene about the businessman leaving Scotland for Canada. Cate seemed satisfied with this and instruct[ed] him to focus on his scene and to write notes for his next steps so that he [could] be clear about the audience feedback and his thinking.

Although Theo was able to articulate some of the factors that were missing in his story during a discussion with Cate, the revision process of his story took too long. As Cate erased some of his notes to rewrite them, Theo put his head down and became more withdrawn during the conference. Eventually, he decided to remove the scenes he had

already completed so that he could better align his story with his notes from his conference with Cate. A week later when he worked on his cannery story again, as I noted in my field notes from June 12, 2018, it was clear that he was basically starting all over again and was trying to reconstruct his missing scenes in a limited amount of time. Unfortunately, he ran out of time and submitted a story that was rushed and partially completed, as noted in my field notes from June 14, 2018. When I briefly spoke with Cate about Theo's work, she mentioned that it was frustrating that he was always having to restart his work because he was always short on time. However, she felt that he had some sense of immigration from the story he submitted because, by then, he had gone on a field trip to a local cannery and experienced a re-enactment of people settling into a new environment and being treated differently (Field note, June 14, 2018).

5.4.2 Creative Freedom and Modal Affordances

At the end of the activist art unit, Cate led the students through a final project in which the students were to create their own art and a message to be shared to the school community as the art pieces were going to be showcased in the school gym like a museum or gallery for teachers, students, and parents to see. In the previous chapter, I mentioned that Cate showed the class a variety of art forms and artists using multimodal texts. Theo gravitated to A Tribe Called Red and The Jerry Cans because he enjoyed their music. As I mentioned earlier, Theo originally intended to create a poster for his activist art project before he switched to creating a song on GarageBand. Cate asked him to plan his new project idea out in writing. The revisions to his plan were once again vague, with the most specific detail being that he might focus on the Inuktitut language, which—as written in my field notes from April 24, 2018—ultimately was not included in the final song. Theo was able to

convey what materials he needed for his song (e.g., an iPad with GarageBand), but, beyond that, there was not much for him to articulate because his mode of choice (i.e., music) did not have a visual component that was easily expressed in written or spoken forms, and he did not have knowledge of musical notation. As seen in Figures 5.8 and 5.9, although Theo's plans looked incomplete in writing, his ability to express his creativity through music kept him focused in a busy environment as his peers were all working on different projects. Despite Cate's insistence that he plan in writing first, Theo did not make the connection between his printed text and his song.

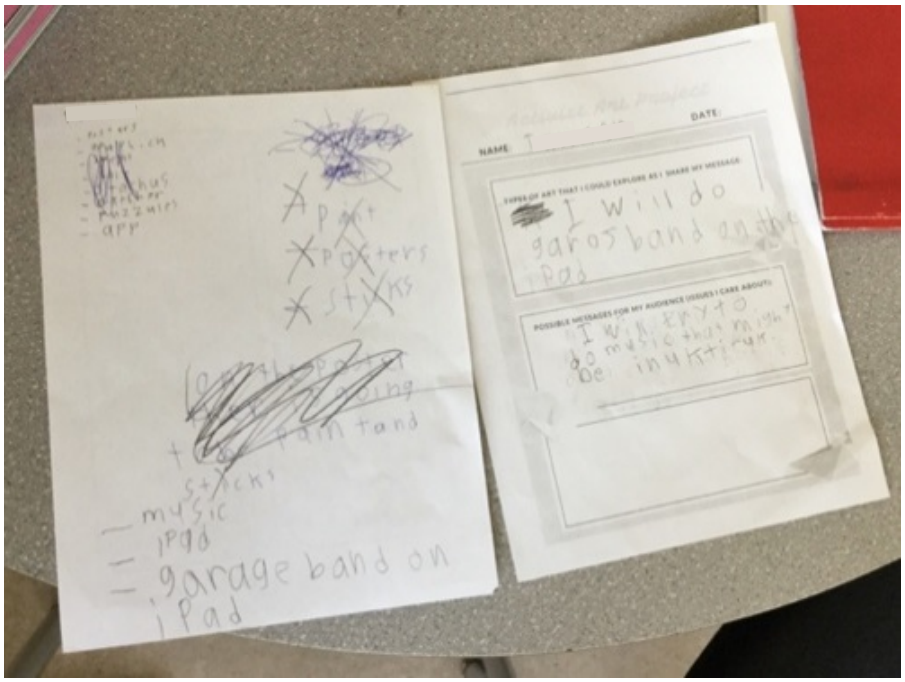


Figure 5.8 Theo's revised written plan for his activist-art project.

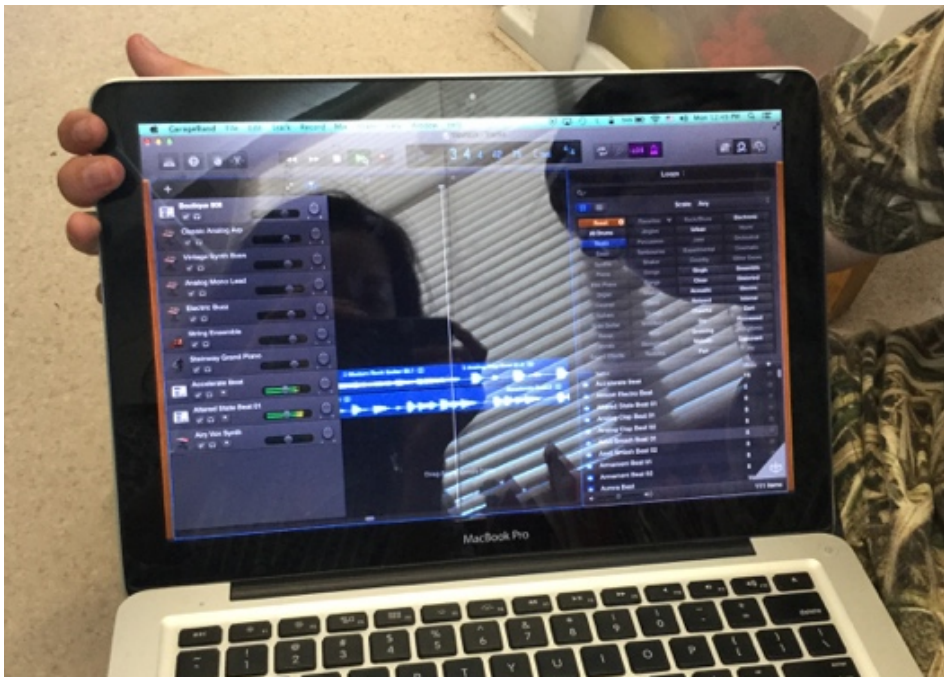


Figure 5.9 Theo showing his work on GarageBand.

Although his proficiency with GarageBand was not part of the assessment, Theo engaged with a platform that allowed him to create a piece of art with a set of specific modes that aligned with the focus of the unit. Furthermore, Cate was open to using GarageBand because she knew Theo would pick an art form that could be completed with technology, which was generally his preference over other modes and materials, as noted in a field note from May 8, 2018. I asked him about his interest in GarageBand, and he explained in greater detail that GarageBand offered him a number of options and musical tools to express himself:

> I get to make music and make beats, and you can make a lot of cool stuff, like rapping and [putting] your words in it if you wanted to, but I just only put beats in it, and it's a pretty good one. I just took all of my imagination of music into the work that I was doing. (Interview, May 24, 2018)

Theo's perspective reminded me of an earlier interview I conducted with him, when he alluded to creative freedom being a modal affordance. He talked about his interest in coloring book activities on paper because "you can do anything that you want" (Interview, April 3, 2018). He went on to explain that he could spend a long time coloring, and he enjoyed integrating many colors into each artwork. When I observed Theo work on his song over a period of weeks, I noted that he was demonstrating his sense of creative freedom through sound. When he let me listen to his song, I noticed that it was a cohesive piece despite integrating a variety of different tones, effects, and beats. The song included some soothing parts as well as some crescendos to maintain my interest as well as give the song some depth. He told me that the message of the song was to comfort children who experienced bullying. He explained to me that he could add a singing voice but he chose not to for his activist art song. More importantly, he was already proud of his song the way it was with the different layers of sound (Field notes, May 7, 2018). To show that the song contained an anti-bullying sentiment, Theo had to write up a piece of paper that explained the song to be put up in the gym for the showcase. When I talked to Theo more about his interest in GarageBand during an interview, he added that he found the instrumental options on the application "super hard to try" and he had yet to learn them (Interview, May 24, 2018). However, because GarageBand incorporated a variety of other musical options, Theo was still able to create a complete song without any instruments by relying on features he knew how to use well. His brief explanation again implied that he was approaching the sound-design options on GarageBand with intent rather than building without a sense of purpose.

When I compared my fields notes of Theo working on GarageBand and my photos, I noticed that he was able to complete his song with little interruption even though the menus

and the text on the application's interface looked complicated and distracting to me. Theo was able to smoothly navigate the tools and options in these menus for a prolonged period of time to complete his song. I noted in my field notes from May 7, 2018, that he also kept track of the number of times he was saving his work to ensure he did not lose any of the material he created, and he was able to work alongside his peers without being sidetracked as well. At the end of the activist-art unit, Cate asked the class to type their message for their art onto FreshGrade. It took Theo a significant amount of time and effort to handwrite his message the week before, during the rush to finish the unit, but, as I wrote in my field notes from May 11, 2018, he was determined to finish typing his message and upload it onto FreshGrade so that he could fully complete his project. I noted in Chapter 4 that Cate had been concerned about the classroom environment being too chaotic and distracting for Theo during literacy work, especially with technology. However, it seemed to me that Theo was able to sustain his attention long enough to view and complete his multimodal texts when he used a device as long as he was clear about the objectives he needed to meet within a limited time.

When I entered the classroom on May 24, 2018, Cate told Theo he should show me his work on Toontastic. The class was finishing up their stories about immigrants in BC working in the canneries. Theo was assigned the character of a businessman opening a cannery, as written in my field notes from May 24, 2018, and his story had to reflect the working life of immigrants in Canada during the early 20th century. As the sole author of this story, Theo had to draw his characters and settings, create multiple scenes to complete a story arc (about four to five scenes for a finished story), choose background music, and record a voice-over narration. Unlike traditional pencil-to-paper written work or even typing on a device, Theo could use Toontastic to see how his story unfolded using the scene

previews. Toontastic allowed Theo to rearrange the order of his scenes and edit the content without losing any work. He could also easily add new information and remove scenes that no longer fit in his story. The countless options for design were actually seen as affordances by Theo, and he recognized that each application contributed to his sense of design differently, which implied that he approached content creation with a sense of purpose. When I asked him about the design options between Toontastic and a similar creation application called Puppet Pals 2, Theo talked about the applications' similarities as well as the differences between their music and visual options.

Lisa: What do you like about Puppet Pals?

Theo: You can make your own puppets and play with them and record it, and it's a pretty good thing.

Lisa: That seems really similar to Toontastic. Do you like both for the same reason? Or how is it different from Toontastic?

Theo: I like [Puppet Pals] because it's different from Toontastic.

Lisa: How is it different?

Theo: You can make your own characters [on Toontastic], but, on Puppet Pals, you can't. You have to take a picture. You have to draw a green line around it to keep it.

Lisa: You like both? Okay. It's just the characters are different?

Theo: Mmmhmm. Just like the Pikachu that I drew [on Toontastic]. Someone said it looked like a monster.

Lisa: What about music? Do you get to pick the music on Puppet Pals the same way you can pick it on Toontastic?

Theo: No; you just get to draw the characters. You can draw monster trucks, cars…

Lisa: So, there's no music?

Theo: Yeah, there is music on Toontastic.

Lisa: I mean on Puppet Pals.

Theo: No.

Lisa: What about when you record speech?

Theo: You can record [speech], but the arms don't move, and the legs don't move. It's just a picture that doesn't move around, and you can make them big or small.

Lisa: So, Toontastic has more options? More choices?

Theo: No, it has less pictures or scenes. Less characters.

Lisa: But you get more choices in music on Toontastic, right?

Theo: Yeah; that's why they're different. So, they both have their own differences.

(Interview, May 24, 2018)

From observing Theo's work on Toontastic and from talking to him about the different applications, it was clear that he understood each tool offered him different ways to design and tell a story. However, in deciding which application fit his needs, Theo had to draw on his familiarity with their options for music, speech, and visuals. Theo's work on Toontastic involved drawing on the screen and I noticed that despite his self-perception that he was not good at art from an interview on April 10, 2018, he said nothing about his artistic abilities on Toontastic. I observed Theo drawing by hand on paper once during the whole-class read-aloud of the novel *Wonder*. Cate asked the students to sketch what they visualized was happening in the story as she read to them. As shown in Figure 5.10, Theo drew some

stick figures of the characters in the book as they were attending a boys camp. The photo was taken in the midst of her read-aloud, during which—as I noted in my field notes from June 1, 2018—Theo opted to draw quickly and sit through the rest of the reading while quietly playing with pieces of a pen cap.

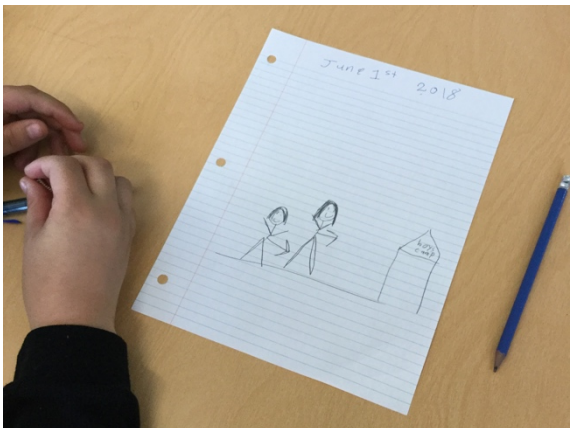


Figure 5.10 Theo's drawing during Cate's read-aloud of Wonder.

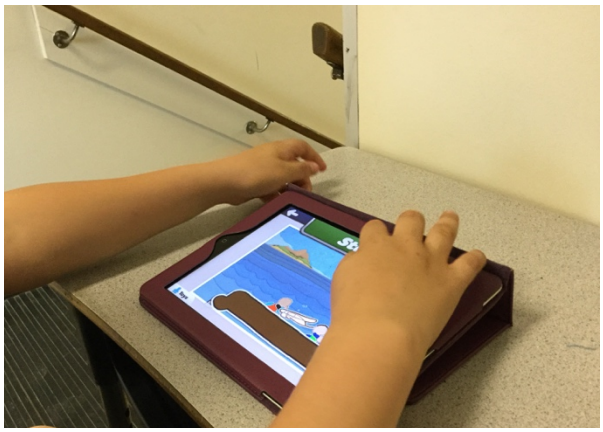


Figure 5.11 Theo arranging the backdrop of a scene in his cannery story on Toontastic.

Although both of these activities required Theo to draw in some way, he was clearly more comfortable working on Toontastic because the options for design (e.g., colors, backgrounds, and pre-drawn objects) masked what he perceived as a lack of drawing skill on his part and enhanced his overall creative ability. When I asked Cate about Theo's work on Toontastic, she pointed out that everyone's work on Toontastic in general looked "rudimentary, which even[ed] out the playing field a little" and made Theo feel less judged about his work (Field notes, May, 24, 2018). On paper, however, he was not able to work around his limitations with pencil drawings. Cate noted his hand-drawn work looked "younger" for a Grade 5 student, and it was clear to her he was still working on his fine motor skills (Field notes, June 1, 2018). Coupled with his difficulties with receptive language as Cate was reading aloud to the class, Theo was essentially having difficulties finding modes that could help him overcome his challenges during this activity with *Wonder*.

5.4.3 Interpreting Theo's Transmediative Practices

As noted throughout Chapters 4 and 5, Cate integrated multimodal projects into her instruction, which also meant that she needed to interpret and assess Theo's multimodal meaning-making practices. For example, during Theo's creation of a song on GarageBand during the activist art unit, she included a written piece in order to help her understand how Theo's song aligned with her teaching objectives for the unit. Without print, I found that Cate and Theo needed to negotiate the meanings behind Theo's multimodal projects. During the simple-machines project, Theo was asked to draw his plans prior to building his project. Cate expected Theo to undergo a specific procedure first. He needed to view the multimodal texts on Discovery Education to inform his planning. Secondly, he needed to complete enough viewings before drawing the plan. Finally, after obtaining approval from Cate about his drawing, he was allowed to proceed to gathering the materials (e.g., cardboard, jars, paper towel rolls, and other recyclable material) and build his chosen simple machine. Theo was very interested in the unit; however, I noted there was some confusion about when Theo was allowed to build his pulley, affecting his meaning-making knowledge, and again, encountering some resistance to his work.

Figure 5.12 Theo listening to the Discovery Education Science Techbook video about pulleys and writing a note on his plan.

Because Theo began his plan too early, he was asked to stop drawing until he finished viewing the multimodal texts, which interrupted his momentum to begin his work. A couple of days later, Theo drew a new plan, which Cate approved. However, the second plan did not include the content that Theo had written down earlier, which explained when it was appropriate for pulleys to be used for lifting heavy objects. According to my field notes from June 1, 2018, the new plan was more specific about the materials that he needed to use during the construction of his pulley while the first plan included a bit of information, he gleaned from the Discovery Education Science Techbook videos about pulleys and weight distribution. Despite this second attempt at planning his pulley, Cate observed that "structurally, it didn't match his prototype in the way that he could draw this, and then it didn't translate in the construction" even though she saw that it functioned like a pulley from the photograph and video that he uploaded onto FreshGrade (Interview, June 27, 2018). However, I noticed throughout Theo's construction of the pulley that he was constantly referring back to his hand-drawn plans, which showed that he was putting effort into aligning his plans with the 3-D model, as I mentioned in my field notes from June 1, 2018. As shown in Figures 5.13 and 5.14, the plan and the structure looked similar in the side-by-side comparison.

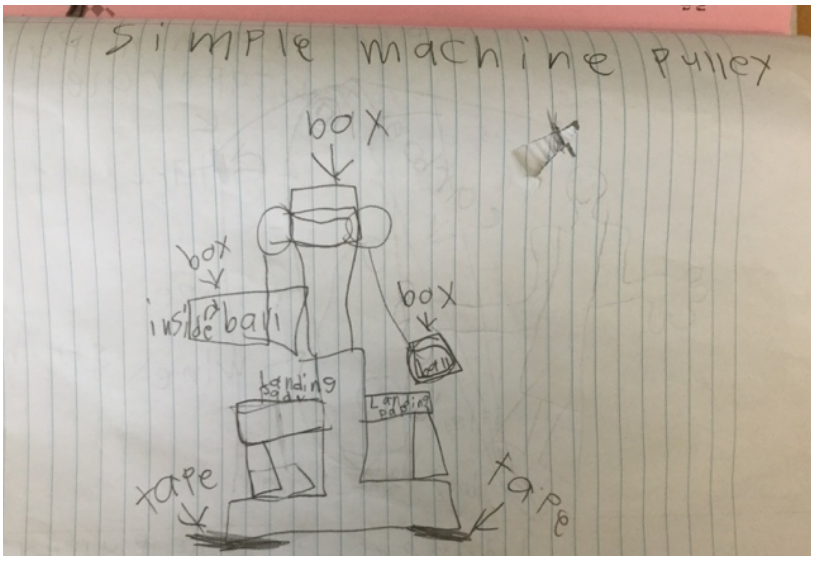


Figure 5.13 Theo's second plan for his pulley.

Figure 5.14 Theo demonstrating how his pulley works.

Cate noted that the final phase of the simple machines unit was to ask groups to combine machines to talk about how simple machines can work together. She noted that because Theo needed so much time with the texts, the planning, and the building, he was unable to join another group. Despite the difficulties that Cate talked about in Theo's

learning, this project showed that he was putting together information from the Discovery Education Techbook to his drawing, which he was able to represent using the recyclable materials. On August 15, 2018, Cate reflected on the simple machines projects and said that compared to the beginning of the school year in September, when Theo's thinking was "just so scattered," she felt that by the time he built his pulley, "he was able to build some strategies and push through and be able to say, 'Okay, I know the function [of the machine], I know the components, I can see the work this machine does' and that's a big deal." However, despite coming to an agreement that Theo's pulley worked "like a pulley," it was still unclear how Cate understood Theo's drawings as not being reflective of the final model he built.

5.4.4 Entering the Class Community with Multimodality

Throughout our time together in the study, it was clear that Theo greatly valued his social connections with the school's teachers and staff as well as with his peers. He had a strong sense of community (Figure 3.4) as Cate said that Theo was "looking for community all the time" (Interview, June 27, 2018). As I explained previously, Cate observed that Theo struggled to make friends due to his social difficulties. In my observations, as noted in my field notes from June 6, 2018, a pattern emerged of his peers wanting to spend less time working with Theo because of their academic differences. Friends who did work well with Theo (e.g., Abby), were, as I noted earlier, sometimes seen by Cate as possible distractions. Thus, Cate was caught between assigning Theo to groups that possibly further alienated him or assigning him to groups with friends who potentially prevented him from completing his work. Despite his social difficulties, when Theo realized he had to move at the end of the year, he lamented that it would be difficult to leave his school because he had made a lot of

friends. In his final interview, he noted that "people in school help me to be nice, helpful, and brave" (Interview, June 27, 2018) and that, by observing people in the school, he had learned to be a more friendly person and a better student. A sense of belonging and community was important to Theo, and this was reflected in his literacy practices in the classroom because such a large part of Cate's instruction involved Theo and his peers working in partnerships or small groups.

Theo often worked at his own pace compared to his peers, and his connections to other texts were deemed by others in his groups to be less important. For example, while one of his groups was working on the essay for *White Water*, Theo talked about how the main character was brave, which he somehow tied to moving to another school, a transition for which bravery was necessary. The rest of the group chimed in and started talking about students who moved to and from their neighborhood. In my field notes for May 3, 2018, I wrote that, eventually, Cynthia, a fellow student, promptly told Theo to stop wasting time so that they could all finish the essay and do other projects. While this may have occurred more frequently in the classroom, outside the classroom, I noticed there were fewer instances of Theo being overruled by his groupmates. For example, as recorded in my field notes from May 30, 2018, during their outings to Peabody Park every group member had a specific role, and Theo was able to transition between taking photos with the iPad and writing notes on the clipboard while his groupmates made observations. These roles were switched around often as everyone had to assume responsibility for a variety of tasks while being out in the park.

As I mentioned earlier in this chapter, Cate observed that Theo was desperate to find and establish community in his class. I noted that, even during his individual work, he tried to engage his peers either through a device or an application. For instance, Cate observed that

Theo volunteered to post feedback on Edmodo—a learning management tool designed to have similar functions as Facebook so that users could upload photos and write comments—because the task gave him access to a device. Because this interface encouraged social activity, Theo naturally gravitated toward Edmodo as part of his shared literacy practice with other students. However, as noted in my field notes from March 15, 2018, because of his somewhat strained relationships with his peers, it was difficult for him to find classmates who were willing to provide him with comments during Daily 5.

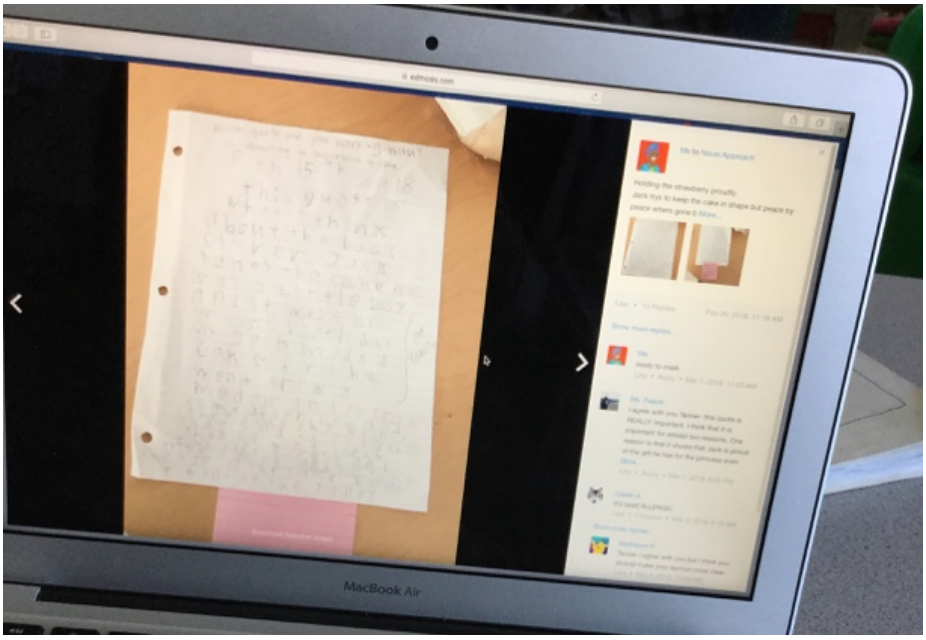


Figure 5.15 Theo's post on EdModo.

Despite this difficulty engaging classmates, Theo continued participating on Edmodo and also sought out feedback in other literacy activities. For example, while outside in Peabody Park, I wrote in my field notes from April 20, 2018, that Theo asked his close friends, Abby and Asher, for some comments, and he also asked Jaclyn, who offered that she liked some of Theo's observations and suggested he include location details and where he found some of the items during his walk.

Theo also enjoyed returning the favor by sharing his work and thoughts with his peers and his teachers. I noted in my field notes from May 8, 2018, that, while working on GarageBand, Theo allowed both Asher—a classmate he considered a friend since they shared a similar interest in games and were often in the same reading group—as well as the therapeutic art teacher—who visited the classroom every week and with whom Theo had developed a strong relationship as he attended the weekly drawing and painting sessions after lunch—to listen to his song through headphones. Although Theo had difficulties giving constructive feedback to his peers as well as implementing comments into his work, Theo utilized peer-assessment opportunities to be more socially engaged with people in the classroom.

Within instances of group work and collaboration, Theo was more confident in his multimodal meaning-making even though he experienced some resistance during some of the assignments. He was able to lead a conversation as well as have ownership over his work. For example, when Michelle, the teacher from Aboriginal Education Services mentioned in the previous chapter, came in with her published textbooks and her sash-weaving activity, Theo felt more confident speaking up and giving her feedback. As noted by Cate before, Michelle acknowledged his thoughts, and Theo felt that he was being heard and that his opinions were respected. He was also very excited about the sash weaving, as I noted in my field notes from May 30, 2018, because it gave him an opportunity to talk more about "his culture" and ask questions about Cree and Métis culture, which Michelle welcomed. I noted that his groupmates did not share his enthusiasm and asked him to stop talking about "his culture" because they found it repetitive and weird. However, Theo defended himself to his group by stating that he was proud of his heritage and that it was not weird to talk about it.

Despite Theo's social interest in his peers, he seemed most comfortable interacting with younger students in the neighborhood. As mentioned earlier, every week, Cate hosted a class of preschoolers from the nearby Montessori school to whom her Grade 4/5 students would read in the school library or in Cate's classroom. During my first observation of Theo reading to his little buddies, recorded in my field notes on April 23, 2018, he excitedly introduced each buddy to me while also helping them to settle into their spot on the floor so that he could begin reading. Theo was often animated in his reading, excited to spend time with the preschoolers, and was consequently assigned two to three buddies while many of his peers were responsible for one preschooler at a time. Theo would take the lead in calming down his group of preschoolers to help them focus on the story. Cate and Leah, the educational assistant, noted that Theo was one of the best reading buddies in the class because he was so patient with each preschooler; in Leah's words, as I wrote in my field notes from April 23, 2018, he "reads like a teacher with students." Cate added that she was not surprised that Theo was confident with the preschool students because, to them, he was the "big friend" that liked to spend time with them, and there was "no judgement" of Theo's difficulties (Field notes, April 23, 2018). When I think of Cate's comment about Theo showing his best self, it seemed that Theo felt more at ease with the preschoolers because he was part of a community that valued his time and efforts to be friendly; he was also reading texts that he could decode and comprehend since the books were for younger students, which enhanced his confidence as a reader.

Although Theo encountered some difficult peer relationships in his class, he still felt that the school community was important to him. During my final interview with Theo, it was clear that he felt that belonging to a school community made a difference in his learning.

After Theo returned to school from his concussion and fractured arm, I offered to help Cate catch Theo up for his final self-reflection on the last day of school. Instead of the regular interview format, I talked more conversationally to Theo about the animals he identified with in *Sometimes I Feel Like a Fox* and about his strengths after reading *What's My Super Power?* When I asked Theo what his super power was, he answered that he was proud of "being a really great kid and making people feel happy here [in school] (Interview, June 27, 2018).

5.5 Barriers to Productivity: Technology as a (Possible) Distraction

While Cate recognized that technology played an important role for Theo's learning, she also called technology a "total distraction" for him because his focus with the technology often prevented him from finishing his work (Interview, May 3, 2018). In my observations of Theo, I noticed that he really enjoyed using devices for his work; however, he could quickly miss objectives set by Cate because he was so excited to be on an iPad or a laptop. For example, during the activist-art unit, Cate instructed the students to (1) listen to and watch the music video by A Tribe Called Red that she had posted on Edmodo; (2) work on individual or group projects; and (3) finish taking notes on Ai Weiwei's art. For Theo, this quickly became an issue as he enjoyed the music video immensely and listened to it repeatedly. As I noted in my field notes from April 23, 2018, when Cate noticed him using the laptop and headphones for an extended period of time, she checked in with him and realized he had not yet transitioned to his other work. She reprimanded him for using up most of his time on one video and reminded him that the song was to build background knowledge. She then realized that Theo had skipped finishing his notes for the Ai Weiwei

article, introduced weeks earlier, which meant that he should not have progressed to the material about A Tribe Called Red yet.

Cate noted that some of the applications she had to use for student assessment and peer feedback were also a distraction for Theo. By the time the study started in March, the students were already familiar with the process of logging into Edmodo to comment on each other's posts with the goal of providing constructive feedback to improve their writing or generate further discussion. Cate observed that, theoretically, the design and layout of Edmodo should have benefitted Theo because his posts, the students' feedback, and her evaluation of his writing would have been in the same virtual space; however, oftentimes, during Daily 5, Theo bypassed the work he needed to get done, such as finishing his reading, working on a reflection post, completing written activities for his book, and providing feedback to his peers. Cate concluded that "he [was] just fixated on the device so that [was] difficult because we get dependent on what tech can offer in terms of some alternatives" (Interview, May 3, 2018). At the same time, these forms of technology were necessary for Cate as part of assessing or completing students' work even if they posed a distraction for Theo. For example, Cate's use of Bloxels with the students was enjoyable, but she also built in pieces of peer feedback and self-reflection as part of the students' design process; students would rotate to try another group's games, and they were expected to conference together prior to delivering feedback. However, as I noted in my field notes from March 16, 2018, I observed that Theo ended up being drawn in by a game and skipped the peer-feedback process, leaving his partner to complete the feedback for the other group.

Gaps in time in between appropriate technologies could also impede Theo's learning. Because planning on paper was difficult for him, he needed an extended amount of time to

gather his resources and his ideas and put pencil to paper. By the time he was ready to work on a device, they were either all used by his classmates, meaning he had to wait, or the time was over, and he had to save the technological work for the next time Cate signed out that specific set of devices from the school. The time between these technological activity sessions was, according to Cate, crucial for Theo:

> Initially, there [was] that connection [between Theo and the content through the technology], and, now—say it's, like, two work blocks since the last time he looked at [the Discovery Education Science Techbook]—it's like he may not even be connecting [his pulley to the Techbook] at all. I think the connection would've been within the first block or two of building—maybe recalling what he saw—because he has a hard time going back to a plan. (Interview, June, 7, 2018)

At the start of the 2017-2018 school year, Cate transitioned to using FreshGrade, a digital portfolio assessment platform that supported the upload of photos and videos in addition to written descriptions. Cate expressed that, although Theo did not view FreshGrade as his report card, he was still very fluent in navigating the platform for writing a post or uploading his work. She felt FreshGrade allowed him "to demonstrate more proficiency than if it was him reflecting on something and attaching it to paper. He [could] talk about something in a video, or he [could] take photos that prove[d] what he [understood]" (Interview, June 7, 2018). To alleviate Theo's difficulties with handwriting, he was able to type up a reflection post about his learning; Cate did not have to scribe for him when he used this platform. Cate concluded that she could see how Theo's work spoke to his efforts to make strides in his learning even if his work did not always meet Cate's criteria.

A digital portfolio also gave Cate options to choose modes that worked well for Theo as part of the assessment process. For the simple-machines unit, Cate expected students to upload both a photo of their machines and a narrated video explaining how their creations worked. Given that Theo experienced difficulties talking about his work, Cate noted that the photo Theo uploaded of his pulley showed that he integrated some of the research he read about simple machines. Even though his video did not include some of the details that Cate asked for, she could still see how Theo's pulley functioned based on the files he uploaded onto FreshGrade.

Although there were many assessment possibilities for Cate with FreshGrade, she noted that it was not always the best platform on which Theo could display his work despite its focus on digital content. Theo would often get distracted by the iPad on which the FreshGrade application was found. Prompts for FreshGrade posts were often written on the board by Cate, along with specific instructions for each assignment (see Figure 5.19). Cate noted that,

> if I put up a couple of things I want[ed] to see, and I [felt] like, "Okay, this is a really quick kind of a snap shot," it could take him two blocks because he starts and gets sidetracked, has to restart, misses what the criteria is because he's so focused on the device. (Interview, June 7, 2018)

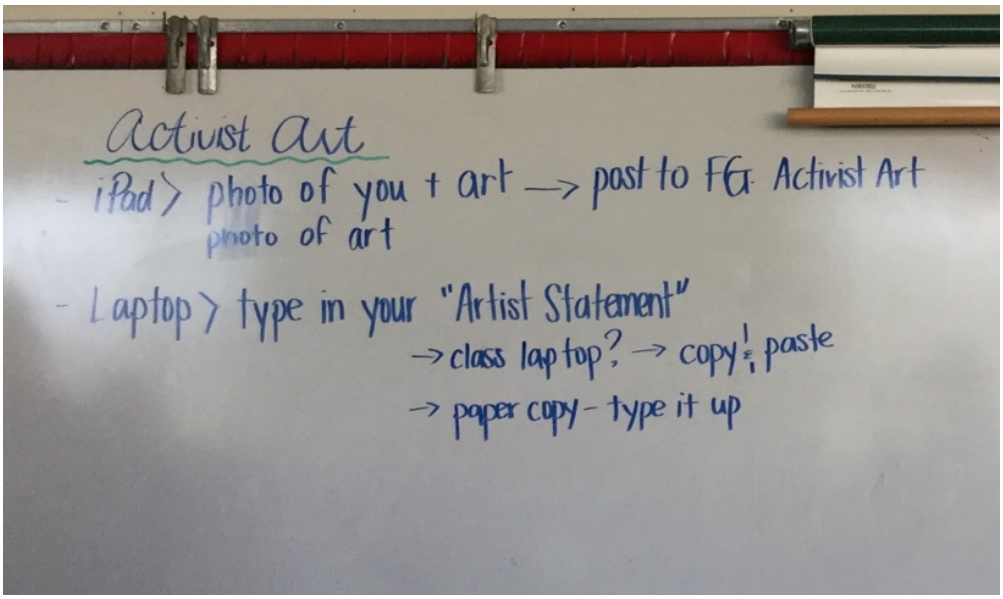


Figure 5.16 Example of Cate's instructions for posting on FreshGrade.

On one occasion, Theo was positioned to sit in front of her notes on the board so that he could focus on a set of specific directions for updating his FreshGrade (see Figure 5.17), as I wrote in my field notes from June 14, 2018.

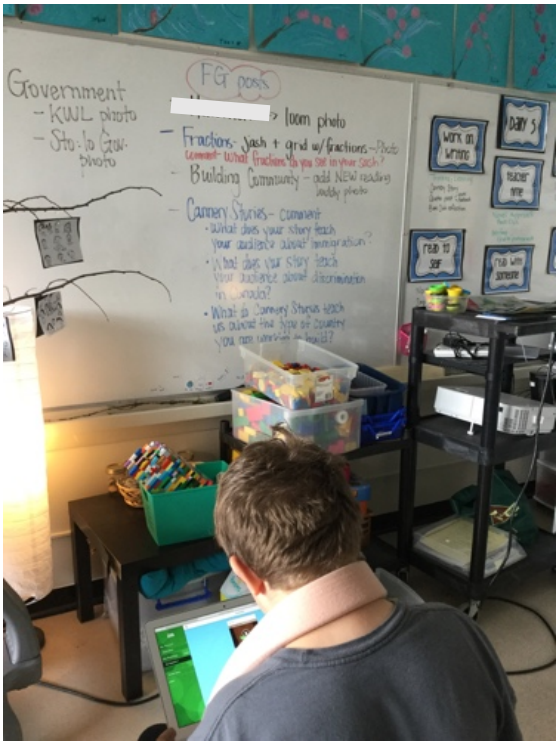


Figure 5.17 Theo sitting in front of Cate's directions for FreshGrade posts.

In addition to Cate's observations, I noticed that the layout of FreshGrade was not conducive to Theo finishing all of the tasks in the limited time he had. For example, when he was focused and trying to catch up on his work by uploading his activist-art reflection, Theo spent a lot of time scrolling back and forth on the iPad, trying to find the right post on FreshGrade to which to add his reflection. Even though Theo did not seem distracted by stimuli in the classroom or his own fixation on the device, the layout of the digital platform itself was a distraction.

5.6 Chapter Summary

In this chapter, I explored five themes that emerged from my data analysis about Theo's engagement with multimodal meaning-making practices. The themes were 1) Theo as a learner; 2) demonstrating communicative competence with multimodal texts in print; 3) meaning-making practices with multimodal texts beyond print; 4) transmediation and affordances with creating multimodal texts; and 5) technology as a possible distraction and barrier to productivity.

I began this chapter by describing Theo as a learner and providing more context about his life experiences beyond his disability. Theo had an interest in physical activities and in animals because of the numerous pets in his family. He also recognized that he was not necessarily an artistic student though he did enjoy building structures and working on devices. Cate noted that one of her goals for Theo's learning was to help him reduce his avoidance tendencies so that he could experience more accomplishment in his work by finishing projects and showing his learning in ways that appealed to him. I also described in detail the different projects that Theo worked on to show what he was doing during literacy activities planned by Cate.

In the next section, I discussed the theme of demonstrating communicative competence with multimodal texts in print. As I noted in the previous chapter, Cate often used multimodal texts to teach language arts and content area subjects. She said it helped Theo gain a better understanding about the subjects. In this chapter, I drew from Saville-Troike's (2008) notion of communicative competence to frame Theo's engagement with Cate's instruction. Communicative competence speaks to speech communities that have their own set of social and communicative rules. People within the speech communities have to demonstrate linguistic, interactional, and cultural knowledge. I extended communicative competence to discuss Cate's instruction with multimodal texts because as she scaffolded the students' understanding of the texts, she was also teaching key vocabulary, and modeling how to talk about the texts in a way that demonstrated comprehension of the material. Subsequently, Theo's participation within the speech community required him to have an understanding of the vocabulary, use the vocabulary and content in discussions with his peers, and draw from background knowledge. I noted that Theo regularly had to demonstrate his communicative competence of the multimodal texts through written work, which he struggled with, resulting in Cate scribing for him to help him focus on main ideas. When Theo attempted to activate his memory about previous discussions with his peers about the text, he was denied access to a device to listen to a recording of the group meeting. This meant that he needed to focus on writing as the primary mode.

The third section explored Theo's meaning-making practices with multimodal texts where print was not the primary mode. I noted that in group contexts, he had difficulty making sense of the texts, especially during whole-class instruction. He often struggled to recall key ideas, such as immigration and activism, and even looked withdrawn and confused

when I analyzed the photos I took during my observation. Peer discussions were challenging for Theo because he struggled to follow the texts and Cate's instruction and apply them to meaningful conversations. However, when Cate assigned Theo independent work with multimodal texts, he demonstrated his competency navigating the texts.

I found that Theo was more engaged in his work when he was grouped with partners he enjoyed working with. For example, during the viewing of demonstration videos about simple machines, Theo took the lead and guided his friend Abby through the menus in the Discovery Education Science Techbook. However, he continued to struggle with reading non-digital texts even during small groups that were guided by Cate.

The fourth section discussed the forms of transmediation by Theo during the many multimodal projects I observed during the study as well as his understanding of affordances. I noted there were four prominent categories in my data analysis that supported this theme: the juxtaposition of competence and resistance, modal affordance as a form of creative freedom, difficulties interpreting and assessing transmediation, and entering the classroom community with multimodality. Similar to Theo's engagement with viewing multimodal texts, when he worked on creating his own text, Theo demonstrated a wide range of design skills. However, his competence was often met with resistance, which came in the form of objections from his peers or being redirected to other written work. For example, Theo enjoyed using Bloxels to build stories with peers, especially if they had shared interests. However, Theo's social difficulties often limited his participation as his peers often overruled his contributions.

During Theo's independent work, it was evident that he tried to gain a sense of ownership over his multimodal creations. However, he often circumvented Cate's directions

as he was unable to complete work in the order she requested, but he was still interested in diving into content, such as during the simple-machines unit, where he designed and constructed his own machine. Still, I found that Cate often stopped Theo during his work to reorganize his ideas, leading Theo to restart his work when he was already behind. When I talked to Theo about his multimodal compositions on Toontastic and GarageBand, I noticed that he was able to articulate the affordances of both content-creation applications in his work. This demonstrated that Theo was not only interested in using devices but that he was able to explain why each platform was effective for his stories. One of the challenges I noted between Cate and Theo was interpreting and mutually agreeing upon Theo's transmediative practices. During the simple-machines project, Theo planned his project out by hand-drawing his pulley. He gathered information about pulleys from the Techbook articles and videos. Theo then constructed a pulley using cardboard and jars while referring to his drawing. I noted that the 3-D model of the pulley looked very similar to his drawing; however, Cate disagreed. She felt the drawing was not accurately translated into the construction of the pulley. Despite the resistance that Theo encountered in his multimodal meaning-making practices, I observed that he often attempted to enter the classroom community through multimodality. He used EdModo, a learning management platform with an interface similar to Facebook, to initiate feedback on his peers' posts even though his peers did not always engage with him on the platform. After creating his multimodal texts, Theo engaged his peers and other teachers to talk about his work with him. Again, this spoke to him having ownership of his work and feeling more confident about his multimodal meaning-making practices.

I concluded this chapter with barriers that affected Theo's meaning-making practices that emerged from Cate's perspective, which was that technology was a significant distraction for Theo despite its affordances for his learning. Cate mentioned that Theo's intense focus on devices prevented him from completing his work in a timely manner. Although Theo clearly preferred to use technology to complete his work, Cate often had to limit his time on devices and resorted to paper-and-pencil work to keep him focused. She also noted that the sharing of devices within the school also prevented Theo from accessing content and applications with the consistency he needed, causing him to forget some of his ideas until the next time he could access those devices. In the next chapter, I discuss my findings in relation to the research literature.

Chapter 6: Discussion of Findings

In this chapter, I discuss the findings of the study in relation to my research questions:

1. What are the multimodal meaning-making practices the teacher implements during literacy instruction to meet the needs of the student with learning disabilities?
2. How does the student with learning disabilities engage with meaning-making practices during literacy instruction in the classroom?

With my units of analysis as multimodal events and practices (Pahl, 2007), Chapters 4 and 5 focused on how Cate implemented multimodality in her instruction with Theo and how Theo responded to Cate's instruction. In this chapter, I further contextualize their practices in current research and literature about professional knowledge, multimodality, multiliteracies, and students with disabilities as well as the theoretical model (Figure 3.4).

This chapter has five sections. In the first section, I discuss the different approaches of multimodality that Cate implemented with Theo as part of her classroom literacy practices. I also explore the differing ways that Cate and Theo communicated with each other about Theo's multimodal meaning-making practices. In the second section, I focus on the discourses about disability in Cate and Theo's classroom context, especially in regard to how Theo's multimodal meaning-making practices were evaluated by Cate during literacy activities. I also discuss the impact of curriculum and school policy on both Cate's instruction and Theo's learning and how they both furthered her practices as well as limited her ability to meet his needs. In the third section I highlight the difficulties of associating multimodality with inclusion, which was a recurring finding in Cate's understanding of classroom literacy practices with Theo. The next section addresses the barriers of teaching

with multimodal resources, particularly with technology as Cate and Theo experienced the technological constraints differently. Finally, I revisit the theoretical model in introduced in Chapter 2 to briefly explore the ways this model can be expanded to focus on teaching practices for students with LD.

6.1 Shifting Multimodal Meaning-Making Practices

In this section, I discuss the intersections of Cate's knowledge about classroom literacy practices with multimodality as part of differentiated instruction to meet Theo's learning needs. Specifically, I address the two variations of multimodal meaning-making practices being implemented by Cate with Theo: 1) an ensemble of multiple modes with print as one of many modes and 2) print as a primary mode with other modes supplementing its meaning. Despite the variations, there is a noticeable pattern in my findings for when these differing multimodal meaning-making practices occurred—the larger the class size, the more likely an activity would be multimodal. I also explore the developing "talk" about multimodality as one of the key differences between Cate and Theo's literacy practices.

6.1.1 An Ensemble of Modes

In Chapter 4, I described Cate's implementation of multimodality, including how she set up her schedule, her activities, and the classroom space in which she and Theo worked. I mentioned that it was important to understand how Cate structured her instruction because it impacted how Theo engaged in the multimodal meaning-making practices and interacted with his peers and Cate. I also saw these as Cate's professional knowledge in Figure 3.4. When I talked to Cate and observed her classroom literacy practices, she spoke favorably about implementing multimodal instructional and learning experiences because Theo needed opportunities to express his learning in different ways. It was clear he struggled with print

literacies and she recognized that Theo was an active meaning maker in other ways, such as his strengths in tactile building activities and his proficiency with technology. She also explained that her classroom environment needed to lend itself well to multimodal meaning-making practices, which meant giving students time to experiment with modes and materials, work with technology, collaborate with each other as a community, and create shared experiences (e.g., going outside to Peabody Park). As such, my general understanding of Cate's view of literacy was that it was indeed a meaning-making experience that encompassed a variety of modes and were mediated by students' interests and choice. When I reviewed the interview data, I noted that Cate's beliefs about multimodality were often skewed to talk about whole-class instruction because of her focus on building a classroom community in which she saw Theo as being a part of this larger context.

During whole-class instruction or activities, I noticed that Cate was more open to using multimodal resources both as teaching tools and for assessment purposes. Print was part of an ensemble of modes when she worked with multimodal texts, especially when she transitioned to the simple-machines unit, which relied less on print for communication (Kress, 1997). This pattern was more noticeable in my content analysis of my photos compared to my interviews or field notes as I was able to see the different materials that Cate utilized in her instruction and with whom (e.g., the whole class or Theo alone). In terms of multimodal texts, her use of podcasts and YouTube videos during the activist art unit were often viewed together as a whole class. I saw this as Cate's understanding of situated practice and overt instruction, in which she considered the learning needs, interests, and identities of her students when she selected the texts and immersed them in a viewing experience (The NLG, 1996). She was much more focused on visual analysis during overt instruction as she

directed the students' focus to different images and graphics like with the 360-degree function on YouTube for the Jerry Cans music video. She noted there was some risk-taking and experimentation involved to teach within a multimodal framework for all students particularly because it was difficult to predict how Theo would respond to her instruction. Again, this was seen as Cate's professional knowledge in Figure 3.4 because she tied experimentation with different resources as part of her teaching. Although Theo often struggled during whole-class instruction, she believed there were some benefits of using multimodal texts. Cate recognized that audio and visual modes helped Theo to gather information even if he lacked some of the background knowledge needed to make sense of what he was seeing and hearing. When I asked about Theo's responses to her use of podcasts and videos, Cate answered that she felt Theo was able to obtain a "combination of some layers" of information because

> it help[ed] when he [did] have to get to text that [was] print. He [was] able to pull from what [had] just been built as a background, and then, also, because there [was] that shared background within the room, that they [could] piggy-back off of each other [during discussion]. (Interview, May 3, 2018)

Cate saw teaching with multimodal texts as a way to meet her pedagogical needs and Theo's learning needs. She indicated a number of benefits of using multimodal texts, including enhancing background knowledge, stimulating student interest, and building a community of learners (Loerts & Heydon, 2017). These benefits echoed findings from studies that interviewed teachers about their perceptions of multimodal texts in practice (Choi & Yi, 2016; Dwyer, 2013; Ryan et al., 2010). In particular, Ryan et al. (2010) found that teachers felt it was less difficult to motivate students during direct instruction when they utilized

multimodal texts and technology. Students generally responded positively to teachers' practice with multimodal resources as well.

However, I found that Theo's interests in non-print based texts during whole-class activities did not necessarily translate to improved understanding about the content area topic (e.g., activism, immigration, civil rights, etc.). When I reviewed Theo's experiences with multimodal texts and Cate's understanding of his needs, it was clear that he found multimodal texts interesting, but he struggled to comprehend them even if they were not print-based. I attributed part of this issue to be his difficulties with developing the background knowledge needed to understand complex topics and issues, like activism, and the topics were not of particular interest to him as he noted he did not like expository texts. Unlike the positive student reactions found in Ryan et al.'s (2010) study, I observed Theo having mixed reactions to Cate's use of multimodal texts. For example, Theo had difficulties understanding the podcast and video interview with Ai Weiwei about his activism and artwork, and he was, at times, unsure of what he was viewing. However, he was excited watching music videos and animated films even though he was not always able to contribute to the discussion or needed more time processing what his peers said about the information he gleaned from the texts. Cate noted that Theo needed multiple opportunities to view the multimodal texts used in class so that he could "layer" his understanding (Interview, May 3, 2018). Cate explained layering as exposing Theo to different texts and modes about the same topic to build his background knowledge. However, this layering of information took a lot of class time, as Cate acknowledged in her interviews, and what was less understood in her practices with Theo was how to help him make text-to-text connections using multiple modes. She recognized that Theo had strong visual recall, but was unsure of how to

capitalize on that strength as the units and topics of study became more complex like with the human body project and immigration during social studies units.

Cate specifically mentioned multimodal texts as providing "multiple entry points" for Theo, a point initially referenced by Jewitt (2005) to describe the non-linear reading and viewing experiences students have with multimodal texts. However, I found that Cate's practice with multimodal texts was more linear as if she was reading a book because of the diverse learning needs in the class. As part of her overt instruction with multimodal texts, Cate often paused clips to talk about the information, helping students to piece together more complex information, or to reiterate what a person said in hopes of generating more discussion with the students. Zammit (2019) observed that teachers are still expected to take the lead when working with multimodal texts as students "require initiation into how multimodal representations are created through the deployment of the resources or grammars of written, visual, audio, spatial, and gestural modes and the combination of these systems of meaning" (p. 63). However, in order to take the lead with multimodal texts, teachers need to draw from a variety of literacy frameworks and knowledge about modes in order to develop effective activities. In Chapter 2, I combined multiliteracies with Mishra and Koehler's (2006) work about technological pedagogical content knowledge. Essentially, they wrote that teachers need to possess and apply different forms of knowledge in order to engage students meaningfully in learning with technology (see Figure 6.1). I combined these two theoretical frameworks because each component of multiliteracies pedagogy relies on different kinds of technology, which are dependent on the teachers' knowledge about context in the classroom and in the school (e.g., device availability, resolving technological issues, selection of applications, and students' knowledge of the technology) (Golombek, 1998).

Figure 6.1 Model of Multiliteracies Pedagogy with the TPCK Framework and Golombek's Practical Knowledge.

As I analyzed Cate's practices, I noted that between the shift from overt instruction to critical framing, all three forms of knowledge (pedagogical, content, and technology) needed to be mobilized. I observed that her multiliteracies pedagogy was often stilted in critical framing because many of her students, Theo included, struggled to understand some of the sociopolitical aspects of the topic (e.g., activist art and Ai Weiwei). This required her to focus more on comprehension of specific content and she spent more time on overt instruction.

For Theo, Cate explained that the prompts to listen for key details and check in through discussion as a class or group were helpful because of the layering of information she mentioned earlier. Ryan et al. (2010) pointed out that "teachers need to muster an enormous range of expertise to manage such an undertaking. From the literacy teacher's point of view, the fact that multiple genres are involved in one task illustrates the complexity and the challenge" (p. 485). This complexity was seen in Cate's classroom literacy practices in general as she focused on curricular expectations. In Chapter 4, I noted that much of her instruction involved building background knowledge and strengthening understanding of the content. This conveyed to me that comprehension was her first priority and she expected Theo to demonstrate some sort of communicative competence (Saville-Troike, 2008) in order to discuss and write about what he understood from the multimodal texts. Although she viewed multimodal texts as having multiple entry points towards understanding, she needed to find ways to summarize all the modes into one somewhat uniformed understanding of the content, which Theo struggled with the most. Since overt instruction involved building understanding with students (The NLG, 1996), it was more difficult for Cate because Theo was unsure of how to respond to her discussion prompts, which Cate saw as his challenges with comprehension of the content. As such, Cate was more likely to see print as part of the multimodal analysis of texts as she tried to remedy some of Theo's struggles with complex concepts.

6.1.2 Print First, Other Modes Second

Although Cate talked about the benefits of using multimodal resources during her interviews, I highlighted a recurring pattern in my field notes and photo documentation that Cate often scaled down her small-group instruction with Theo to focus more on the

comprehension of print-based materials like the Scholastic articles and the picture books or novels. There was little to no time spent on using technology or other multimodal texts (e.g., video clips, podcasts, etc.) that she used during whole-class instruction although she sometimes referenced them during discussions with the small group. The critical framing aspect of the multimodal texts in multiliteracies pedagogy was not as involved in small-group instruction as whole-class instruction because Theo struggled with more abstract concepts and Cate needed to prioritize some texts and modes over others (e.g., Scholastic articles instead of a podcast or print instead of audio information). She needed to support Theo in terms of developing cultural understandings around the texts that she was using in her practice. For example, understanding *White Water* required Theo to know a bit about the American civil rights movement during the 1950-1960s. He was not getting that kind of information from reading the book alone and he was already struggling when Cate tried to frame their multimodal texts in a more critical perspective in order to understand equal rights.

Another reason why Cate focused on print-based literacies first was because Theo was often grouped with English-language-learning students, as she recognized they shared overlapping needs. They all needed a stronger foundation in academic literacies like reading and writing print as well as finding information using other modes. The assessment pieces also became more print-based during small-group instruction as she assigned more written work, such as writing a paragraph about Michael, the main character in *White Water*. Secondly, when Cate reflected on teaching with multimodal texts during small-group time, she felt like she was "losing kids" (Interview, May 3, 2018) because they struggled to view the videos or listen to podcasts together. Her small group literacy practices with Theo were

more focused on that "personal responsibility piece" as well, which she talked more about in Chapter 4. However, Theo's needs still differed from those of his groupmates because of his proficiency in English. Cate noted that, with the diversity in the class, it was difficult not to create mixed-ability groups, and she tried to address a common learning need in these groups. She utilized small-group time as a way to keep Theo's attention focused on the text as well as to review key concepts in the text with a group of students who may have struggled with the vocabulary, plot, and comprehension of other information. Cate was able to apply multimodality as a way to adapt to her students' learning needs, but she was unable to proceed further by allowing Theo to have his own path toward learning without being merged with English-language learners who appeared to have similar difficulties but, in reality, had very different needs from Theo.

I saw Cate's knowledge of instruction (Golombek, 1998) with Theo as cyclical. Her classroom literacy practices involved more collective experiences with multimodal meaning-making practices and as I mentioned before, print was one of many modes in her whole-class instruction. Because she was aware that Theo's learning needs were not being met during whole-class instruction, her personalized instruction with him became linked to her concerns that he was not getting enough support with reading and writing. When he struggled with organizing his papers during independent work, Cate brought him into working with her in small groups, in hopes that she could help him participate in whole-class activities. Her intent was to focus on the key concepts and vocabulary so that he could engage in discussions with his peers about the multimodal texts. This sort of "drill down" method on print-based practices meant that Cate's knowledge of differentiated instruction focused on helping Theo develop strategies around understanding content in print as well as communicating with it as

a primary mode. In group instructional settings, Cate recognized that there were multiple literacies between Theo and his peers. However, there were issues with negotiating "what counts as literacy at any time and place" and "whose literacies" were considered to be more dominant and whose were considered marginalized or resistant (Street, 2003, p. 77). In this situation, it was clear that print literacies (or in essence, school literacies) needed to be prioritized and counted more during small-group instruction with Theo because it reflected communicative competence (Saville-Troike, 2008). Cate understood that Theo was able to express meaning better with other modes, but ultimately, the entire group needed to show that they could read and write print before they could engage further with other modes.

When Cate worked with Theo during one-to-one time, her literacy practices became more ingrained with print-based skills. As I noted in Chapter 4 and 5, Cate often helped Theo to revise his projects to better meet her learning criteria and to help him improve his work with print. For example, the Discovery Education Science Techbook was seen as a resource for Theo as there were many videos and animations that helped him to derive information from non-print modes; however, he ultimately still struggled with the articles in the multimodal Techbook, leading Cate to often ask him to restart his work and revert back to print-based practices, such as taking notes. Theo's track and pace, then, were never quite the same as his peers. Due to the lack of services available to Cate and Theo, Cate noted the importance of getting to know Theo's needs through consistent check-ins with him to discuss his understanding and identify the materials he needed to communicate his learning. However, Theo's choice of materials was often some form of technology—in particular, the iPad because it contained a number of applications that he enjoyed using (e.g., GarageBand, Toontastic, and Bloxels). Cate explained that she was careful about using devices with Theo

because he was easily distracted by them and "meaningful work" (i.e., print-based work, as defined by the Ministry's LD academic achievement policies) was not always completed (Interview, May 3, 2018).

6.1.3 Developing the "Talk" around Multimodality

The NLG (1996) wrote that during overt instruction, metalanguage is developed to talk about form, content, and design processes with students. Although Cate's beliefs about literacy favored multimodal meaning-making practices, it was clear she had little time to visit the "metalanguage" of multimodality—that is, exploring the meaning of potentials or affordances of the modes (Cloonan, 2011; Ryan et al., 2010). The NLG (1996) wrote about metalanguage being a necessary part of a multiliteracies pedagogy as it is a means to communicate about textual analysis and design. More importantly, metalanguage in practice should be flexible because "the relationship between descriptive and analytical categories and actual events is, by its nature, shifting, provisional, unsure, and relative to the contexts and purposes of analysis" (The NLG, 1996, p. 77). However, developing flexibility with the language to talk about multimodal meaning-making requires teachers to have a knowledge about the students' understanding of multimodality. Cate demonstrated a knowledge of multimodality as a subject matter when she talked about her teaching experiences (Golombek, 1998), especially in regards to respecting students' identities, their developing competencies with a variety of modes, and their choices (Stein, 2008). However, when multimodality was reframed as part of her knowledge of instruction, she emphasized the importance of needing to know more about what was "out there" to better meet Theo's needs (Interview, August 15, 2018) and as a way to transform her practice as indicated in Figure 3.4. She had an awareness of Theo's knowledge of linguistic, visual, gestural, spatial, and

audio designs (The NLG, 1996), especially as she talked about his interest in video games and technology and his tactile building skills. It was clear that Theo did not struggle as much when he was afforded the opportunity to work with multiple modes at his own pace. However, because he was perceived by Cate as struggling with reading and writing, most of Cate's time was spent remediating his difficulties first and, later, exploring deeper levels of modal analysis with him—if there was any time at all.

With the teaching of critical thinking and analysis skills, Cate's experience was similar to that of the teachers in Ryan et al.'s (2010) study. The researchers noted that constraints for teachers around multimodality can include actual difficulties in the use of texts and resources as well as knowledge of the "metalanguage with which to talk about [the texts and resources] with young people" (p. 477). As such, teachers are expected to balance the logistics of using multimodal texts with the teaching of critical thinking—that is, how to analyze the texts to deepen their own understandings. However, in Cate's case, developing the metalanguage was difficult as she worked to bridge her students' various understandings and difficulties with the materials. Yet, the metalanguage was what Cate needed to help her bridge gaps in Theo's learning and creative processes. It did not seem to me that Cate realized there were gaps in terms of communicating with Theo because her focus was on his comprehension of the content. On the other hand, Theo's communication was about his multimodal designs. He demonstrated an understanding of modal affordances that was more aligned with discovering the potentials of each mode, including when they combined together to create multimodal texts. For example, when he discussed the differences between Toontastic and Puppet Pals 2—both content creation applications that provided design options for visuals, music, and voice narration—Theo was able to compare how the visual

aspects differed from one application to another. He recognized that Puppet Pals's use of cropped photos for characters' faces looked more realistic; however, Toontastic offered more choices for designing freehand. He also noted that music choices were different in both applications, which indicated to him that the music choices suited different storytelling purposes (Interview, May 24, 2018). Theo's experience composing multimodal texts was similar to those of the students in Beach and O'Brien's (2015) study about student perspectives of creating multimodal texts with devices. The researchers observed that students identified affordances in the variety of design options and in the degree of ease with which they could combine multiple modes together—two affordances Theo also valued when working with the applications. The other affordances that Beach and O'Brien identified were collaboration with peers, interactivity with peer audiences, and connectivity between texts. Theo spoke less about audience and text connectivity as affordances. For him, much of his understanding about affordances resided in his use of and access to technology even though modes do not have to be digital. This strongly connected with Bezemer and Kress's (2008) writing about modal affordances. Theo was conscious of his interest in technology and his intentions when he selected and designed each mode. Although he was still developing an understanding of audience, he recognized that the technology helped him to produce communicative signs that conveyed meaning better than his print-based writing.

Cate's focus on grade level expectations as discussed in Chapter 4, meant that there were specific tasks and content area knowledge she expected Theo to know as he engaged with multimodal resources. However, her focus on comprehension, as I mentioned earlier, meant there were limited opportunities for her to have deeper conversations about Theo's usage of modes in his meaning-making. Shanahan (2013) noted that teachers may miss

opportunities to advance students' learning and multimodal compositions without "developing more substantive content knowledge on affordances, limitations, and intersemiotics (i.e., relations between sign systems)" (p. 196). From my discussions with Cate, it was clear that she was still developing her understanding of metalanguage during her multimodal meaning-making practices with Theo. Cate alluded to the idea of metalanguage about multimodality when she mentioned having a "shared language or shared experiences" to "get the kids to represent things over time in different ways" (Interview, June 27, 2018). She also talked about Theo being critical of his representations of learning to consider whether he is "really showing me what [he] understand[s] or is this representation still not where [he's] thinking it's at?" (Interview, June 27, 2018). However, she stopped short at elaborating on what that shared language would be in her teaching contexts with Theo. I noted that Cate was not always able to be involved in the creative work embarked on by Theo and his peers because she was managing the busy classroom environment. She was not able to have much conversation with each group about their process, which suggests that logistical concerns and classroom management can impede the development of metalanguage around multimodal texts (e.g., having discussions about modal affordances).

6.2 The Framing of Disability

In Chapter 2, I noted that the discourses around disability are evoked in multiple ways in a school context, including curricular and educational policy, instructional design and assessment, as well as teachers' perceptions and understanding of disability. For this study, I sought to better understand what were the specific discourses around disability as part of Cate's classroom literacy practices. It was clear that Theo enjoyed mostly non-print focused activities, such as building his pulley during the simple machines project or creating

a song for the activist art unit. However, his engagement with Cate's classroom literacy practices was also shaped by Cate's interpretation of his multimodal text making. In this section, I further discuss Cate's beliefs about LD, the difficulties of evaluating Theo's work without print, how print continues to be an indicator of learning, and the impact of district and provincial wide policies on Cate's work with Theo.

6.2.1 Cate's Sociocultural Understandings about Disability

In my second research question, I sought to better understand Theo's engagement with classroom literacy practices. However, as I noted in Chapter 2, literacy practices are also influenced by social dynamics. In order to answer my second question, I also needed to address the contexts of the classroom literacy practices on a micro and macro level. Theo's engagement in the classroom was not only impacted by Cate's instruction, but her understanding of disability, as well as the institutional power dynamics that also shape her practices with him. During my time with Cate and Theo, I noticed that it was not as meaningful to see disability as a biological issue that existed solely in Theo. Instead, Cate highlighted her difficulties obtaining additional support services for him, which were denied by the school district.

As Cate pointed out at the beginning of the study, Theo struggled with not only reading print-based texts and writing, but he also lacked focus to "get through reading a problem or reading information about a strategy" (Interview, March 15, 2018). She attributed this to part of Theo's experience with LD, which she defined as barriers to processing language and communicating through print. I noticed that, whenever Cate talked about LD, she quickly gravitated toward how the school and the district magnified Theo's difficulties by offering little to no support to address the root of his difficulties. Cate demonstrated a

knowledge of context, or the "institutional and sociopolitical setting along with the time, place, and actors within the setting" (Golombek, 1998, p. 452), which contributed to the challenges she experienced with Theo and his academic struggles in the classroom. In Theo's case, the contexts would be the school district denying him access to services because of an oversight by personnel and different perceptions of academic difficulties. She pointed out that Theo had been in the school since Grade 2, and he still was not receiving the appropriate intervention services from the school district because of a missed signature from the school district personnel on his paperwork after his mother "signed off" on the designation. Although I did not have access to Theo's assessment and designation files, Cate and Theo's mother agreed to previous paperwork that he had LD. Interestingly enough, the Learning Support Team in the school did not understand why Cate recommended Theo for interventional services in literacy because they believed his reading improved enough in Grade 4. Although there were indications that Theo had an LD according to the school district even with the incomplete paperwork, he was perceived as not having enough difficulties to warrant additional support despite Cate's efforts to help him. This discrepancy led to much of Cate's time being spent trying to advocate for services for Theo throughout the year as she pressed on the Learning Support Team to review his case again.

Essentially, Cate noted a sense of failure on the part of the school district to help Theo, which impacted her ability to address his difficulties and enhance his learning in a clear direction. More importantly, she felt Theo was not given the opportunity to show his "best self" with dignity because of the lack of support by the school (Interview, June 27, 2018). The challenges that he experienced in his learning without adequate support affected his ability to collaborate with his peers. Cate pointed out that some students felt like Theo

was “pulling something away” from their group effort and not contributing to their work even though he learned to be more encouraging and supportive with “kind language” to his peers (Interview, August 15, 2018).

I found Cate’s perspective about LD insightful because she did not necessarily see LD as just a disorder in Theo’s mind even though that is the official definition adopted by the BC Ministry of Education (2016). She understood that there were a myriad of issues within her school district that contributed to differences in Theo’s learning, leading her to implement literacy practices intended to address gaps in resources and support caused by those issues. Siegel and Valtierra (2017) argue that teachers (unlike Cate) can become gatekeepers of literacy for students with LD, which prevents these students from exploring multimodal ways of meaning-making and confines them to print-based instruction. They argue that

> when literacy is defined in narrow and rigid terms, students with disability are often seen as incapable of living up to the definition and are therefore pre-emptively denied access to robust, interactive, and inclusive literacy experiences promoted in general education settings. (p. 93)

I found that Cate had identified the gatekeepers in her teaching environment (the school personnel that did not complete Theo’s paperwork and the Learning Support Team that did not provide her with support), whose (in)actions impacted her practices with Theo. Cate recognized that the support Theo did or did not receive during his time in her classroom had profound effects on his learning, especially as she reflected on Theo’s departure from the school and whether she had prepared him enough for another teacher with different notions about literacy and disability (Interview, August 15, 2018). Part of the discourses about LD

stem from teachers' beliefs and values as well. Collins (2013) points out that ability and disability are

> not constant or perceived as solely located within individuals. Rather, they are constructed in the relation between individuals and the opportunities provided by the activity setting in which they are engaged. School success and school failure are co-created in situated activity. (p. 3)

Without knowing the circumstances around Theo's learning and his history with the school or the contexts of his learning, Cate recognized that it looked as if Theo was not meeting grade level benchmarks because of his LD. Instead, she understood that when she compiled all the circumstances that led to him being ineligible for extra support, it was actually a form of school failure. Because he lacked the necessary paperwork and he was seen as "not failing enough" to receive services (Field notes, March 15, 2018), Theo's difficulties in the classroom seemed even more extensive. When I connected Cate's beliefs and her circumstances back to her classroom literacy practices with Theo from the previous section, I realized that despite her best efforts to focus on multimodal meaning-making, the lack of school support meant that she could only deepen her own instructional knowledge to a certain extent. Her focus on experimentation with different modes with Theo and his class was also one of the few ways she could learn to teach with different modes.

6.2.2 Evaluating Transmediation

As I spent more time with Cate and Theo observing their different practices together and as individuals, I noted that one of the more difficult issues that Cate encountered was assessing multimodal meaning-making practices, which was essentially Theo's transmediation of modes. In order for Theo to communicate his learning, he needed to work

with modes and materials to turn them into something that reflected his understanding. For example, during the simple machines unit, Theo referred back to the videos and articles to draw a plan for his pulley. This process required Theo to study the visual, audio, and textual information he gathered from several multimodal texts and synthesize them to create a plan for a working pulley in a drawing. I considered Theo's work with his pulley to be an example of transmediation, which Siegel (2006) defined as using one sign system to negotiate the meaning of a sign from a different system. Transmediation is about using "generative power" to create connections between multiple sign systems that did not exist before, a process during which "semiosis becomes even more complex" (Siegel, 2006, p. 70). As such, it was important to explore the ways Theo tried to represent one sign system with another or combine them in ways that he considered to be meaningful. It was evident that Theo was constantly shifting between the Techbook to his materials for his simple-machine project. From the Techbook, he tried to gather meaning that seemed relevant to his interest of building the pulley through viewing the multimodal texts and then drawing on his viewing to create a 3-D representation of his knowledge (Ormerod & Ivanič, 2002) with the materials available to him. Through his selection of tactile materials (Kalantzis & Cope, 2016) that resembled each part in his hand-drawn plan, he made decisions about the affordances and limitations of each material type. He saw the most important pieces of information he needed to include in his design were the foundational structure and function of the machine. He chose his materials accordingly to ensure that he could build a project that stood up on its own and whose pulley component worked according to what he saw in the Techbook.

Cate had some difficulties understanding Theo's logic and design, but he demonstrated the intention to align his drawing—which was informed by his viewing of the

Techbook—to his construction of the machine. Although Cate offered suggestions to Theo's plan, she did not actually change anything for him, which I took to be a sign that she respected his choices even if she wanted to see something different from his construction. Ormerod and Ivanič (2002) wrote that older elementary children like Theo in Grades 4/5 go through a cycle of decisions prior to and during the construction of 3-D representations of meaning. The authors noted that the decisions made by the 11-year-old students in their study were not only motivated by the availability of materials "but by the kind of information they [found] interesting and relevant and wish[ed] to convey to their reader in connection with their awareness of the limitations and potentialities of different semiotic modes" (Ormerod & Ivanič, 2002, p. 71). Theo did not always articulate his understanding of why the materials he chose worked or did not work for his project to Cate; however, he was able to make use of the materials in his pulley, and it was a functional machine at the end of the unit.

Although Theo transferred his understanding from invisible tasks (e.g., processing information during the reading and viewing of multimodal texts) to visible actions (e.g., drawing and building a structure), language still played a key role in these multimodal forms of expression as Cate expected Theo to at least be able to orally explain how his pulley worked in relation to his understanding of the research from the Techbook. Kress (2010) noted that, while representation is "partial," and children draw from their interests to represent their understandings, adults' choices for representation of meaning is reflective of their life experiences, social environments, and "their greater awareness of access to resources for representation available in their culture" (p. 70). Subsequently, Kress (2010) proposed that representation of meaning and communication are two different things. With

representation of meaning, the output of materials is something that the sign maker wishes "to realize" while communication "focuses on the assumed interest of the recipient of the sign" (p. 71). For Theo, he believed he constructed a pulley that functioned just like what he saw in the Discovery Education videos. Cate was also able to see that it functioned like a pulley but she prodded him for a more detailed explanation because she acknowledged that they both interpreted Theo's plans differently. Theo's construction was an approximation of the meaning he aimed to convey to Cate, which was why she needed his oral descriptions to unpack how he understood each component as contributing to the pulley's form and function. For Cate, the evidence of Theo's learning had to align with her expectations in some way. However, as Cate firmly defined the content she expected to see in Theo's work, this prevented more organic emergences—and subsequent communications—of thought from Theo's own understanding about his use of modes and how well he understood some of the content. The NLG (1996) noted that during critical framing, teachers need to push forward a mastery of practices within sociocultural understandings. However, it was difficult to pinpoint when Cate felt Theo truly understood the content if he did at all. This led to me question what does mastery for students with LD actually look like during transmediation.

Because Cate and Theo focused on two different aspects of multimodal design, I noticed that some of the ways that Cate talked to Theo about his work contributed to his confusion as to whether or not he accomplished her learning goals for him. This sort of parallel discourse around multimodal meaning-making practices was worrisome because it was easy to conflate his confusion as struggles with literacy. Mills (2011) cautioned, "[T]he search for commonalities across different modes, which do not have one-to-one correspondence, creates anomalies for the learners" (p. 64). As such, although Theo believed

his structure looked and functioned like a pulley, Cate felt his difficulties explaining his work were attributed to his LD rather than to the modal differences between speech and language, tactile materials, and physical actions. Mills (2011) argued that these differences lead students to engage in more "evaluative and generative thinking" (p. 61); however, Kress (2010) noted that such discussions are based in power dynamics and who has the authority to make judgements about the students' work, which is often the teacher. Ultimately, it was up to Cate to decide to what degree Theo's work aligned with her learning objectives and thus met grade level expectations. I found that Cate needed to be very subjective in order to evaluate Theo's work, especially without print anchoring some of his projects. There was a lot of self-reflection and self-assessment that Cate asked of Theo (both of which he struggled with) because there were few ways to interpret some of his work. For example, when Theo produced the song on GarageBand for the activist art unit, there was no other way to link how Theo understood the song as an anti-bullying statement. He needed to write it out on paper to be displayed with his song for the gallery in the gym and to be uploaded onto FreshGrade as evidence that he completed the assignment.

Cate often talked about slowing Theo's thinking down so that he could be more intentional with his multimodal meaning-making practices. She wanted him to be more involved in the process and not just the final product, which was why she often suggested having him map his ideas out on paper first and then switch to the device. On the other hand, Theo was quick to adapt to different content creation applications because the applications let him draw out his ideas and redesign them more freely than on paper. For some projects, I noted it was difficult for Theo to write out his ideas first, such as the GarageBand song he created during the activist art unit. Theo's practices and knowledge about content creation

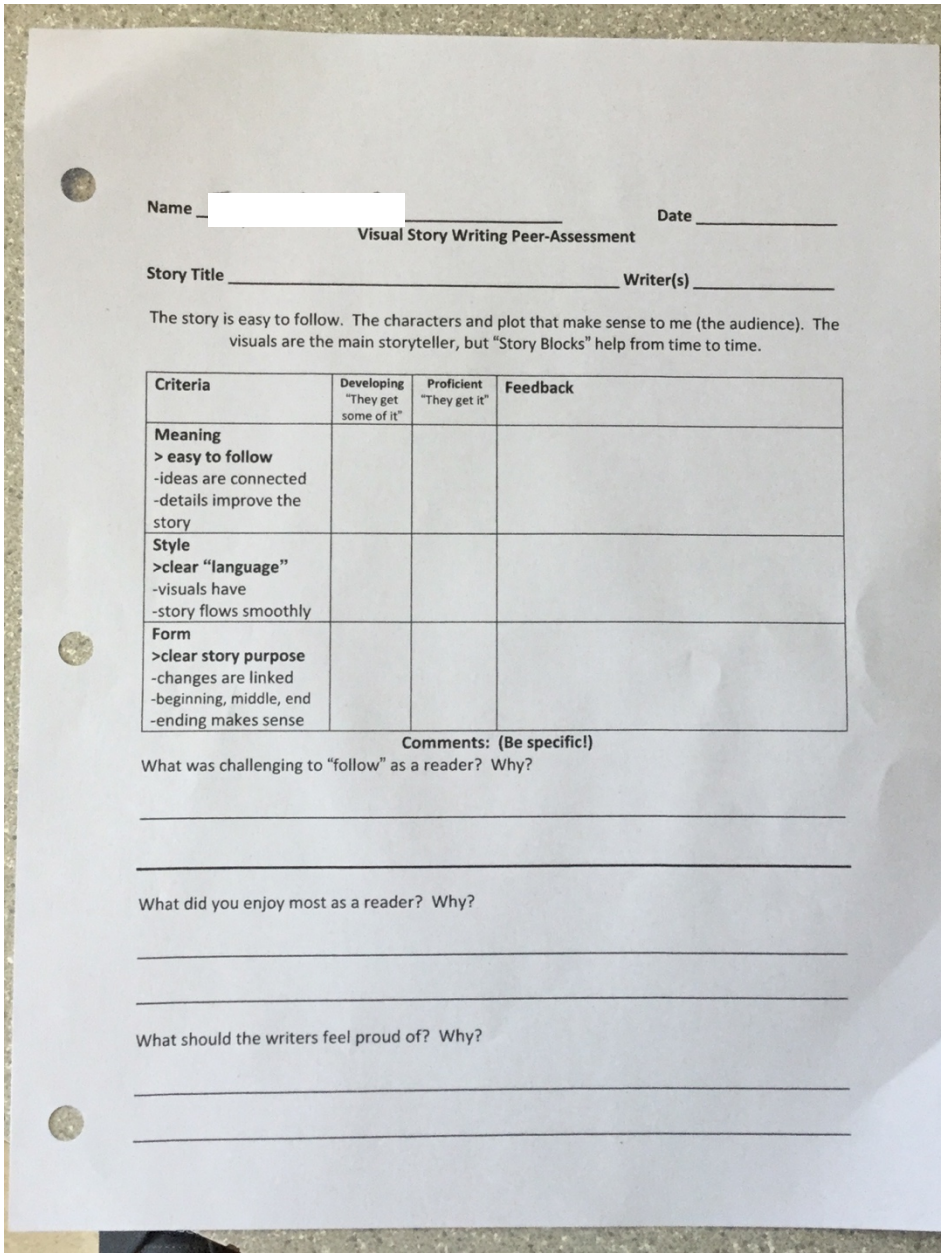
echoed Stein's (2008) observations that children make conscious and unconscious choices about "different modes for different expressive purposes" (p. 75), and that those choices are motivated by their interests and life experiences.

Despite Theo's difficulties with print modalities and his work being interpreted differently by Cate, he was still able to exercise some agency in his creations. Theo preferred to use digital devices to create multimodal texts because he felt he had creative freedom in his work. This was evident in his employment of Toontastic to create a story about the cannery owner. I observed Theo rapidly designing the characters, settings, and layouts for each scene and eagerly recording his voice-over narration with little hesitance as part of the storytelling. Ultimately, he demonstrated an awareness of how he wanted his story to be told and experimented with different application functions on his own without much instruction or guidance from Cate and other teachers. I viewed this as Theo exerting agency in his work. Hull and Katz (2006) noted that, in the creation process of multimodal texts, students develop a sense of agency in telling their own stories because a variety of modes can be used for their own purposes. This allows students to share their stories or messages in ways that are uniquely reflective of their own perspectives. Although Cate worried that Theo's attention would wane when working independently with multimodal texts, the findings in Chapter 5 indicate that he was able to remain focused, especially with a device. However, the key issues that Cate identified in Theo's learning (i.e., building trust, lacking personal responsibility, and working too quickly on devices) meant that his multimodal meaning-making practices were often interrupted for print-based work. This impacted Cate's ability to view Theo as a sign maker in his own right. There were multimodal meaning-making practices that were not necessarily recognized by her because she had her own sense of how

the modes should be used to communicate meaning. This mismatch in expectations about how multimodal compositions should be presented limited the more organic flourishing of Theo's own meanings. This was evident in the development of Theo's cannery story about immigration, during which Cate revised Theo's story with him to better reflect the content she taught during whole-class instruction. Jewitt, Kress, Ogborn, and Tsatsarelis (2000) observed that there are differences between learner-produced texts and the approximation of meaning in modes by other people. They wrote that "the common response to differences between pupils' texts as an indication of pupils' failure to correctly read (or reproduce) the stable messages encoded in teacher's [*sic*] communications is underpinned by this conception of learning [as the transmission of knowledge from teacher to pupil]" (p. 270). It was apparent to me that there was a cycle of looking for ways to get Theo to understand and represent the content correctly, but that also meant for Theo an occasional loss of ownership in his own work.

Although Theo was thoroughly engaged with his composition of multimodal texts, the limited opportunities for metalanguage around his work meant that he was not assessed for his knowledge of modes and affordances. It was more about how his multimodal designs translated into print. Despite the observational evidence that Theo had the capacity to create multimodal texts, Cate had difficulty assessing his work. For example, she once tried to use a rubric, which was rooted in print-centric story writing, that did not necessarily leave room for the multiple modes used in and throughout his compositions. Instead, this rubric highlighted his difficulties with print because he was unsure of how to complete the assessment. Cate also made it a routine practice for students to give peer feedback, which were written on Post-It Notes. I found it interesting that the students often wrote notes about designs, which

Theo was able to talk more about, while Cate wanted him to focus on his goals. While these were mutually exclusive approaches to content creation, it spoke to how differently they saw multimodal meaning-making practices and the difficulties of assessing transmediation in the classroom.



Name _____ Date _____

Visual Story Writing Peer-Assessment

Story Title _____ **Writer(s)** _____

The story is easy to follow. The characters and plot that make sense to me (the audience). The visuals are the main storyteller, but "Story Blocks" help from time to time.

Criteria	Developing "They get some of it"	Proficient "They get it"	Feedback
Meaning **> easy to follow** -ideas are connected -details improve the story			
Style **>clear "language"** -visuals have -story flows smoothly			
Form **>clear story purpose** -changes are linked -beginning, middle, end -ending makes sense			

Comments: (Be specific!)

What was challenging to "follow" as a reader? Why?

What did you enjoy most as a reader? Why?

What should the writers feel proud of? Why?

Figure 6.2 An example of a peer-assessment form for the Bloxels stories.

The privileging of language was not surprising even for a teacher as open to other modes of communication as Cate. Loerts and Heydon (2017) noted that, although there has been some forward momentum toward implementing multimodal designs of teaching and learning, many provincial curricula still prioritize competency with print literacies. I found that Cate's literacy practices with Theo were caught between the revised curriculum and the Ministry's policies on LD as they related to print-based practices. As I mentioned in Chapter 2, the revised curriculum in BC encouraged more multimodal work in Grade 5, including "using oral, written, visual, and digital texts . . . , respond[ing] to text in personal and creative ways . . . , using language in creative and playful ways to develop style . . ., and transform[ing] ideas and information to create original texts" (BC Ministry of Education, 2016a, pp. 21-22). The revised curriculum promoted more engagement with multimodal meaning-making practices, but language remains a privileged mode in the BC curriculum. Even with frameworks of multimodality informing curricula, literacy is still centered formally on previous notions around reading and writing. On the other hand, informal learning tends to include other meaning-making competencies (Kress, 2010). The difficulty lies in bringing into school settings multimodal texts that have otherwise been perceived as non-academic, like YouTube videos.

6.3 Multimodality as Inclusive Education (with Resistance)

From the start of the study, it was clear that Cate was focused on building a community of learners who respected each other's knowledge, strengths, and representations of meaning. One reason was that Cate recognized that she had a class of linguistically and culturally diverse learners with varying schooling experiences. As I noted in Chapters 4 and 5, Cate often talked about Theo's recognition of differences in his levels of achievement

relative to his peers even though Theo was not always verbal about his struggles. At times, he mentioned struggling on a project, such as the human body project, but he did not elaborate further on the topic. However, I found that his literacy difficulties were often brought to his attention during his engagement with the classroom community, particularly during his small-group collaborations. With Theo's social difficulties in mind, I viewed Cate's effort to reinforce a community of learners as arising from her knowledge of Theo's effort to be closer to his peers. Cate knew that Theo had a strong desire for a community even though he struggled with peer relationships. He very much wanted to make friends and to be included in activities. However, the more he struggled in his academic work, the more the schism widened between him and his peers.

In order to encourage participation and collaboration, multimodal meaning-making was positioned as a way to bridge differences. During our discussions about her understanding of multimodality, she often related it to having a flexible mindset around expressions of meaning. Flexibility was conflated with multimodality in Cate's practice. She saw giving Theo choices in his materials so that he was not limited to print as the primary mode as a form of flexibility, which contributed to him participating more in class. She mentioned that flexibility was important to allow Theo to engage in different ways of knowing and representing his learning as well as recognizing when her practices did not work for him (Interview, June 27, 2018). I came to realize that flexibility was really part of her understanding of literacy in general that also influenced how she understood participation and inclusion. Cate hoped that developing a community that respected multiple ways of knowing and representing meaning would even out (perceived) achievement gaps in the class by giving students like Theo opportunities to share their learning in ways that leveraged their

strengths (e.g., as tactile and musically inclined learners). Another way that Cate tried to build this community of learners was to go outside to the park, an activity she felt was worthwhile because they had shared experiences taking photos of plants and taking walks together. Cate felt that walks in the park helped the group to talk about their experiences as they completed projects (e.g., posters and poems) about the park. More importantly, the park served as a reminder that all of the students, regardless of their differences, lived in the same community and shared space together.

At the root of these shared meaning-making experiences was Cate's intent to find a way to teach language in an inclusive way. For example, when she spoke to me about going to Peabody Park with the students, she reflected on student opportunities to talk and write about the park as well as draw from their experiences together. Even when Cate explained to me about experimenting with different modes in the classroom, her practice centered on finding ways to ground modes in language in some way. For Theo, the tactile building activities with LEGO, plasticine, and Bloxel blocks were intended to help him visually represent his thinking while also promoting his ability to verbally articulate his understanding. The simple machines project, for example, did not just require Theo to build with recyclable materials; it also required him to show how he incorporated research from the Discovery Education Science Techbook into his structure and then talk about his project in a video for FreshGrade.

Cate's effort to create an inclusive and multimodal environment was both a form of "overt instruction" and "practical knowledge" (Kress, 1997, p. 17). When I revisited the data about Cate's literacy practices with Theo, I was reminded of Kress's argument that the production of texts is rooted in a world of movement. Kress (2010) wrote that there are two

perspectives, or what I read as intents, of making texts. Sign makers arrange signs "for [themselves] or for others" (p. 159). Such texts can exist as everyday academic material (e.g., books, articles, and videos), but, in Cate and Theo's case, I understand Kress's "world in motion" as looking around the environment for social and physical cues regarding how to proceed with a text. For example, Kress writes about crossing the street and needing to see and understand traffic cues (e.g., street signs, blinking lights, and drivers' lines of sight) in order to cross successfully. He argues that all of these cues are modal ensembles that inform his judgement about his next course of action. On the other hand, modal ensembles can be "orchestrated" (Kress, 2010, p. 161), which is how I saw Cate and Theo's interactions with a variety of modes in and outside of the classroom. In the classroom, Cate tried to lay out different materials for Theo to work with in hopes of not only generating interest but also raising his confidence in expressing his own meaning. Outside of the classroom, Cate used image, sound, and taste to appeal to Theo and his peers. For example, as a group they observed the park's surroundings together, notated changes in the park with photos and handwritten notes, listened for the "soundscape" (Kress, 2010, p. 160), and tasted berries to differentiate ripe from unripe berries. Both inside and outside the classroom, Cate had to demonstrate a sense of authority with "varying degrees of power" (Kress, 2010, p. 160) to guide Theo's attention and help him to make decisions about his choice of materials. However, I think the overall goal for Cate was to highlight signs that surrounded Theo and capitalize on opportunities for him to create his own modal ensembles.

As part of Cate's goal of creating a collaborative community of learners, Theo and his peers often worked in smaller groups. Sometimes these groups were self-managed, and, other times, Cate guided them through the literacy activities as part of book groups. In this

section, I highlight Theo's work in self-managed groups because Theo and his peers had to develop working relationships on their own during their work with multimodal texts. Cate's role during these collaborative activities was to be a facilitator of learning as well as a negotiator of Theo's differences with his peers. However, because Cate was responsible for all of the learning in the classroom, she was not always available to help Theo smooth over some of the issues in his groups, which required the students to work on their own and negotiate their relationships with each other. The small-group work, especially with technology, was also similar to a "multiliteracy center" (Hitt, 2012, p. 1), which encouraged Theo to develop some ownership of his ideas and increase communication between him and his peers. Underscoring the principles of a multiliteracies pedagogy is accessibility and equality, which Cate sought to promote during both whole-class and small-group work. Cate noted that Theo was still developing trust with his peers who had come to perceive him as inattentive to details and somewhat socially awkward. As such, the groups he worked with were carefully set up by Cate to avoid tension. Much of the small-group work during storytelling and creation activities utilized Bloxels. These small Bloxel groups were set up for reasons both logistical (i.e., there were not enough Bloxel kits and iPads for each student) and collaborative (i.e., Cate hoped the students would share their ideas and strengthen their partnerships). According to Jocius (2018), collaboration in multimodal compositions can have a number of benefits, such as creating models of work to build upon and transitioning between roles as experts and novices while creating stories and working with digital devices. In a study of two Grade 5 students, Jocius found that collaborative compositions included a process of negotiating and navigating ideas as well as determining how each mode is used to express ideas, all of which can be sources of contention for students. Theo was able to—

depending on the partnerships—express how he wanted his characters to look as well as contribute some ideas for the plot.

Although there were a lot of collaborative experiences in the classroom, I questioned whether Theo was in a fully participatory and inclusive space. Cate often reflected on small-group discussions as a way for Theo to share his understanding and background knowledge; however, as I noted in my observations, there were instances where he struggled to comprehend what his peers were saying and contribute to the discussion himself. There were also times when his peers did not want to interact with him during these discussions, such as when Angela, Vincent, and Gareth overrode Theo's contributions, or when Cynthia scolded Theo for wasting their group's time as Theo led a conversation about students moving in and out of the neighborhood. Theo's struggles to understand complex topics like immigration and activism affected his ability to relate to book group texts like *White Water*. Cate acknowledged that individualized instruction with Theo helped him to stay focused whereas conversations in groups taxed his stamina and required him to follow too many trains of thought. This meant that there were a number of instances where group meaning-making experiences were not inclusive for him, a reality that Cate recognized.

Between Cate and her students' sense of participation in the classroom, it was clear to me that opportunities for Theo to engage with other students were dependent on student dynamics. In this sense, I understood Cate's perspective of literacy through discussion and collaborative experiences as participation in the classroom. However, for students with LD, this understanding can be contradictory and marginalizing. In their study about students with intellectual disabilities, Kliewer et al. (2006) also note that literacy has been synonymous with participation in society. However, with Theo's struggles in some of these classroom

activities, he also experienced "literate invisibility," which Kliewer et al. define as "the establishment of categorical rules by professional expert authorities" (p. 172). In other words, there is an assumption about the skills and limitations of students after they have been categorized with a disability. Kliewer et al. argue that this assumption also requires "abstract invisibility" by practitioners to be in place (p. 72), which willfully ignores students' literate presence and ability in order for them to fit in the category. For example, a four-year-old student with Down Syndrome was viewed by a specialized preschool for students with disabilities as a child without functional skills and with limited potential for literacy development. When the student was transferred to another school, where the new teacher encouraged a range of literacy activities, including reading and dancing, the student "took on the role of leader and experienced great literate joy" (Kliewer et al., 2006, p. 173). This enhancement of participation means that inclusion is possible when both teachers and students are open to a broadened perception of literacy; this was echoed in Cate's promotion of different ways of participating in classroom literacies and representing meaning with a variety of modes. However, it was apparent to me that, although Cate was striving for an inclusive environment, the students were more resistant to Theo. Even when Theo tried to contribute to classroom discussions or collaborative projects, it was difficult for other students to accept his ideas or his work at times. Cate assigning Theo to specific groups was met with varying degrees of success. In some of these partnerships, it was clear that Theo's peers often took on a leading role. Some of his ideas and suggestions were not necessarily incorporated into the multimodal compositions because his peers added their details instead. On many occasions, I observed members of the group taking the iPad from Theo's hands as they worked on the story with him watching from the side. He was often overruled by his

peers when he tried to offer suggestions as well. Although Cate created spaces for Theo where she thought he could access the materials and engage in literacy practices with peers, it was clear that some of his peers still found ways to exclude him from fully participating (Koller, Le Pouesard, & Rummens, 2018). Part of the difficulty of these group collaborations was that, although Theo was able to demonstrate his strengths, such as navigating devices and applications as well as designing colorful visuals, the group did not necessarily see these as strengths because they had the skills to perform similar tasks. For example, when Vincent took the iPad away from Theo to tweak the design of the character, there was a sense that, although Theo was capable of design, he was not designing up to Vincent's standards for the group. In Jocius's (2018) study about the two focal students collaborating on text, she noted that the obstacles to composing were more technology related. For the most part, the students in her study were able to split their responsibilities to complete separate tasks that catered to their interests (e.g., one boy typed while another boy looked through photos). I found in my study that the technical issues in the classroom were secondary compared to Theo's social difficulties with his peer groups without LD. Conversely, when Theo worked with his close friend, Abby, who also had some social difficulties, Theo was able to take on a role that facilitated learning for the both of them when they worked on the Techbook content together. Because Theo and Abby shared some common difficulties in the classroom (like making friends), they were able to relate to each other more while collaborating together. It seemed that Theo was repositioned as the "primary knower" and their struggles were more normalized than his work in mixed-ability groups. Theo and Abby were more able to freely "share their ideas about texts without having to conform to the interpretations of others" (Hall, Burns, & Taxis Greene, 2013, p. 231).

Theo also encountered resistance when he participated in multimodal spaces like EdModo, which Cate and I often described as "Facebook for school" because of the platform's similarity in design, layout, and functionality to social media. The only difference was that Edmodo was meant to curate learning materials and share feedback on students' writing. What was less explored during this study was Theo's understanding of Edmodo as an inherently social space, which differed greatly from Cate's perspective. Cate viewed Edmodo as a platform on which to curate materials and post feedback on reflections and written work. Although Edmodo was not used as social media in the classroom, Theo indicated that he understood it as a social space. He took charge of ensuring his profile picture and information were up to date and reflected his identity. He also recognized that he could communicate with his friends, post comments about their work, as well as send messages. Lindstrom and Niederhauser (2016) argue that social media is a literacy practice on its own, and teachers should avoid seeing such interactions as frivolous or time consuming. However, because many of Theo's actions were interpreted as wasting time, he was sometimes denied access to a device that allowed him to log onto Edmodo, which further limited his participation in classroom literacy practices.

Although Cate was determined to create a classroom community that was accepting of multiple representations of meaning, it was obvious that multimodality did not necessarily equate to inclusive education (Florian, 2014). Theo was not always seen as part of the community by his peers and his multimodal meaning-making practices were not always seen as strengths that empowered his learning. Rather than embracing Theo's choices and his signs as meaningful, his identity as a student with LD, with difficulties in literacy-related activities, tended to be the more overt perception of Theo's identity. His work and

competencies were often associated with his behavior in class (e.g., losing focus, being distracted, or seeming socially awkward). There was also a trend of viewing Theo's work as not following Cate's criteria. Jocius (2017) suggested that students develop their literate identities through multimodal compositions as well. In her study about two focal students, Jocius noted that one student saw himself as a "good student" because he followed the teacher's criteria for multimodal compositions. The other student viewed himself as bad because he tended to follow his own creative inclinations rather than the teacher's directions. I found this case study to be similar to Theo's experiences. Even though he was not viewed by Cate as a "bad" student, her revisions of his work led him to think he was constantly "wrong" about his learning (Field notes, May 7, 2018).

6.4 The Barriers of Technology

When I talked to Cate about constraints of implementing multimodal meaning-making practices with Theo and the class, I found it interesting that she often associated constraints with technology. Devices and some of the educational applications like Bloxels, Toontastic, and the Discovery Education Techbook were helpful to her practices. But she also had a very strong position of technology being distracting for Theo and disruptive to classroom learning when the technology failed her. Cate clearly understood technological constraints as barriers to implementing uninterrupted learning and access to information. In Chapter 4, I identified multiple issues that Cate experienced: technical issues (e.g., faulty materials such as malfunctioning devices and applications), technological complications (e.g., privacy concerns), limited access (e.g., sharing devices with the entire school community and only having a few devices available in the classroom), and pedagogical challenges (e.g., limited teaching time and students struggling with texts).

Technical issues, technological complications, and limited access are not new issues, especially since the implementation of technology in education (Burke & Hughes, 2018; Wachira & Keengwe, 2011). However, each set of issues contributed to the limitation of Cate's instructional time as she was kept busy resolving the issues. For example, when she used the newly acquired Ozobot kits in her class, Cate was concerned about their durability and functionality after a couple of the robots fell off the desks in her classroom. Durability of technology, especially technology made for elementary students, has rarely been addressed in the research literature, but, as Cate's experience indicated, it played an important role in how she utilized technology with her students, even contributing to the list of barriers of technological use (Wachira & Keengwe, 2011). Despite being made for students and for classroom use, these gadgets could easily be damaged through normal wear and tear and were too expensive to replace. The vulnerability of these gadgets raises questions about the practicality of using technology in the classroom, especially as devices become increasingly tied to classroom learning. Such disruptions suggest that classroom literacy practices with technology can be relatively unstable experiences. Unlike textbooks or other print materials on paper, the use of devices and multimodal texts rely on technology to be fully functional; consequently, once something malfunctions, a sense of consistency with the materials can be lost. Many of the technical and accessibility constraints Cate experienced were reported by Wachira and Keengwe (2011), who noted that technical issues can become barriers to effective integration of technology in the classroom as they negatively impact teachers' planning and instruction time. Although their study reported on teachers who chose not to use technology in their instruction because of "unpredictable functionality" with devices and a lack of administrative leadership around technological implementation (Wachira &

Keengwe, 2011, p. 20), Cate recognized that, despite these constraints, it was her responsibility to manage these issues and learn to be flexible around them.

As noted earlier, with the focus on Theo's specific learning needs and challenges, Cate also understood materials that distracted Theo from his work as a constraint. For example, Theo was adept at using FreshGrade, but he was also easily distracted by the platform, and Cate noted that it took days for him to complete one post. Eyal (2012) argued that students with diverse abilities can benefit from the use of digital portfolio systems like FreshGrade because the platforms allow them to work at their own pace. However, for Theo, his own pace proved to be a constraint for Cate. Distraction was also extended across the teaching and learning environment as all of the students embarked on their own projects, making the classroom a busy and noisy environment. Cate's concern mirrored that found in Ryan et al.'s (2010) study, which explored teachers' anxiety about implementing multiliteracies pedagogy in seven primary schools—in particular, teachers' anxiety about managing classroom environments with high levels of student engagement that teachers perceived to be chaotic. Despite the perceived chaos in Cate's classroom, which seemed like a constraint for Cate as she managed multiple student projects at once, Theo seemed to enjoy this environment as he got to observe other student projects and had more opportunities to be social. From Theo's perspective, issues with technology and the busy learning environment were par for the course—a part of everyday work. He did not view them as necessarily barriers to learning the same way that Cate did. For example, during an interview, Theo alluded to working around perceived limitations on the GarageBand application, which aligned closer to a social-semiotics understanding of modal constraints. He acknowledged

that he did not know how to use the instrumental functions on the application, and he relied on remixing beats to assemble hip-hop music.

The discussion about technological constraints is important because I consider the constraints to be a part of teachers' professional knowledge. Throughout the study, Cate talked about weighing the affordances and constraints of teaching with technology, especially because she made note of Theo's struggles with his attention and his tendency to work on a device for endless amounts of time. However, because there was a lack of devices in her classroom as well as limited time, part of the problem for Cate was figuring out how to best maximize the potentials of technology for Theo. I saw Cate as being a proficient user of technology who was open to trying new digital material with her students. There was very little reluctance on Cate's part to use the technology in her classroom for her own instruction. However, as part of her instructional knowledge, she had to contend with the various issues that arose when using technology, and, as she noted, there was an element of planning for the unpredictable. Mishra and Koehler (2006) pointed out that, when technology "misbehaves," as Cate called the phenomenon, "it requires the teacher to engage with the affordances and constraints of particular technologies in order to creatively repurpose these technologies to meet pedagogical goals of specific content areas" (p. 1,032). I find that, when there are discussions about alternative plans, teachers usually rely on other technologies. However, in Cate's case, there were very few alternatives that she could turn to, as she pointed out, and this sometimes led to Theo not having access to his work saved on certain devices in a timely manner.

6.5 Re/viewing the Theoretical Model of Classroom Literacy Practices

In Chapter 3, I introduced Perry's (2012) model of literacy practices, which informed the development of the theoretical model I used to guide my data analysis. I needed to expand Perry's model because there are currently no theoretical models that exist specifically for researching and understanding the meaning-making practices of students with LD. In the expanded model, I consider both the teacher and the student's literacy practices as intertwined; however, I acknowledge that the factors that influence their practices differed. From a teaching perspective, the literacy practices are shaped by knowledge of the curriculum, policies from the Ministry of Education, materials (e.g., devices, applications, and focal texts), as well as professional development experiences that also influence the teacher's instruction (Golombek, 1998; Mishra & Koehler, 2006), literacy, and LD. This leads to a more active process of talking about teaching (described as "Shared Knowledge" in Figure 3.4) as well as unspoken beliefs that are personal to the teacher. Each of these components ultimately contributed to literacy events that were observable in the classroom and subsequently, the inferred literacy practices. Literacy events can include the use of a variety of semiotic materials, how instruction is designed, and how a student responds to the materials and the instruction (The NLG, 1996). A similar configuration depicts the student's literacy practices; however, the multiple forms of knowledge are based on the student's personal experiences, peer dynamics in school, knowledge about communication (i.e., using technology and viewing multimodal texts), as well as the challenges the student experiences in literacy activities. Theoretically, this overall sense of self as a learner and as an individual contributes to how a student participates or does not participate in classroom activities (Collins, 2011; Kliewer et al., 2006). The way a student participates in classroom learning

also influences the observable literacy practices of the student, which look different from the teacher's practices, but are purposeful and responsive to the learning environment. The way in which the student and the teacher interact with each other during literacy practices are a result of the power dynamics that influence ways of thinking and feeling about literacy and LD, who gets access to materials, and who is considered to be the active or hidden participant during literacy activities (Barton & Hamilton, 1998). Finally, teacher-student interactions play a role in multimodal meaning-making practices, which impact how students engage with multimodality (Barton & Hamilton, 1998; Kress, 1997; Vygotsky, 1978).

I found that although Cate's professional knowledge and Theo's multimodal meaning-making practices were broadly represented by the model, there needs to be additional frameworks that address how teachers shift their practices based on their use of certain modes. For example, in this chapter, I mentioned there were shifting literacy practices in Cate's instruction. I framed this as part of Cate's professional knowledge; however, these were complex and nuanced practices that speak to modal affordances as well, which were not necessarily well captured by this model. The model does speak to the many aspects of literacy practices that affect how students with LD participate in the classroom. In particular, Theo's competencies with multimodality at times increased his participation during hands-on projects. However, his difficulties with reading and writing print continued to limit his participation despite his stronger work with multimodal text making. This suggests to me that the model needs to include perspectives and perceptions of peers in addition to teacher-student interactions that affect the meaning-making practices of students with LD.

6.6 Chapter Summary

In this chapter, I situated my findings from Chapters 4 and 5 in literature about multimodality, multiliteracies, and meaning-making practices of teachers and students. The first half of this chapter focused on the different approaches to multimodality that Cate implemented with Theo. I noted that Cate was more likely to engage deeply with multimodal texts during whole-class instruction and activities, but during small-group and individual instruction, she focused mainly on print-based literacies. Multimodal texts played a prominent role in this study as Cate was comfortable using both digital and non-digital texts in her practice. With Theo's difficulties with print, the use of multimodal texts was a way to stimulate his interest as well as activate his background knowledge so that he could participate in more discussions with his peers. However, because she was scaffolding important content for learners with a wide range of needs, I found that much of her time was spent reinforcing what was heard or seen rather than talking about the meaning potentials of the modes used in the texts. In essence, she had to teach in a linear manner to ensure her students understood the content even though Jewitt (2008) suggested that the affordance of multimodal texts was the non-linear way students can gather information.

Because of the time Cate spent organizing Theo's work and checking in with the rest of the class, she had little opportunity to focus on the meaning potentials of the modes, otherwise known as the metalanguage of multimodality. However, I do not think Cate was aware she was not engaging with the modal affordances as much. Instead, her focus was on giving her students choices of materials and helping them to strategize ways to best represent their learning using different modes and materials. In this regard, I do not see Cate as lacking a knowledge of metalanguage because I did see hints of it in my observational and interview

data. I view this as an emerging practice of Cate's that was also hampered by a lack of time with Theo. As I noted in this chapter, Cate also had to balance Theo's multimodal meaning-making practices with print-based instruction, and assessment practices were still print-centric despite the use of an online platform.

In the second section, I discussed the various discourses about disability in Cate and Theo's classroom contexts. Cate recognized that Theo had difficulties with print that she felt were worsened by the school district's lack of services for him. This suggests that the gatekeepers are not necessarily teachers, but rather other factors in schooling, including curricula, special-education policy, and insufficient support from school districts. There was a particular challenge to assessing multimodal meaning-making practices. Theo demonstrated an ability to transmediate signs as he switched between multimodal texts to tactile building materials. Mills (2011) noted that transmediation was an approximation of meaning. However, I found that, in Cate's analysis of Theo's work, she was still looking for details that pointed to his accurate understanding of the content. Cate mentioned that the pulley did not look like anything from Theo's drawing while Theo felt he followed the plans in detail. There were power dynamics at play here, of course, in determining what constituted an accurate reflection of learning, and, in this case, Cate, as the teacher, made the final judgement on Theo's meaning-making (Kress, 2010). Despite the challenges that Theo experienced completing his work, it was clear that he found opportunities to be a sign-maker on his own accord. For example, he demonstrated a profound understanding of affordances in his work with multimodal compositions, and he was able to articulate his knowledge of the devices and applications.

The classroom community became a recurring theme in this study because it either enhanced Theo's inclusion in the classroom or limited his participation. Cate recognized early on that Theo had a strong desire for community; he wanted to find peers he could relate to and interact with on a regular basis. Cate also saw community as important for meaning-making as evidenced by her desire for her class to recognize and respect each other's diverse ways of representing their learning. Although Theo was quite social with his peers, his difficulties often impacted his relationships with them, and, at times, his ideas were even overruled by his groupmates. Sometimes, Cate changed his work herself instead of giving him an opportunity to share his understanding in an organic way. This spoke to the difficulty of seeing Theo as a sign-maker instead of as a learner with LD, his designation being strongly connected to his issues with print rather than his competencies with other modes. Nevertheless, Theo still demonstrated a sense of agency over his work as he took the lead viewing and creating multimodal texts. Kliewer et al. (2006) wrote that literacy also means participation in a society where competence is measured or judged by other people. As such, Theo was viewed by his peers as achieving differently, and he was often met with resistance from his peers even though Cate hoped that Theo would develop a stronger sense of ownership in his work through collaboration. Theo also sought community through online platforms like Edmodo, which included a social space for him to share messages. However, because the device through which Theo accessed Edmodo was seen as a distraction, his participation in the online space was also restricted. Research by Lindstrom and Niederhauser (2016) suggested that students' literacy practices in online spaces are valuable experiences, and teachers may need to reconsider how meaningfully they see such engagement practices between students.

In the fifth section, I revisited the theoretical model of classroom literacy practices from Chapter 3 to discuss why the model was helpful for researching and understanding the multimodal meaning-making practices of students with LD as well as how the model can be further expanded. I noted that while teachers' knowledge was broadly represented in the model as professional knowledge, Cate's understanding of modal affordances in her instruction needs to be included as its own component. However, the model captured Theo's participation in the classroom context as well as how his engagement was dependent on his practices, his learning difficulties, and how his peers (or his community) perceived his literacy abilities.

I concluded this chapter with a discussion about the constraints of teaching with technology. As I mentioned before, Cate saw that technology for Theo could be a source of disruption and distraction. Disruptions with technology are increasingly commonplace, and teachers are required to figure out how to fix these issues as part of their instruction. Much of the research about multiliteracies in the classroom point to a chaotic classroom environment (Ryan et al., 2010), an observation also made by Cate. In the 10 years since Ryan et al.'s study, devices and applications have become more complex, which requires teachers to draw from a deeper pool of knowledge to use technology well in their instruction. These constraints were important to review because Cate felt they took time away from her instruction. With the discussion of my findings in mind, I propose recommendations for pre- and in-service teacher education, provide implications for literacy curricula and educational policy, and discuss the potential for future research in my concluding chapter.

Chapter 7: Implications for Teacher Education and Conclusion

I conclude this dissertation by discussing the implications of my study for key stakeholders as well as address some of the issues that were raised earlier in this dissertation. This final chapter consists of four sections. In the first section, I discuss the implications for pre- and in-service teachers, and I make recommendations for teacher education/training in the second section. In the third section, I address the implications for educational policy and literacy curriculum development. The fourth section describes the topics and questions related to multimodal meaning-making practices and LD that require further study. I close this chapter with my concluding remarks about the study.

7.1 Implications for Pre- and In-Service Teachers

It is important for teachers to consider how their expectations of multimodal meaning-making practices may differ from their students' intentions. The perceived mismatch in expectations between student and teacher can lead to perceptions of students "doing" multimodality "wrong" because their meaning-making practices do not align with academic or curricular standards. However, I argue it is important to consider how teachers and students meaning-making practices are weighted differently in the classroom environment. In the case of Cate and Theo, I found that Cate's focus on Theo's academic needs (e.g., slowing down his thinking, maintaining his focus, completing print-based work) led to her multimodal meaning-making practices being altered significantly for Theo compared to the rest of the students. She placed a stronger emphasis on the comprehension of content and how the modes supported information transmission to the students. Theo, on the other hand, was "picking apart" the modes during his viewing and composition experiences more so than Cate because he was interested in visuals and sounds. He had a greater

awareness of how different applications benefited his communication but that did not always align with Cate's expectations of learning.

When I compared Cate and Theo's experiences with multimodality as part of classroom literacy practices, I found that they had parallel experiences and it was difficult to find alignment between the two of them. Part of that was attributed to the traditional teacher-student dynamics and roles in the classroom, but one of the more prominent reasons for the incongruencies between Cate and Theo was their understanding about multimodality. They both demonstrated different knowledge about multimodal meaning-making that seemed to "miss" each other in practice. Because their understandings of multimodal meaning-making practices were different, so too were their ways of communicating about multimodality, which at times led to confusion on the part of Theo and frustration on the part of Cate as she redirected his attention to align with her expectations of learning.

It is important for teachers to consider whether they see students as sign makers or as members of categories based on their difficulties. Anderson, Stewart, and Kachorsky (2017) note that seeing students with literacy difficulties as designers and creators of meaning and knowledge can enhance their learning experiences. They suggest that "analyzing students' enactment of authorial stance, rhetorical force, and authoritative renegotiation of meaning potentials in their multimodal designs [can] highlight generative opportunities for challenging deficit literacies opportunities" (p. 120) for students who have been viewed as having lower literacy achievement. It is important to note that Theo's exploration of multiple modes for communication was not very different from his peers without LD. However, the challenge for teachers is to learn how to disassociate students' identities and abilities as sign makers from their LD. There are profound implications if teachers reposition students with

LD as sign makers and “knowers” (Hall et al., 2013, p. 231) as the repositioning can help teachers to re-evaluate student work as meaningful rather than deficient in some way.

However, I also found that Cate limited her multimodal meaning-making practices to focus on print-based activities with Theo as if she were balancing old and new conceptualizations of literacy in her practice. There were times when Theo had no choice but to represent his ideas in print and in drawing even though he did not prefer either of those modes. He often opted for a device, and his work flourished when he was given the creative freedom to compose his own multimodal texts; however, Cate occasionally had to revise his work to better meet her learning expectations, which often resulted in the loss of some of Theo’s creative freedom and ownership of his work. Although Cate spoke of giving students choice in the materials they used to make meaning, it was also evident that Theo did not have access to a device at times because he did not complete his print-based work. On other occasions, Cate simply did not have enough devices in the classroom and when she did, there were many technological difficulties she needed to address first. However, when there was a device available to Theo, he actually demonstrated a wide range of abilities and knowledge about meaning-making on devices. He was adept at designing and creating texts on different devices, and he was able to speak about the affordances of content-creation applications. Although he was aware of his challenges with print, he was confident in and about his work with technology. Using Cate and Theo as an example, it is important for teachers to consider that many forms of distractions cannot be prevented, like technical difficulties, and others might actually be part of the process of learning how to compose multimodal texts. The experimentation that Cate noted in this study might look distracting but through that process,

students may experience moments of accomplishment like Theo completing his simple machines project.

The struggle to see Theo as an agentive sign maker was also reflected in how Cate understood "meaningful work." Cate understood meaningful work as it related to Theo as the derivation of meaning from multimodal texts for the purpose of completing assignments and projects. As such, there were some tasks that were not seen as meaningful. For example, when Theo was repeatedly watching the music video because he liked the music and the visuals, Cate stopped him to move him onto other assignments he had not yet finished. When I asked her why, she responded that he was re-watching the video for the sake of re-watching it, and she could tell he was not pulling any more information from it. I thought this was an interesting assessment of what qualified as meaningful work because Theo was not asked in that context whether or not he was learning new information. As Rowsell and Kendrick (2013) note, "the richness and complexity of visual images, in combination with their range of forms, present inherent challenges for both researchers and teachers to make sense of these texts" (p. 589). However, I think in Cate's case, she felt like she had a strong sense of the multimodal texts in terms of the overall meaning and how they fit into her instructional design. What was less recognized was how Theo was putting together the meaning before he was asked to complete other work.

From Cate and Theo's experiences with different types of tasks, teachers need to reframe notions about academic work during multimodal meaning-making practices. Cate was expecting Theo to complete tasks and behaviors that were normally associated with academic learning and progress (e.g., staying focused, submitting posts on time, and reading quietly). Theo, on the other hand, demonstrated behaviors that contributed to academic

learning, but were easily misconstrued as being distracted or off-task (i.e., watching a video more than once, gravitating towards a device instead of doing written work). Throughout the study, I documented the different ways that Theo attended to details in his projects; however, it was only through observing him and his text-making practices that his hidden literacies were more obvious (Rowsell & Kendrick, 2013). However, it was difficult for Cate to watch Theo while he worked on his projects because she was often circulating the classroom. By the time she came back to Theo to work with him solely, he was perceived to be on the "wrong track" without recognizing the efforts he put into designing the texts. It seemed to me that Theo's proficiency with technology was often overlooked to focus on his literacy struggles even though there were different types of academic work taking place and Theo's work was simply unrecognized at times. My findings suggested that Theo performed a lot of hidden work (e.g., attending to visual details and audio modes in the music video or the Techbook) while Cate was looking for evidence of more obvious academic work (e.g., finishing Daily 5 activities, starting new tasks, and staying focused on a text). Although Cate acknowledged a positive relationship with Theo, she and Theo sometimes struggled to communicate with each other about the work being done, which resulted in Theo looking distracted when he might not have been and Cate stepping in to revise his work. These incidents with Theo were commonplace, especially if there were concerns about distraction, and they also interrupted Theo's learning. One of the affordances of teaching with multimodal texts is the notion of accessing information from multiple entry points (Jewitt, 2005); as such, there was a need to recognize the multiple ways of gathering information from these texts—especially where technology was involved—even if they may not have seemed like traditional academic entry points.

7.2 Recommendations for Teacher Education and Training

Bazelgette and Buckingham (2013) note that multimodality has been oversimplified in school contexts as using non-print-based multimodal texts to teach print-based skills. They argue that this has resulted in muddled language around multimodality in practice; arguably, the findings from this study support this stance. Materiality is one aspect of multimodality; there are many other considerations that need to be understood and applied in teaching contexts for the sake of students with LD, such as how students are navigating multimodal texts and what modes (layout and design in particular) magnify their LD instead of mitigate them. However, from observing and talking to Cate about her instructional approaches with Theo, it is difficult not to consider the importance of materiality in teachers' practices. Cate understood that she needed a variety of multimodal texts and materials to activate Theo's learning; however, the conversations between Cate and Theo were mostly content related rather than semiotically related (e.g., addressing designs and meanings). The focus on content highlighted Theo's struggles whereas focus on his multimodal meaning-making—his creative output, his competency with technology, and his decision-making process when using a variety of modes—may have encouraged him to access content in ways more sensical to him. From her school district's investment in technology to Cate's own collection of books, it was not unexpected that Cate's understanding of multimodality skewed toward analyzing the practical value of each kind of material (e.g., robotics kits, the Techbook, tactile materials, and picture and chapter books) as it pertained to Theo's learning given his difficulties.

The heightened focus on materiality as found in this study is reflective of how multimodality is often discussed in classroom contexts (van Leeuwen, 2015). However, this

study suggests that there needs to be an effort to move beyond talking *about* materials in the classroom to learning to talk *with* the materials teachers have at their disposal. Godhe and Magnusson (2017) observe that it is a challenge for teachers "to acknowledge the way young people experience texts and, at the same time, support their reading and writing development" (p. 846). This issue is further complicated because teachers are unsure of how to integrate metalanguage about multimodality into their work (Cloonan, 2011). In the context of this study, I viewed metalanguage as talking about the ways modes are used by teachers and students and their potentials for communication beyond practical aspects, such as activating student learning, giving students communication choices, and providing enhanced access to curriculum materials (Choi & Yi, 2015; Kennedy & Deshler, 2010; Naraian & Surabian, 2014). These topics are well covered in teacher education and training as well as in research about classroom literacy practices; what is less discussed about multimodality is implementing metalanguage in practice, which requires the engagement of teachers and students in an understanding about communication that may be more critical than what is reflected in curricula or viewed as important for literacy development (Loerts & Heydon, 2017). The use of metalanguage in the teaching of multimodality is essential for teachers because it can deepen the engagement between thought and language and shift teachers' and students' experiences with multimodal texts from surface-level comprehension to "explicitly articulated" and conscious understandings (Cloonan, 2011, p. 24).

Shanahan (2013) suggests that teachers need to be given opportunities "to develop more substantive content knowledge around multimodal communication in professional development opportunities" (p. 223). For pre-service teachers, this means that teacher education coursework also needs to focus more on engaging with metalanguage as well as

move away from applying print-based social practices to multimodal compositions (Shanahan, 2013). However, Cate's experiences indicate that, while metalanguage needs to be included in some way during instruction, mobilizing such a practice requires realistic expectations. As evident in Cate's practice, Theo required instruction to build upon his comprehension of multimodal texts even if they were not print-heavy. However, given Theo's interests in design, the results of this study indicate that some discussion about creative output can be beneficial and encouraging for students with LD. Therefore, I suggest that teacher education courses include experiences with or discussions about metalanguage about multimodality to balance the theoretical with more practical approaches for teachers. Activities can include analyzing multimodal texts to discuss modal affordances rather than solely content (which was discussed in much of Cate's practice), exploring how different applications provide different options for design (referring to Theo's practice), and giving students opportunities to talk about the choices in their creative processes (a practice limited in Cate's classroom due to time constraints). I also think more observations of how students talk about or understand modal affordances can help clarify different perceptions about multimodality between teachers and students as noted in the experiences of Theo and Cate.

This study also highlights the difficulties of assessing multimodal compositions. Mills and Exley (2014) note that more "research is needed to investigate how literacy practices in the current times become integrated within writing [i.e., a use of both print and digital modes to produce meaning] curricula in the formative years of schooling" (p. 435). Despite the promise in content-creation applications that allow for multimodal storytelling and design, there is still a need for assessment models that cater to multimodal texts. The findings in this study suggest that there is a mismatch between assessment protocols and

multimodal compositions—especially those composed using technology—which do not necessarily rely on print to convey information (Silseth & Gilje, 2019). For example, the Bloxels kits featured in this study do not have assessment materials because, ultimately, the application is produced by a toy-and-gaming company rather than one specializing in educational technology. Silseth and Gilje (2019) recommend that teachers "consider developing assessment practices in which both formative and summative assessments are made relevant in the context of both individual and group work" (p. 39). More importantly, these assessment practices must distinguish between traditional print-based writing and multimodal composition as both require different skill sets and decision-making processes. I argue that such changes in mindset about assessment should be integrated into teacher education programs and professional development opportunities. Assessment theories, resources, and practices must also account for multimodal ways of communicating learning rather than homogenize the composition-assessment processes for print writing (Kress, 2010).

7.3 Implications for Educational Policy and Literacy Curricula

At the beginning of this dissertation, I noted that there was a perception of teachers being less adept or skilled at multimodal instruction (e.g., Bazelgette & Buckingham, 2013; Naraian and Surabian, 2014). However, that view oversimplifies the struggles and the achievements of teachers who strive to implement multimodality as a way to meet the needs of diverse learners and such positions can imply that teachers are doing multimodality right or wrong. As Cate noted during the study, there was a level of risk-taking to try new pedagogical methods and resources that focus on multimodality that needs to be supported by the school district. Although the revised curriculum calls for more multimodal work and a

focus on teaching students to become competent in their critical uses and analyses of a variety of texts (BC Ministry of Education, 2018a), the special education policy still sees students with LD as struggling with print-based literacies. It was clear that Cate was balancing competing models of literacy while trying to address Theo's needs, which speaks to the complexities of adopting a multimodal framework and it is very likely a concern shared by many teachers. It is important to explore how the curriculum can serve as its own constraint for teachers. Loerts and Heydon (2017) note that literacy curricula can limit multimodal meaning-making practices in the classroom, especially with the continued focus on print-based literacies and, in some provinces, standardized assessment. In Cate's case, there were some restrictions that came from the technology and the choices made for her by the school district. Although there were many conveniences to using the Discovery Education Science Techbook and FreshGrade for assessment, these platforms had limited options for modifying content to meet Theo's learning needs, and they did not always align with Cate's instructional methods. Teaching and assessing with technology ultimately require a lot of classroom time that can make literacy-learning experiences for both teachers and students with LD feel rushed and overwhelming. I also question how technological applications highlighted by the district align with models of literacy that teachers have to address in their teaching. For example, Cate noted a variety of free applications that she never used and that did not align with her teaching but were prominently featured in the devices. On the other hand, if licences to educational sites were not purchased because of budget constraints or some resources were simply unknown to the district, it would have been understandable that Cate felt limited in her resources, especially if updated textbooks had not been purchased in a timely manner to address curricular expectations.

Secondly, although the BC curriculum encourages teachers to teach with multimodal resources, it provides little support for teachers to develop the metalanguage mentioned in this chapter. I found that Cate constantly referred to the curriculum to support her instruction of Theo; however, the curriculum lacked the information to help Cate talk about modal affordances in addition to the content. The core competencies for the communication section of the document spoke to "acquiring and presenting information, focusing on intent and purpose, and connecting and engaging with others" (BC Ministry of Education, 2018c, para. 1), but there was little information about how to analyze texts to discuss multimodality. Similarly, in the English Language Arts curriculum, with its elaborations to provide teachers with more information about terminology, there was a list of text types (e.g., oral, written, visual, and digital), but the multimodal metalanguage was limited to "how text and visuals are displayed" and "sensory detail." Again, this provides scant information for teachers about developing an awareness of metalanguage and incorporating such a practice into their instruction. For example, there is little information about unpacking visual modes according to angles, colors, patterns, and size. Much of that type of discourse needed to be generated by Cate on her own while working with Theo, which was not a common practice, because she did not have much time with him.

Finally, I want to return to Cate's effort to obtain services for Theo as mentioned in Chapters 3 and 4. In Cate's experience, there was a clear difference between an undetected disability and a disability that was detected but overlooked. Theo had a designation on file that if completed, would have qualified him for additional support. As Cate pointed out, much of her practices with Theo would have probably been different had there been enough assistance by the school district. As such, the discourses of disability that I mentioned in

Chapter 2 were also prevalent in this case study. It is equally important to consider how to deconstruct stereotypes or misconceptions about disability once a student receives a designation. For Theo, who was "missed" (in Cate's words), there were lasting implications on Cate's instruction and Theo's multimodal meaning-making practices that was difficult for her to ameliorate during her short time with him.

7.4 Suggestions for Additional Research

This dissertation suggests there needs to be more research about the multimodal instruction of teachers and the practices of students with LD. There were many contradictions that Cate worked through and with during her time with Theo and this study only addresses some of the key issues that they faced. Cate noted that with Theo being a boy with LD, there were many societal misconceptions about his abilities, some which occurred during this study (e.g., his work with technology). I realized after the study that Cate never addressed the contradictions as they applied to her teaching experiences. For example, Cate was comfortable working at a different pace from her colleagues even though she felt that multimodality was a way to build a community. The community aspect applied more to the students than with her because she did not share the same experiences or experienced the same level of support as some of her colleagues. I continue to question what are the needs of teachers in order to successfully implement multimodality as a community?

Additional study needs to be done on how notions of LD are perpetuated through the texts and tools that teachers are expected to be used by their school districts. An analysis of multimodal materials through a multimodal lens would be beneficial as well, particularly how they advance and limit the work of students with LD. It would also be important to investigate how platform design (e.g., print-heavy pages and small text size) may further

exacerbate notions about disability. FreshGrade, for example, required students to scroll through a number of postings before students could find the correct one to update with their reflections and file uploads. These learning materials need to be deconstructed to better understand how each component within the platform can be helpful to teaching and learning and how they can become barriers on their own. Williams and Hennig (2015) note that there is a lack of research about optimizing website designs for people with LD. From my study with Cate, I believe teachers are already analyzing their materials—including websites—for efficacy though they may not be considering how their materials may affect students with LD specifically. Regardless, it would be important to study how teachers make sense of their materials for their students.

7.5 Concluding Remarks

Tensions about multimodality for students with LD continue to persist as teachers experience challenges with identifying appropriate technological resources, receiving support from expert teachers about LD, and having material options beyond the digital. Much of the literature about multimodal meaning-making practices tends to be seen as community-based practices with individual interests, preferences, and skills being uniting factors. However, in the context of teaching students with LD, especially those who may have difficulties in their social relationships, the findings in this study indicate that multimodality may not contribute to the strengthening of community for students with LD. For example, Theo was met with some resistance from his peers when he tried to contribute his ideas to small-group projects, and he was often overruled by other classmates. As Cate noted in the study, multimodality is not some grand conversation about different learning needs but rather pieces of classroom management, resources, and knowledge put together within one classroom that, altogether,

can result in a sense of chaos. More importantly, multimodality does not necessarily facilitate inclusion of students with LD despite the shift away from a deficiency outlook. Although the multimodal meaning-making practices of students with LD are rich in creativity and personal resolve to work through challenges, their practices can be implicitly tied to perceptions of distraction and disruption as well. It can be difficult for teachers to reframe this outlook of the practices of students with LD even though students may have an understanding of modal affordances for different purposes and contexts. Part of this disconnect is also a lack of time or ability to understand how students may view their practices and their academic learning relative to their teacher, who must meet curricular expectations. Ultimately, it is important to give students with LD space to explore their own meaning even if they are seemingly mired in difficulties. As such, teachers need to be aware of the potential to conflate LD with difficulties in all modes and media, and they would also benefit from consideration of how practical understandings of print and difficulties are spilling into knowledge about multimodality.

I conclude this dissertation by acknowledging again that, as a single case study about Cate and Theo's multimodal meaning-making practices, it is difficult to generalize the findings of this study to other teachers and students with LD. However, Cate and Theo's circumstances in their school district (e.g., with its lack of academic support, incomplete paperwork, changes to the curriculum, busy classroom environments, and limited instruction time) are likely also experienced by many other teachers and students. Cate reiterated that the lack of academic support became the most challenging obstacle to overcome because it impacted every aspect of her work with Theo. She noted throughout the study that she wished for more specialist support for Theo to address his literacy difficulties while she

harnessed his interests in multimodality in a more productive manner. She hoped for more collaboration with the learning specialists in her classroom to balance out Theo's difficulties with his strengths and yet she received little support throughout the school year. These are not issues that can be resolved easily. However, I think a key part of this study was the reflection on and exploration of beliefs about pedagogy, learning, and disability, which many, if not all, teachers eventually undertake in their work. This study speaks to the contentious ideologies in teaching and literacy practices as exemplified by Cate as she "managed the gap" in her instruction. Despite the challenges in the classroom, I found that Cate carved out pockets of time and space to "play around" with different modes, materials, and places. When looking at literacy practices, it is also important to consider how teachers and students perceive experimentation and risk-taking with new approaches or skills, especially in today's technologically oriented society. As Cate and Theo demonstrated in their practices, there are times when modes, materials, and projects do not work out, but the time and effort spent learning about ourselves and our interests matter most in multimodal learning environments.

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Appendices

Appendix A

Teacher Consent Form

Principal Investigator: Dr. Marlene Asselin, *Associate Professor*
Department of Language and Literacy Education (LLED)
University of British Columbia

Co-Investigator: Lisa Chang, *LLED PhD Candidate*

Purpose of the Study and Invitation to Participate:
This is a dissertation study for the completion of a graduate degree in Language and Literacy Education at UBC. The dissertation will be a publicly available document after its completion.

The purpose of this study is to document the many ways literacy is taught in the classroom for students with learning difficulties and to explore teachers' and their students' perspectives on literacy teaching and learning. We want to learn more about how teachers develop an understanding of multimodal literacy instruction, such as the use of pictures, movies, drama, art, and technology, in addition to teaching reading and writing print.

You have been invited to participate in this study because you currently teach an elementary aged student with learning difficulties and you have the training and professional experience in literacy instruction for students with diverse learning needs.

Procedures of the Study:
You will select a focal student to participate in this study with the following criteria:

1) The student experiences a learning difficulty in literacy, which is defined by the Ministry of Education as persistent difficulty with oral, reading, and writing language skills, information organization, letter recognition, etc.
2) You have documentation of the student's learning difficulty (e.g., Level B or Level C assessment results, previous teachers' reports, parents' observations, teacher-parent discussions, medical/ practitioner reports, etc.); and
3) You have previously communicated with the student's parents regarding the student's unique learning needs.

The focal student may be an English language learner as long as the documentation differentiates the difficulty from a language difference.

After a student has been selected, you will be provided with an introductory letter that can be mailed, hand delivered, or emailed to the parents depending on how you choose to communicate with the focal student's parents. The introductory letter to the parents invites their child to participate in the study and includes the contact information for the investigators of this study. Parents will be instructed to call or email Lisa Chang to speak further about the study as well as obtain the necessary consent should they agree to their child's participation. Other arrangements will be made with you if parents cannot meet the

Co-Investigator in-person. If a translator is needed, Lisa Chang will obtain one for the parents and the forms will be translated as well.

I will ask to arrange a time with you to privately meet with your focal student to obtain assent in your classroom or in a quiet space in your school. No data collection will begin until the focal student agrees to participate in the study. During each interview or observation, I will also quietly ask the student if s/he would like to be participate in the data collection for that day. They have a right to refuse, in which case the data collection will focus only on your instruction.

If parents request a meeting with the Co-Investigator, your classroom space may be used for the meeting and you may be required to attend the meeting depending on the parents' concerns or questions.

Data will be collected in your classroom, which is also the primary setting of this study, and will include:

1) Interviews with you regarding your instructional practice and design of literacy activities, which will be audio recorded and transcribed. Interviews can last between 30 minutes to an hour depending on your availability.
2) Discussions with the focal students on their literacy learning and achievement, which will be audio recorded and transcribed. These discussions will be 15 minutes once a month after the literacy instruction time and as permitted by you and the student. The discussions will take place in your classroom and will be audio recorded and transcribed as well.
3) Observation and written field notes of teachers' practice and students' learning as well as teacher-student interactions during literacy instruction. The length of the observations are dependent on your schedule and can last anywhere between 30 minutes to 2 hours.
4) Photo documentation during the observations, which will be shared with you for your instruction and assessment purposes. Only the focal student's work will be documented. Your teaching plans, curriculum documents, classroom literacy assessments, and other similar materials will also be photographed. There is no additional time needed for taking these photos as the documentation occurs during observations.

Each month, Lisa Chang will ask you to review the data collected and you will have the opportunity to ask for photos and interview data to be excluded from the data analysis. Prior to the end of the study, you will be asked again for a final review of the data.

Time Commitment:
The study will take place from January 2018 to June 2018. You and the student will be observed during your literacy instruction time. You will schedule observation time with Lisa Chang at your convenience and you may specify how many observations can be completed each week. Longer interviews will take place at the beginning and end of the study for about an hour. Member checks and final interviews may be completed after the end of the school year from July to August 2018 depending on your availability. Shorter interviews or discussions will take place during the study at a scheduled time with you.

Confidentiality:
The identities of you and the student as well as the school district and the school will be kept strictly confidential. All names will be changed to pseudonyms. Any identifying information in

photographs will be blurred or removed completely. Only the Principal Investigator and the Co-Investigator will have access to the data collected during this study.

Data will be shared with you through UBC's secure server called Workspace, which Lisa Chang will set up for you so you can access the files. All digital files will be stored on Workspace and password protected. Non-digital documents will be locked in a secure cabinet in the Principal Investigator's office in the Department of Language and Literacy Education at UBC.

Use of Data and Results:
In addition to the dissertation, the data and results of this study may be published in academic and professional journals, conferences, and book chapters.

You will have access to the photos taken of you and the student as well as your interview recordings and transcripts. Observations made by the Co-Investigator will be shared with you during interviews. To protect the privacy of the focal student, only Lisa Chang and the Principal Investigator will have access to the student's interview data.

Official academic records, psychoeducational assessments, or other confidential documents **will not** be collected in this study. Therefore, no private information will be published in any publicly available document.

All published materials, such as the publicly available dissertation, articles, and conference proceedings, will protect your identity through the confidentiality measures mentioned above. Photos collected during this study may be published in academic publications, conferences, and the Co-Investigator's dissertation. Any photos with you or your student's identifying information (such as faces and names) will be removed or blurred completely prior to the publication to ensure confidentiality.

Potential Risks of the Study:
We do not think there is anything in this study that could harm you, your student, or parent(s). However, there is a possibility you may be upset or troubled by some of the interview questions, observation notes, and photos. Should you have any concerns, please let the study investigators know immediately.

If the focal student becomes upset during the study, Lisa Chang will direct the student to speak to you first. Additionally, you will be asked to identify other trusted school personnel the student can speak to such as the guidance counselor or the vice principal. Lisa Chang will speak to the personnel you identified about the study as well as notify them of their potential role should there be an incident. Lisa Chang will also notify the parents if an incident occurs.

Benefits of the Study:
Through your participation in this study, you are enhancing the understanding of multimodal literacy instruction for students with learning difficulties, which is still an emerging topic in educational research. You may use the data collected by Lisa Chang for your professional use such as writing reports about the focal student, developing assessments, or planning future instruction.

Payment:
This study does not receive funding. You will be compensated by the Co-Investigator with a gift card to a bookstore for the maximum amount of $175 for your time and participation in this study. If you choose to withdraw from the study prior to completion, the amount on the gift card will be $25 for each month you participated in the study.

Contact Information:
If you have questions or concerns, you may contact Dr. Marlene Asselin (Principal Investigator) at [e-mail] and Lisa Chang (Co-Investigator) at [e-mail].

Contact for Complaints about the Study:
If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance email RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

Consent:
Taking part in this study is entirely up to you. You have the right to refuse to participate in this study. If you decide to take part, you may choose to pull out of the study at any time without giving a reason and without any negative impact on your employment.

Your signature on this consent form indicates that you are willing to be a part of the data collection described above and that you have received a copy of this consent form for your records.

Please keep a copy of this consent form for your records.

- ✓ I **consent** to participate in this study and the forms of data collection indicated in this consent form (observations, interviews, and photo documentation) as well as for the use of my classroom as the setting of this study. I am aware that photos from this study may be published in publicly available documents like a dissertation or academic journals. I **consent** to my photo being published after all identifying information have been removed by the Co-Investigator.

  I **agree to not share** official academic records, psychoeducational assessments, and other confidential documents of my focal student for this study.

_____ _____
Signature Date

_____
Print Name

Appendix B

Parent Consent Form

Purpose of the Study and Invitation to Participate:
This is a dissertation study for the completion of a graduate degree in Language and Literacy Education at UBC. The dissertation will be a publicly available document after its completion.

The purpose of this study is to document the many ways literacy is taught in the classroom for students with learning difficulties and to explore teachers' and their students' perspectives on literacy teaching and learning. We want to learn more about how teachers develop an understanding of literacy instruction when they use pictures, movies, drama, art, and technology, in addition to teaching reading and writing.

Your child has been invited to participate in this study as the focal student because **[TEACHER'S NAME]** would like to learn more about your child's diverse learning needs in literacy.

Procedures of the Study:
After obtaining your consent for your child's participation in the study, Lisa Chang will explain the study to your child and obtain his/her assent. The primary setting of the study will be **[TEACHER'S NAME]**'s classroom. The information collected will include:

1) Interviews with your child about literacy learning and experiences with classroom instruction. I will talk with your child in the classroom. These talks will be audio recorded and transcribed.
2) Observations of your child's learning and interactions with the teacher will be written down in notes.
3) Photos of your child's learning and engagement during literacy instruction will be shared with you and the teachers for instructional planning and assessment purposes. Your child's work and classroom literacy assessments may also be photographed.
4) The photos taken of your child will be shared with you through UBC's secure cloud storage called Workspace. Your access will be set up for you by Lisa Chang. Each month, Lisa Chang will contact you and ask if you would like any of the photos to be excluded from the research. You will also be contacted shortly before the end of the study for a final review of the photos.

Time Commitment:
<u>It is expected this study will take place from January 2018 to June 2018.</u> Your child will be observed 1-3 times per week during language arts/literacy instruction time as scheduled with his/her teacher. Talks with your child will last 15 minutes once a month after the literacy instruction time and as permitted by the teacher and the student. All data collection will occur during regular class time. Every effort will be made to ensure your child's schooling will not be interrupted by the data collection.

Confidentiality:
The identities of you, your child, and the teacher as well as the school district and the school will be kept strictly confidential. All names will be changed to pseudonyms. Any identifying

information in photographs will be blurred or removed completely. Only the Principal Investigator and the Co-Investigator will have access to the data collected during this study.

Your child's participation will also be kept confidential from other students. Lisa Chang will gather information about your child from a respectable distance so that s/he can participate in classroom activities and interact with his/her peers without any interference. Talks with your child will be held in a separate classroom away from other students and arranged discreetly between your child, the teacher, and Lisa Chang.

All digital files will be stored on Workspace and password protected. Non-digital documents will be locked in a secure cabinet in the Principal Investigator's office in the Department of Language and Literacy Education at UBC.

Use of Data and Results:
In addition to the dissertation, the data and results of this study may be published in academic and professional journals, conferences, and book chapters.

You will have access to your child's photos. These photos will also be shared with the student during regular school hours. Lisa Chang will talk to your child about literacy learning throughout the study. These conversations will most likely take place in the classroom and they will be audio recorded and transcribed. To protect the privacy of your child, only Lisa Chang and the Principal Investigator will have access to your child's interview data.

Official academic records, psychoeducational assessments, or other confidential documents **will not** be collected in this study. Therefore, no private information will be published in any publicly available document.

All published materials, such as the publicly available dissertation, articles, and conference proceedings, will protect the identity of your child through the confidentiality measures mentioned above. Photos collected during this study may be published in academic publications, conferences, and the Co-Investigator's dissertation. Your child's identifying information (such as his/her face and name) will be removed or blurred completely prior to the publication to ensure confidentiality.

Potential Risks of the Study:
We do not think there is anything in this study that could harm you or your child. However, there is a possibility your child may be upset or troubled by some of the interview questions. For example, an interview question may raise uncomfortable feelings in your child if they do not like a particular subject matter or is experiencing difficulties in the classroom. Should you or your child have any concerns, please let the study's investigators know immediately.

If your child becomes upset or uncomfortable during the study, the photo documentation and/or the interview will end early. The student will be directed to speak to the teacher. Your child will also have access to other trusted school personnel such as the guidance counselor or the vice principal if needed. You will be notified if an incident occurs as soon as possible.

Benefits of the Study:
Through your participation in this study, you are enhancing the understanding of literacy instruction for students with diverse learning needs, which is still an emerging topic in educational research. Your child's teacher may use the data collected by Lisa Chang for

professional use such as writing reports about your child's academic progress, developing assessments, or planning future instruction. As such, you will benefit from this study by receiving more information about your child's literacy learning in the classroom.

Payment:
This study does not receive funding. You will be compensated by the Co-Investigator with a gift card to a bookstore for the maximum amount of $70 for your child's time and participation in this study. If you and your child choose to withdraw from the study prior to completion, the amount on the gift card will be $10 for each month your child participated in the study.

Contact Information:
If you have questions or concerns, you may contact Dr. Marlene Asselin (Principal Investigator) at [e-mail] and Lisa Chang (Co-Investigator) at [e-mail]. An in-person meeting can be arranged with you and the teacher in the school.

Contact for Complaints about the Study:
If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance email RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

Consent:
Taking part in this study is entirely up to you and your child. You have the right to refuse your child's participation in this study. If you consent to your child's participation, you and your child may choose to pull out of the study at any time without giving a reason and without any repercussions.

Your signature on this consent form indicates that you are willing to allow your child to be photographed, interviewed, and observed and that you have received a copy of this consent form for your records.

Please keep a copy of this consent form for your records.

- ✓ I **consent** to the participation of my child, _____, in this study and I agree to let my child be observed during class time, audio recorded for interviews, and photographed as part of the observations. I also consent to my child's work and informal classroom assessments be collected for this study. I am aware that photos from this study may be published in publicly available documents such as a dissertation or academic journals. I consent to my child's photo to be published after all identifying information have been removed by the Co-Investigator.

_____ _____
Signature Date

_____
Print Name

× I **<u>do not</u> consent** to the participation of my child in this study.

_____ _____

Signature Date

_____

Print Name

Appendix C

Student Assent Form

Why is Ms. Chang doing this project?
The purpose of this project is to study the many different ways **[TEACHER'S NAME]** teaches you how to read, write, talk about, and understand information through books, pictures, movies, art, drama, and computers. The study will also look at how you learn from your teacher.

What is Ms. Chang doing for her project?
During the study, there will be information collected from you including:

- Informal Talks: You will be asked some questions before, during, and after an activity for a short time and we will talk about how you feel about your learning. Our talks will be recorded.
- Observations (watching, looking, and listening): You will be watched and listened to while **[TEACHER'S NAME]** is teaching. Notes will be written about you in a notebook, which you can read and look at if you want.
- Photos: During observations, photos will be taken of your work and your learning. You can see the photos if you want and you can tell Ms. Chang if you want her to delete anything you don't like. The photos will be shared with you, **[TEACHER'S NAME]**, and your parents. Your classroom assignments and tests may also be photographed for the project. You can tell Ms. Chang if you don't want her to have that assignment or test.

How long will this take?
Ms. Chang will be visiting your classroom from January 2018 to June 2018. You will be watched and listened to during your language arts time, which Ms. Chang will schedule with **[TEACHER'S NAME]**. Taking photos and collecting your work will be a part of observations so it will not take up more of your time except when you want to see the photos, the notes, and the work that was collected. Sharing time can be up to 10 minutes or as your teacher allows. We will have 15 minutes to talk once a month.

How will Ms. Chang keep my information safe?
Your name, your teacher's name, your hometown, and your school will have a new name to make sure no one knows who you are or where you go to school. Ms. Chang may take your photo but she will make sure to blur out your face so that people cannot recognize you. Only Ms. Chang, your parents, and your teacher will be able to look at the information collected from you in the classroom.

What is Ms. Chang doing with my information?
Your information will be used by Ms. Chang to finish her degree at UBC. Ms. Chang may also use this information for other writing projects like in books, magazines, and presentations. Ms. Chang will not share your name, age, or any information that reveals who you are in her writing or her presentations. Your photos may be published in the writing projects after Ms. Chang blurs out your face and removes your name.

Your parents and your teacher will be able to see the photos taken of you. Only Ms. Chang and her supervisor will be able to listen to the talks you share with Ms. Chang. Your parents and your teacher will not be able to listen to these talks.

Can I leave the project if I don't want to do it anymore?
Yes, you may leave the project at any time.

If you do not feel like participating in the project for the day, you may also tell Ms. Chang and she will not photograph or interview you that day.

If you are worried about the project or do not feel good about it, you may speak to your teacher and your parents. They will talk to Ms. Chang about your concerns and she will take care of them for you.

Please keep a copy of this assent form for your records.

- ✓ I **agree** to participate and allow Ms. Chang to watch me, talk to me, take pictures of me, and collect my work for her project. I also **agree** to Ms. Chang using my information and photos in published writing projects after she blurs out my name and face.

_____ _____
Name Date

- × I **do not agree** to participate in this study.

_____ _____
Name Date

VERBAL STATEMENT OF ASSENT (RECORDED)
(If handwriting is not an option to sign this form.)

- ✓ If you agree to participate in this project, please say "I agree to participate and allow Ms. Chang to watch me, talk to me, take pictures of me, and collect my work for her project. I also agree to Ms. Chang using my information and photos in published writing projects after she blurs out my name and face."

Appendix D

Teacher and Focal Student Semi-Structured Interview Questions

I. For the establishment of rapport in the **beginning of the study** as well as to address any concerns or questions, the following questions will be asked of the *teacher*:

- Please describe your experience in teaching and education such as your training, your interests, and your years of experience teaching.
- What are your philosophy and beliefs about teaching?
- How many years have you taught your current grade level?
- How many years have you taught in this school?
- How do you view or define literacy in your practice?
- How would you describe your teaching style in regards to literacy instruction?
- What sorts of resources to you utilize as part of your literacy instruction?
- What is your experience with learning difficulties?
- How would you define learning difficulties based on your professional experience and training?
- How do you discern a student has a learning difficulty?
- How many students with learning difficulties have you taught?
- What sorts of prior knowledge of learning difficulties did you have before you started teaching?
- Have you attended any professional development activities that focus on instructing students with learning difficulties?
- Why did you select this particular student to be your focal student for this research study?
- What do you hope to learn about this student as the study progresses?
- Do you have any questions or concerns you'd like to ask or talk about with me as we begin the study?

II. To establish a rapport with the *focal student* **at the beginning of the study**, the following questions will be asked at an appropriate time as permitted by the teacher:

- What is your name?
- How do you feel about school and being in [Grade Level]?
- What do you enjoy about school?
- What do you not like about school?
- How do you feel about reading and writing?
- How do you feel about other subjects such as math, science, and social studies?
- Do you use computers or other forms of technology?
    - What do you like about it?
    - What do you not like about it?
- What other things or activities do you like to play with or do?
- How do you feel about participating in this study with your teacher?
- Do you have any questions for me?

III. **During the study**, the following questions will be asked of the *participating teacher*:

- How do you feel about your lesson or activity?
- What was the planning that went into this lesson or activity with the students?
- What was your rationale when it came to considering the materials and resources?
- Do you feel the activity met your learning objectives?
- What were some of the factors that you had to consider for doing this activity with [Focal Student]?
- Looking at this picture of [Focal Student] during the activity, what do you think about your activity?

IV. **During the study**, the following questions will be asked of the *focal student*:

- How did you feel about the activity or lesson for today?
- What did you learn from it?
- What would you like to have done differently during the activity?
- What do you feel you did well for this activity?

V. **After the study**, the following questions will be asked of the *participating teacher*:

- Now that the study is ending, how do you feel about your practice?
- What are your thoughts about literacy and learning difficulties now?