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A Case Study Exploring a Novice Kindergarten Teacher's Perceptions and Practice of the Multiliteracies Pedagogy in his Virtual Kindergarten Classroom

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Abstract

Teachers faced many challenges as they transitioned to online learning during the COVID-19 pandemic. The increase of technology brought the concept of multiliteracies, broadening the term literacy to include the social and cultural backgrounds of students (Baguley et al., 2010), by acknowledging multimodality to represent and communicate using images, words, sounds and digital media (Walsh, 2010). This case study aims to explore how a kindergarten teacher understood and implemented literacy and the multiliteracies pedagogy in an online environment. Data collection included virtual interviews, teacher reflective notes, teaching literacy resources, researcher observation, and student work samples. Findings indicate the teacher's literacy teaching focused on phonological awareness, phonemic awareness and letter-sound correspondences. The teacher also faced challenges, such as lack of teacher preparation during his Bachelor of Education program, insufficient training and professional development from his workplace, inconsistency of the quality and utility of technology, constraints of virtual learning for young learners, and varying degrees of parental support. The results of this study indicate the importance of preparing pre-service teachers in Bachelor of Education programs and in-service teachers on continuous professional development on evidence-based literacy programs, multiliteracies and virtual learning.

Keywords

multiliteracies pedagogy, multimodality, kindergarten, case study, virtual classroom

Summary for Lay Audience

Teachers faced many challenges as they transitioned to online learning during the COVID-19 pandemic. This case study aims to explore how a kindergarten teacher understood and implemented literacy and multiliteracies pedagogy in an online environment. This study draws on a multiliteracies pedagogy and multimodal literacy framework. Technological advances in society have changed the skills and competencies students need in the workforce and life. The increase of technology brought the concept of multiliteracies, broadening the term literacy to include the social and cultural backgrounds of students (Baguley et al., 2010), by acknowledging multimodality to represent and communicate using images, words, sounds and digital media (Walsh, 2010). This case study focused on how one virtual kindergarten teacher implemented multiliteracies to engage students in meaningful literacy learning experiences virtually. The Kindergarten Program (KP) in Ontario emphasizes the importance for "educators to give children many opportunities to use and develop literacy behaviours – for example, to use language to describe, to give reasons, to ask questions, or to negotiate – in a wide variety of contexts" (Ontario Ministry of Education (OME), 2016, p. 65). Data collection included virtual interviews, teacher reflective notes, teaching literacy resources, researcher observation, and student work samples. Findings indicate the teacher has a thorough understanding of phonological awareness, phonemic awareness and letter-sound correspondences. The teacher also faced challenges, such as lack of teacher preparation during his Bachelor of Education program, insufficient training and professional development from the workplace, inconsistency of the quality and utility of technology, constraints of virtual learning for young learners, and varying degrees of parental support. The results of this study indicate the importance of preparing pre-service teachers in Bachelor of Education programs and in-service teachers with

continuous professional development on evidence-based literacy programs, multiliteracies and virtual learning.

Co-Authorship Statement

This integrated-article consists of one research paper co-authored with my supervisor Dr. Mi Song Kim as the PI of our research and her research assistant Fengchao Yu. Dr. Mi Song Kim designed the study and provided guidance and critical feedback for our data collection, analysis, and manuscript. I, as a student researcher, took the lead in data collection, analysis, and manuscript. Fengchao contributed to our literature review, data analysis, and manuscript. Dr. Mi Song Kim, the MA candidate's supervisor, fully supports the inclusion of our manuscript as chapters for Lian Chang's MA thesis. All chapters will be submitted in part to *Journal of Research in Innovative Teaching & Learning* and in the Proceedings of *International Conference on Computers in Education 2022*.

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Table of Contents

List of Tables

List of Figures

List of Appendices

Chapter 1

1 Introduction

The changing landscape of literacy research in the areas of literacy curriculum, pedagogy, and practices has been discussed by numerous scholars (Cope & Kalantzis, 2009; Whitehead, 2007; NLG, 1996). The New London Group (NLG) began their work pinpointing the restrictive nature of literacy pedagogy as "monolingual" or language dominant, emphasizing reading and writing and focusing on skills and knowledge, such as "grammar, spelling and punctuation and comprehension" as necessary to societal participation (Anstey & Bull, 2018, p. 5). The term *multiliteracies* emerged as a result of increased recognition for globalization, social and cultural diversity, and technology (Anstey & Bull, 2018).

The term multiliteracies also indicated that literacy was used in a variety of ways, for different purposes and in varying contexts (Anstey & Bull, 2018). For example, Burke and Hardware (2015) demonstrated how a Grade 8 teacher used the multiliteracies pedagogy to have eight of her students from minority backgrounds participate in digital literacy projects. The teacher selected a novel about a sibling grieving the death of her brother. She began the project with a read-aloud, followed by a discussion about themes of death and religious perspectives, and consequently, how symbols, images, and texts vary depending on an individual's language and culture. Based on their discussion, students created visual representations using images and graphics to describe their interpretations of the grieving process described in the book. Burke and Hardware found that the teacher recognized the students' experiences, cultural backgrounds, and use of technology were reflected in their ability to be literate. This signifies that teachers' understanding of their students' background knowledge informs their teaching and students'

success and attitudes toward learning (Anstey & Bull, 2018). Moreover, teachers have also enacted the multiliteracies pedagogy with young children through multimodal storytelling.

In a study conducted by Wessel-Powell et al. (2016), teachers engaged in multimodal storytelling units by introducing young children to media literacy and filmmaking techniques. Two teachers began a multimodal storytelling unit by introducing elements of a story, such as how to develop the characters, script, and props. Students were shown exemplars of short films, so they could eventually create their own performances in small groups. Teachers drew students' attention to how performances can be influenced by the voice intonation, body movements and posture of different characters. This study demonstrated how students who need support in communicating through print literacies were able to effectively act out their stories. The two studies show how teachers used the multiliteracies pedagogy and multimodal resources to support students' literacy development in a classroom.

The general concept of literacy can be explored and understood from "classical literacy (reading, writing, and listening) and new literacies (digital, media, and global)" perspectives (Jacobs, 2017, p. 2), as education responds to increasing social and cultural diversity and increased access to technology. It is important to recognize that the multiliteracies pedagogy was not created to eliminate print literacy or traditional forms of literacy such as reading and writing, but to supplement "learning how to read and write… [with] the other modes with language" (Cope & Kalantzis, 2009, p. 166), and hence the view of literacy from the perspectives of both classical and new literacies. More recently, the pandemic has changed the teaching and learning environment with the shift to online learning. As a result, research is needed to understand how this has impacted teachers' approaches to literacy teaching. My thesis will explore the first-hand experiences of Michael (pseudonym), a novice kindergarten teacher and how his literacy

teaching and practices were shaped by the multiliteracies pedagogy in his virtual classroom during the pandemic.

Anstey and Bull (2018) explain how perceptions have changed to recognize literacy as more than language skills and knowledge with increased research in the area of literacy as a *social practice*. They define social practice as an "agreed upon and accepted behaviour… among a social or cultural group" (p. 7). From this perspective of literacy as a social practice, reading, writing, listening and speaking continue to be valued, and "are a product of social and cultural practices" that are influenced by "purpose and context" (Anstey & Bull, 2018, p. 15). Kindergarten programs continue to emphasize reading, writing and oral language as part of their literacy programs (Kent et al., 2014). Research suggests reading, writing and oral language begin with early literacy experiences at home and in school (McGee & Richgels, 2014), and would ideally include opportunities to engage in oral and written language through a print rich environment, play, and adult guidance through modelling, scaffolding and the prompting of inquiries (Bracefield & Woodgate, 2020). Bracefield and Woodgate (2020) suggest that "today's teachers must be equipped to engage in pedagogy in both planned and emergent ways which require a range of teaching strategies, content knowledge and on-going professional learning" (p. 14).

In Ontario public schools, teachers must use required grade curriculums (Ontario Association of School Districts International, 2022). The Kindergarten Program (KP) document (2016) outlines expectations and pedagogical approaches for teachers to support teaching and learning their classrooms. The document also outlines four "frames," or learning areas, used to structure planning and assessment of children's play and inquiry. These frames include: "Belonging and Contributing, Self-Regulation and Well-Being, Demonstrating Literacy and Mathematics Behaviours, and Problem Solving and Innovating" (OME, 2016, p. 13). Overall and specific

learning expectations can be used by teachers to describe children's learning and to support their own professional development. An overall expectation for 'Demonstrating Literacy and Mathematics Behaviours' is that students will be able to "demonstrate an understanding and critical awareness of a variety of written materials that are read by and with their educators" (OME, 2016, p. 181). A specific expectation under this frame is "respond to a variety of materials that have been read aloud to them (e.g., paint, draw, or construct models of characters or settings)" (OME, 2016, p. 205). Providing learning expectations for teachers to references assists them in planning developmentally appropriate programs, while building on their students' curiosities.

In the KP document, the Ontario Ministry of Education (OME) suggests that play-based learning occurs in an inquiry stance. From this perspective, teachers observe and extend students' thinking through "reciprocal questioning and wondering" (OME, 2016, p. 21). Teachers can support students' literacy development and questioning by providing "many opportunities to use and develop literacy behaviours…in a wide variety of contexts" (OME, 2016, p. 65). Students can demonstrate literacy behaviours, such as sharing their ideas, using simple vocabulary and "using approximate spellings of words, based on their ability to hear, identify, and manipulate sounds (phonological and phonemic awareness)" (OME, 2016, p. 67). This indicates how teachers can guide students' literacy learning and introduce literacy concepts through play-based inquiry.

Much of what was known about teaching literacy was based on in-person instruction which changed during the COVID-19 pandemic. Literature in the area of literacy has increasingly focused on what it means to be literate in a society where communication is constantly changing (Anstey & Bull, 2018). As mentioned previously, the term multiliteracies was coined to address

increasing culturally and linguistically diverse societies and the use of multimedia technologies (NLG, 1996). Multiliteracies research also examines how "teachers orchestrate a range of modal resources, such as gesture, gaze, position, posture, and action with books and boards, and talk in the classroom" (Jewitt, 2008, p. 251). That said, the ongoing pandemic which started in March 2020 shifted teaching and learning online, changing the social context of education and multimodal resources, and thus challenging teachers, students and parents to adapt to alternative teaching and learning methods. This shift created challenges for students' academic performance (Panagouli et al., 2021), and prompted literature specifically focusing on literacy learning and the impact of the pandemic on reading practices (Wheeler & Hill, 2021). My study explores literacy teaching and learning and the multiliteracies pedagogy in an online kindergarten setting during the pandemic.

1.1 Researcher Reflexivity and Positionality

My positionality within the context of my thesis is the role as student researcher in Dr. Kim's study titled, A pilot study: Understanding the Lived Experiences of Teachers in a Technology Enhanced Curriculum. Dr. Kim's study examines what innovative and effective pedagogical practices are being used in technology enhanced learning environments and what beliefs, experiences, and practices inform teachers in curriculum preparation and implementation. My thesis is a case study with a focus on how the teacher implemented the multiliteracies pedagogy and technology into his teaching virtually during the pandemic. The context of virtual learning falls under a technology enhanced learning environment and how the teacher innovated and created his pedagogical literacy practice based on his knowledge and experiences, coincides with similar criteria to Dr. Kim's study.

To better understand my initial interest and educational background in the area of literacy teaching and vocabulary instruction, I will discuss my positionality and reflexivity within the context of this paper. Reflexivity occurs when "researchers acknowledge the changes brought about in themselves as a result of the research process and how these changes have affected the research process" (Palaganas et al., 2017, p. 426). Prior to entering the Master of Arts in Curriculum Studies at the University of Western Ontario, I developed a passion for working with young children and learning to understand their developmental milestones through my undergraduate studies in the Early Childhood Studies Program at the University of Guelph-Humber and my practicum experiences in childcare centres and schools. I then completed the Master of Teaching program at the Ontario Institute for Studies in Education in the Primary/Junior Division and further recognised how the cognitive, social, emotional, physical and psychological needs of children are pertinent to building a curriculum that helps every child succeed. These experiences led me to develop a particular interest in literacy teaching and learning and working with children to build their vocabulary knowledge and reading comprehension. This interest was further developed when I learned about the concept of multiliteracies in my current Master of Arts program. As a result, my research plans include exploring how the pedagogy of multiliteracies supports students' literacy learning in an increasingly technologically advanced society.

As a teacher candidate in my practicums, I observed and facilitated a variety of literacy experiences with young children and found that teaching pedagogy and the curriculum highly influenced teacher's planning of literacy learning activities. Each teacher I worked with used a balance of board-provided assessments and teacher-directed instruction, along with student-led inquiry. Students engaged in reading, writing and technology through SMART boards and

Chromebooks each week, and were often asked to describe and discuss their experiences through journaling. My observations suggested that teachers use a variety of resources and strategies to plan literacy in their classrooms. As my practicums were all in person, the pivot to virtual teaching during the pandemic and helped identify the topic of this single case study, the purpose of which is to explore the literacy teaching and practices of a kindergarten teacher in a virtual environment during the pandemic.

1.2 Rationale for the Study

Research conducted in the 1980s and 1990s brought about changes to the way we think about literacy pedagogy (Rowsell & Walsh, 2011), which was traditionally restricted to the teaching and learning of how to read and write (NLG, 1996). Recent changes to literacy pedagogy pluralized literacy to acknowledge teaching and learning literacy based on varied situations, subjectivities and multiple text genres (Rowsell & Walsh, 2011). The concept of multiliteracies extends the scope of literacy pedagogy to recognize cultural and linguistic diversity and understanding and proficiency in using multiple text forms (NLG, 1996). In addition, changes to literacy pedagogy include research exploring the relationship between identity and literacy development (Gee, 1999).

Literacy teaching and learning was created to help students develop the knowledge and experience needed to participate and contribute in the “workplace, leisure, social, cultural and civic environments” (Anstey & Bull, 2018, p. 38). As a result, the concept of literacy can now be defined in many ways and the term “is being used to suggest competence in a wider range of areas” (Haggerty et al., 2007, p. 15) as technology becomes increasingly utilized in education and workplaces (Kalantzis & Cope, 2012). Children often begin their literacy journey and

building their communicative skills with multisensory engagement through activities, such as painting and singing (Lotherington, 2017). Street (2003) describes literacy as social, stating that literacy practices are "social models of literacy that participants bring to bear upon those events and that give meaning to them" (p. 78). Consequently, teachers can prepare young children with the competencies to be literate in the 21st century with exposure to digital technologies, which require "knowledge of multiple semiotic resources and invite creative design" (Lotherington, 2017, p. 7). Literacy activities and projects using multiple modes foster collaboration and student-led inquiry, both of which are critical in and out of school contexts.

Literacy is "an active, flexible, dynamic and interactive repertoire of practices that could occur in the home, at school, in the playground, in religious settings and in different social or cultural groups" (Bull & Anstey, 2018, p. 6). Kalantzis and Cope (2012) argue that teachers and students need to reconfigure their roles away passive recipients of knowledge, and to embrace their roles as "participant designers and action researchers" (p. 84), as they actively engage in their learning. This is important during direct and indirect instruction as children sing, draw, write and dialogue with educators and their peers. The differences between traditional practices of reading and writing and literacy with digital communications are, "the actual processes of reading and writing 'on screen'"; the integrative and interactive nature of reading and writing with new texts; and, changes in patterns of communication as a result of social networking" (Rowsell & Walsh, 2011, p. 57). Reading and writing involve engaging in the experience with purpose to decode text to gain new information or communicate information when we write (Rowsell & Walsh, 2011). Moreover, "meaning making occurs whether we use traditional, paper-based texts or digital, multimodal texts and the level of meaning will vary according to our purpose and the text

genre" (2011, p. 57). This expanded view of literacy acknowledges text-based literacy, while supporting multimodal forms of communication as significant in teaching and learning.

The Kindergarten Program (KP) document describes literacy as the child's ability to understand, communicate and express themselves in a variety of ways (OME, 2016). According to the KP document, language and literacy experiences include opportunities for children to "talk, listen, read, write, and view media texts" (OME, 2016, p. 68). In these experiences, children learn language and literacy concepts, such as how letters are used in different ways, and informal and formal uses of vocabulary, while readers use background knowledge and illustrations to comprehend text, and writers use evidence to support their writing (OME, 2016). Moreover, during the early stages of literacy development, children may demonstrate the following literacy behaviours: "become aware that some words rhyme or start or end in the same way, and thus begin to develop phonological awareness", "represent their thinking graphically by drawing, painting, dramatizing, sculpting, building, and gesturing", and "ask and respond to questions that demonstrate and require predicting, making inferences, connecting, and critiquing" (OME, 2016, p. 67). As students begin learning how to write, they may demonstrate "matching spoken words to written words; using familiar or high-frequency words; using approximate spellings of words, based on their ability to hear, identify, and manipulate sounds (phonological and phonemic awareness) and on their knowledge of letter-sound correspondence (phonics)" (p. 67). Meaningful learning experiences can be "modelled, shared, guided, or independent" (p. 72) and can build on areas of "children's interests, strengths, and areas for improvement" (p. 71).

This study explored how a kindergarten teacher tried to implement these recommendations in his virtual literacy classroom and will address the role of the pandemic on the learning environment for young children. As a result of the pandemic, synchronous (e.g., "live" teaching) and

asynchronous (e.g., homework/independent study) learning environments have become more prominent, challenging both students and teachers to transition to learning online. My focus was on the relationship between the teacher's understanding of philosophies and the strategies he used to teach literacy as well as on the ways in which multiliteracies and various modes were used in the classroom to support students' literacy development.

1.3 Research Questions

The aim of my study is guided by the following three research questions:

1. How does a novice kindergarten teacher conceive literacy teaching and learning and the multiliteracies pedagogy?
2. How is the multiliteracies pedagogy enacted in his virtual kindergarten classroom?
3. What are the challenges the novice kindergarten teacher was facing in implementing multiliteracies pedagogy in his virtual literacy classroom?

1.4 Objectives of the Study

The Master of Teaching Program at The University of Toronto taught me the importance of cohesively merging theory and practice into evidence-based research that can then be translated into practical strategies in the classroom. Language and literacy education was emphasized in courses such as Curriculum and Teaching in Literacy and Literacy in Elementary Education. I also observed a strong emphasis on language development and literacy throughout my practicums in kindergarten to Grade 6 classrooms. This study was designed to collect empirical evidence of the first-hand experiences of a kindergarten teacher and his literacy and

multiliteracies instructional practices. In addition, challenges faced by the teacher, students and their families as they learned remotely during the pandemic will be discussed.

Case studies examine “real life, complex, dynamic and unfolding interactions of events, human relationships and other factors” within unique contexts (Cohen et al., 2018, p. 376). This research used a case study and focused on qualitative data collection of interview transcripts, teacher reflective notes, literacy resources, and observations of the virtual literacy classroom to get a holistic, in-depth understanding of the teacher’s experiences. Multiple data sources were used to gain a deeper understanding of one teacher’s literacy teaching, given the unique circumstances of the pandemic and virtual learning.

1.5 The Organization of the Study

There are five chapters in this thesis. Chapter One, an introduction includes the rationale, research questions, and objectives of the study. Chapter Two is the literature review of pedagogies, approaches and strategies relevant to literacy practices and programs, the theoretical framework of multiliteracies pedagogy and multimodality, virtual learning environments, and teachers’ experiences and obstacles to implementing the multiliteracies pedagogy in the classroom. Chapter Three describes the research design, methods of data collection and methodology. Chapter Four outlines my findings and Chapter Five presents the discussion, limitations and implications of the study.

Chapter 2

2 Review of the Literature and Theoretical Framework

This chapter provides a review of existing literature separated into three sections: 1) the changing view of early literacy, 2) the Kindergarten Program document, and 3) virtual learning.

2.1 The Changing View of Literacy

Until the mid-1990s, the term literacy was defined with a singular purpose (Cope & Kalantzis, 2015), and meant the ability to read print text, such as newspapers and write according to correct spelling and grammar conventions (Cope & Kalantzis, 2015). In 1996, the New London Group (NLG) came together to reconsider how communication and representation of meaning was subject to a number of factors, such as culture, gender and life experience (Cope & Kalantzis, 2015). These evolving cultural and societal variables influenced the perspective of literacy pedagogy. Thus, the multiliteracies pedagogy was introduced by the NLG to address the extension of the existing traditions and epistemologies of literacy to include the use of technology and digital experiences (Yelland, 2018).

Multiliteracies reconsiders approaches to literacy teaching and learning by addressing multilingualism and multimodality (Cope & Kalantzis, 2009). Given an increasingly diverse society with individuals speaking more than one language, multilingualism is a significant part of literacy and communication in the 21st century. Multimodality refers to different modes of communication and representation, such as visual, linguistic and oral modalities that have expanded literacy teaching and learning (Cope & Kalantzis, 2009). Bringing these different

modalities into the curriculum changes how individuals make meaning and fosters a relevant and engaging literacy pedagogy.

Multiliteracies engages teachers to reconsider their literacy pedagogy within their situated social and cultural contexts (NLG, 1996). Teachers' literacy practices are facilitated based on their knowledge and understanding of how "meaning-making resources of language and image in conventional and electronic modes across curriculum areas… are mediated by the cultural and socioeconomic positioning of the participants" (Unsworth, 2001, p. 2). Multiliteracies pedagogy fully recognizes modes, in that gestural and spatial expressions, as intrinsic parts of individuals' repertoires to communicate. In this regard, teachers are preparing students with a range of skills, inclusive of print and digital media meant to support learners of the 21st century in schools and the workforce. For example, Taylor and Leung (2020) describe the experiences of teachers who have planned multimodal learning experiences reflective of the social and cultural backgrounds of students and a culturally responsive pedagogy and recognize that teachers can intentionally create spaces and learning experiences in the classroom that encourage the development of multimodal literacy and that further develop socialization skills. Lavoie et al. (2014) conducted a study with kindergarten students in the Unamen Shipu community, which is located in northern Quebec, utilizing the Indigenous knowledge framework and multiliteracies pedagogy. Teachers, parents, and elders of the community collaborated in a vocabulary instruction approach where elders shared stories of their life experiences, demonstrations, and drawings to develop corresponding word lists for students. Word lists corresponded to environmental and cultural preservation, such as Indigenous clothing and place names. In utilizing this approach, knowledge from the local setting and culture of students and teachers was recognized and connected to social and cultural aspects of vocabulary and community traditions.

Teachers' perceptions and practices of literacy vary based on their classroom contexts and prior experiences. For example, Gelfuso (2018) examined the beliefs preservice teachers had about literacy teaching and learning. Findings revealed teachers' beliefs included that assessment is instruction, literacy teaching and learning are inauthentic and that children are not intellectually motivated. It is suggested these beliefs are attributed to preservice teachers' observations during their apprenticeships, their experiences with scripted programs and outside resources and programs rather than teachers' professional knowledge. In regard to teachers' perceptions and knowledge of multiliteracies, Ajayi (2010) examined how adequately prepared preservice teachers were to teach multimodality and multiliteracies in their classrooms. Ajayi also emphasizes that as classrooms become more "ethnically, linguistically, and culturally pluralistic" (p. 7), issues of "cultural hybridity, social changes, educational equity, and diversity become paramount concern to literacy teachers" (p. 7). Preservice teachers in the study acknowledge new media technologies allow for new ways to communicate and access information and it also facilitates learning to allow students to create videos or conduct research online. However, multiliteracies is not being taught in schools despite students being "more responsive to technology-mediated instruction" (p. 19). This demonstrates how the curriculum and literacy should be reflective students' social, cultural and technological backgrounds and potential barriers to successful implementation of multiliteracies in the classroom need to be addressed.

Literature about multiliteracies recognizes that teachers face challenges in enacting the multiliteracies pedagogy in their classrooms (Kim, Meng, & Kim, 2021). Some of the challenges to successful implementation of multiliteracies in the classroom include teachers' understanding and implementation of literacy (Bokhorst et al., 2014), and teachers' "expanded knowledge of multimodal semiotics, including visual, audio, spatial, gestural, and linguistic elements, to

encompass the full range of design grammars involved in digital composition using various media" (Mills & Exley, 2014, p. 464). Regarding teachers' understanding of literacy, Bokhorst et al. (2014) found that teachers held a "persistent traditional view of literacy, i.e., learning to read and write… [and only recognized] a brief acknowledgement of its role in their lives and of its possible relevance to pedagogy" (p. 359). These findings suggest a greater need to examine the relationship between how teachers' understanding and attitudes towards literacy informs their practices in the classroom. In addition, Eteokleous and Pavlou (2015) recommend a need for "pre- and in-service teachers [to develop] multimodal educational material and students' multiliteracies", and thus accessible resources play an important role in the enactment of the multiliteracies pedagogy (p. 19). Mills and Exley (2014) also acknowledge that the elementary curriculum should incorporate the use and assessment of students' digital media knowledge. This suggests teachers should receive training on how to incorporate multimodal teaching and assessment in their classrooms. Also notable by Ajayi (2010) were preservice teachers who reported that their university courses did not sufficiently prepare them to teach and incorporate multiliteracies and multimodality in their classrooms. Ajayi also reported preservice teachers foresee teaching new literacies in their classrooms and expressed concern with limitations of implementing multiliteracies while conforming to school and school district policies. Due to the concerns listed above, Ajayi (2010) proposes "a need to expand the scope of literacy teacher education curriculum" to incorporate the "knowledges, skills, and identities associated with multimodality/multiliteracies" (p. 24).

A pedagogy of multiliteracies is guided by four interconnected themes, which include: situated practice, overt instruction, critical framing, and transformed practice (NLG, 1996). Yelland et al. (2008) emphasize learning environments which foster similar components known as

"experiencing, conceptualising, analysing, and applying" (p. 202). Situated practice draws on students' "prior knowledge and experiences" for students to contextualize new learning (p. 202) and describes knowledge as "primarily situated in sociocultural settings and heavily contextualized in special knowledge domains and practices" (NLG, 1996, p. 84). Conceptualising links to overt instruction and occurs "when learners are able to label and characterise the ideas that they have encountered" to build generalizations about new concepts (Yelland et al., 2008, p. 202). Analysing and critical framing go hand in hand in suggesting that learning happens when the individual is able to "examine a context, event or piece of information and [is] able to articulate in a systematic and critical way the underlying assumptions and implications of its application" (p. 202). Lastly, applying and transforming practice involve the learner applying what they know in "diverse ways" and "extending learning," generating a new idea or product as a result (p. 203). Participants engaging in the practice of multiliteracies move through these four pedagogical dimensions as they conceptualize and interpret information in the process of meaning-making. This movement is also known as *weaving* (Cazden, 2006).

There are three principles for designing and enacting the multiliteracies pedagogy. The first principle is, "supporting teachers to experiment with and research multiliteracies" (Kervin et al., 2020, p. 34). This means "teachers need access to professional development workshops and opportunities to play with a range of learning technologies themselves" (p. 35). Teachers also need to understand the advantages and disadvantages of technology on children's learning and development and how it is implemented based on curriculum and pedagogical practice (Kervin et al., 2020). Technology enables new knowledge and ways to represent and communicate information through the production of movies, digital stories, and documentaries (Kervin et al., 2020). The second principle is "teacher knowledge of "multi" and "literacy," which in turn,

"guides their interpretation of what defines multiliteracies in their pedagogical practice" (p. 36). This requires an understanding of the skills, strategies, and processes of a literate individual. Furthermore, multimodal ways of communication include cultural and linguistic diversity. Kervin et al. (2013) explored teachers' use of technology in literacy experiences and found that technology was used to access information, create text, present information, and store data. Implementing multiliteracies involves teachers' understanding of the pedagogy in terms of its theoretical, research and pedagogical underpinnings (Kervin et al., 2020). The third principle is, "children can teach teachers" (Kervin et al., 2020, p. 37). "Analysis of children's practices and work samples provides an insight into what children can do and the processes they enact during these opportunities" (p. 38). Student work can be analyzed through samples of their written work, observations, anecdotal notes, and vignettes. Reflecting on student work allows teachers opportunities to see the choices students make about their technology use and how they understand multimedia forms of communication (Kervin & Mantei, 2016).

A pedagogy of multiliteracies also addresses the concept of *design* (NLG, 1996). "Design refers to how people make use of the resources that are available at a given moment in a specific communicational environment to realize their interests as sign makers" (Jewitt, 2008, p. 252). The notion of design connects to literacy pedagogy as it includes "using language to produce or consume texts" (NLG, 1996, p. 74). Designers are said to engage in semiotic activities inclusive of three elements: "*Available Designs, Designing*, and *The Redesigned*" in the process of meaning-making (p. 74). Designing involves the act of reading, seeing, and listening and results in re-presentation and recontextualization using available designs (NLG, 1996). This perspective reflects "teachers' pedagogic designs of learning processes and students' designed constructions of meaning" (Jewitt, 2008, p. 253). Ajayi (2011) also explored how students in Grade 3 utilized

their cultural knowledge and non-linguistic visual semiotics to connect to their identities in their literacy practices through analysis and interpretation of the animated video, *Sleeping Beauty.* For example, Derrick, an African-American student drew a scene in the story with a witch, king and a pet as his interpretation of the fairy tale. Although there was no pet in the story, Derrick stated he drew the pet because his grandmother has a dog who protects his house. This suggests the importance of exploring how teachers can incorporate multimodality, such as videos and diversity within students' social-cultural contexts to engage students in the process of designing.

Design is an important part of the multiliteracies pedagogy with kindergarten children as it addresses their intuitive process of meaning-making as they create products reflective of their understandings and conceptualizations. Granly and Maagerø (2012) employed a study about how aspects of a room such as architecture, language and visual images can be analyzed from a multimodal perspective in three kindergarten classrooms. The walls and floors of the classroom were used to display collages of student work (e.g., drawings and paintings) and teachers printed, handwritten, and photographic documentation. Texts were also used to represent students' activities. For example, children drew each letter of the alphabet on a piece of paper with an associated picture. They would present the letters of the alphabet in songs and rhymes as they held their pictures. Students also participated in a recycling project using paper, milk cartons and garbage bags after reading stories about a character named Pulverheksa (Pulver witch) by a Norwegian author. This study offered insight into how a variety of modes such as drawings, toys, and written language create rich multimodal projects in kindergarten settings. A variety of semiotic resources such as recycled materials, written text and images allowed students to participate in the design process, actively producing projects they could share and discuss with peers and adults. As a result, student work was reflective of their learning and representation

when displayed throughout the classroom. This indicates incorporating multimodal resources and opportunities for students supports student agency and creative design production. McLean and Rowsell (2013) also argue that using "a design-oriented approach to literacy instruction, both teachers and students will become more discerning users, consumers, and producers of texts" (p. 24).

Kuby and Vaughan (2015) examined the learning experiences of kindergarten and Grade 2 students. They emphasized the shift in agency when students created and engaged with multimodal artefacts. One Grade 2 student and one kindergarten student were chosen as representative case studies to showcase the shifting of identities in literacy activities. In the Grade 2 classroom, Miley was chosen to lead her class in designing and creating a mural, book series, and puppet play. Anna, in the kindergarten classroom was chosen to engage in literacy activities, where she wrote chapter books and helped her peers develop their own stories through the process of sharing her own work and asking her peers questions. By the end of the study, Miley was described as a "mentor, designer, and teacher" (p. 452) and Anna showed an increase in confidence and initiation in other writing lessons. When given the option to cut and paste images from magazines after a read aloud, Anna decided to use paint and poster paper for the follow-up task. This literature demonstrates how inquiry-based projects can support students' literacy learning. Similar multimodal learning experiences may be implemented virtually with the teacher providing prompts and incorporating students' interests towards inquiry activities. This shows the importance of teachers' knowledge and implementation of the multiliteracies pedagogy.

2.2 Early Literacy Practice in the Kindergarten Curriculum Document

In Ontario, the Kindergarten Program (KP) document is used to plan and assess students' learning "informed by evidence from research and practice about how young children learn" (Ontario Ministry of Education (OME), 2016, p. 4). At the core of the document is a focus on the following: "play-based learning in a culture of inquiry; the role of the learning environment; and assessment for, as, and of learning through the use of pedagogical documentation, which makes children's thinking and learning visible to the child, the other children, and the family" (OME, 2016, p. 16). This study explores how resources, such as the KP document influenced literacy teaching and learning in a teacher's virtual classroom.

One of the frames outlined in the KP document is, "Demonstrating Literacy and Mathematics Behaviours," where it is suggested that students have opportunities to demonstrate and be assessed on the following:

> communicating thoughts and feelings – through gestures, physical movements, words, symbols, and representations, as well as through the use of a variety of materials; literacy behaviours, evident in the various ways they use language, images, and materials to express and think critically about ideas and emotions, as they listen and speak, view and represent, and begin to read and write.
>
> (OME, 2016, p. 15)

This view of literacy suggests how students can represent and express literacy in a variety of ways using multiple resources to communicate their learning, which also aligns with the

multiliteracies pedagogy. Students' inquiries can also be informed by observation and documentation to plan for literacy experiences. As educators reflect on their documentation, they may ask: "How are the children using letters in their play? How do they use language when they negotiate, debate, describe, order, count, predict, make suppositions, or theorize? How do they use drawing and/or writing (graphic representation) to capture memory, describe experiences, represent thinking, negotiate, list, and label?" (OME, 2016, p. 26). Literacy learning experiences should also be planned to further develop "children's cognitive, communication/language, physical, social, and emotional development" (OME, 2016, p. 67). This occurs through "repeated investigations over a long period of time" (OME, 2016, p. 68). The programmatic curriculum of kindergarten and other province-provided documents in Ontario are primarily used for teachers to teach to curricular expectations and plan their program.

The KP document emphasizes the critical role of the educator team to co-construct knowledge and learning through observing and documenting student behaviours and questions, thus, reinforcing the collaborative effort between teachers to engage, scaffold, and document students' learning process. This engages the wide perspectives of "children themselves, the parents and other family members, and colleagues" (OME, 2016, p. 25). This documentation is then analyzed and "informs the choices educators will make about how to further challenge and extend children's thinking and learning. It also serves as a guide to the level and type of support each child needs" (p. 25).

For example, in a study conducted by Peterson et al. (2016), primary teachers, early childhood educators and consultants/school administrators with backgrounds in early childhood education were interviewed on ways children's oral language and writing could be enhanced through play. Participants stated that their approaches to supporting oral language development included

conversations with individual children, songs, phonemic awareness activities and facilitating discussions to build students' reading comprehension. Early childhood educators also discussed the learning that occurs between students and adults' oral dialogue. Teachers and early childhood educators extended these learning opportunities through dramatic role play and cooperative learning. As a result, students built their receptive and expressive vocabularies while meeting the curriculum expectations. Thus, it becomes clear that young children engage in learning through play and deepen their understanding of theories with hands-on learning (OME, 2016).

According to the Growing Success - The Kindergarten Addendum (2010) document, assessment is defined as "the process of gathering and interpreting information that accurately reflects the child's demonstration of learning in relation to the knowledge and skills outlined in the overall expectations of The Kindergarten Program (2016)" (OME, 2016, p. 6). Thus, for early literacy assessment, teachers need to engage in pedagogical documentation which "involves recording children's learning experiences, analysing children's work products, and sharing these with the children through a documentation panel" (Buldu, 2010, p. 1440). This on-going assessment process involves collaborative inquiry between students, other teachers, and parents to visualize how children explore their world in a way that is not contingent on a set of predetermined criteria (Kim et al., 2021). Teachers also need to maximize "learner's potential" (Newfield et al., 2003, p. 71) and "consider the parts and the whole, the individual voices and the group voice, the range of modes, and the individual processes and artefacts in relation to that of the whole" (p. 72), so that they can modify their instruction to better meet the needs and interests of their young students.

2.3 Virtual Learning

The KP document further proposes that learning occurs in and out of the classroom, and the learning environment contributes to how students interact and respond to the elements of the environment inclusive of time, space, and materials (OME, 2016). Learning remotely became a prominent method of teaching during the 2020 pandemic as a result of stay-at-home orders. There is a wide variety of online communication platforms, digital applications and tools, and electronic resources to teach and learn online. Communication online uses digital learning platforms such as Google Classroom, MS Teams, Seesaw and Zoom (Ewing & Cooper, 2021). Pedagogical approaches and the ways in which technology is used in the classroom can vary depending on the age of students (Hu et al., 2021). Online learning was delivered synchronously and asynchronously in Ontario (Timmons et al., 2021). “Synchronous delivery included connecting with students in real-time whereas asynchronous opportunities consisted of posting all required materials online for students to work through without real-time interaction with their teacher or peers” (Timmons et al., 2021, p. 892). Teachers also delivered content using YouTube videos and online learning resources such as educational games, digital books and videos to supplement their teaching virtually (Hu et al., 2021). Additional software used to present information included “PowerPoint, MSWord, Adobe [Reader], and online learning apps that included Gizmos, Kahoot, [and] Quizlet” (Ogodo et al., 2021, p. 21). During asynchronous times, teachers provided parent-child activities, such as reading or hands-on activities or worksheets (Hu et al., 2021). It is evident during virtual learning, teachers provided digital resources for students to make learning accessible and engaging while students learned from home.

2.3.1 Challenges for Teachers during Online Instruction

Ford et al. (2021) collected data on teacher responses to challenges and opportunities faced during online teaching. These challenges included: “low levels of participation of children and families, limited social interaction and developmentally appropriate ways of engaging children in the virtual learning format, lack of knowledge and skills for virtual teaching, and limited technological support and unstable internet access” (Ford et al., 2021, p. 7). Teachers also stated the need for better access to resources and curricula for virtual teaching formats, and “clearer and more consistent guidance for virtual teaching” (p. 6). This suggests planning and designing interactive learning was difficult for teachers.

Teaching virtually presented challenges with adjusting to various technological tools and strategies. In a study conducted by Dos Santos (2021), teachers reported that despite emergency provision of technology, i.e., hardware and software, additional preparation and requirements went beyond their initial responsibilities as teachers. Ogodo et al. (2021) reported students had “limited or no access to digital devices such as internet connectivity, iPads, Chromebooks, [and] laptops” (p. 20). Each of these variables, such as student engagement and access to technology lead to questions about how teachers and families can be supported during online learning. Furthermore, teachers’ digital competency ranged from basic to advanced and teachers also mentioned using “Learning Management Systems (LMSs) and other blended learning approaches” prior to the transition to online (Ogodo et al., 2021, p. 21). Ogodo et al. (2021) examined the experiences, digital competency and instructional technology self-efficacy of K-12 teachers. Many teachers felt inadequately prepared in terms of the digital resources and competence required to move from in-person learning to virtual learning (Ogodo et al., 2021).

This study also reported that, teachers "lacked formal academic or work-based instructional technology training" (p. 23), with teachers' revealing that they were self-taught or learned on the job as they conducted their own research into digital apps and supports. A consistent theme in the literature was a lack of training in teacher education programs (Koenig, 2020) to "prepare educators for settings other than the traditional, brick and motor classroom" (Kennedy & Archambault, 2012, p. 195). Therefore, there is a need to prepare teachers for various learning environments, such as blended, hybrid and virtual (Kennedy & Archambault, 2012).

2.3.2 Challenges for Students during Online Instruction

A common concern given the interruption to in-person education, was children's academic learning outcomes (Santibañez & Guarino, 2021). This was particularly evident in students' literacy learning and reading abilities. Bao et al. (2020b) found the reading ability of kindergarten students decreased during the COVID-19 school closures, but that daily reading mitigated this. They suggest that reading supports social-emotional development among parents and children. Chung (2021) found that age, learning styles, and learning abilities influence online learning, and stated teachers found it challenging to identify students who required additional support or assessments for their learning. Given the challenges faced by teachers and families during remote learning, further support and resources are needed for students with exceptionalities. Identifying barriers to successful online learning can help teachers accommodate and develop strategies to support all students in virtual settings.

Literature also suggested distance learning had negative social and emotional impacts on students' development (Timmons et al., 2021). Timmons et al. (2021) also reported that, according to teachers, the overall sense of community was diminished during the transition to

remote learning, despite the importance of "social interactions… in the early primary grades" (p. 893). There was also concern surrounding developmentally appropriate learning for young children, with one teacher stating: "Children cannot learn online. They need hands-on learning experiences with manipulatives and others to build social skills. They have lost so much throughout this process of not being able to interact with each other" (Ford et al., 2021, p. 5). Ewing and Cooper (2021) found varying levels of engagement between teachers and students, peer interaction, and parents and teachers. Teachers and parents found students felt disconnected from their classmates. Therefore, communication between teachers and families is important accommodating parent and students' needs and for teachers to plan a variety of literacy activities to keep students motivated during remote learning.

2.3.3 The Role of Parents in Online Learning for Children

The shift to learning at home impacted parents and families in positive and negative ways. Hu et al. (2021) found teachers had "difficulty engaging children online or inadequate support from parents" (p. 1523). Parents' involvement in their child(ren)'s learning also impacted students' learning outcomes (Firmanto et al., 2020). The age of students played a role in parental support at home during remote learning, specifically in stimulating children's literacy development (Azizah & Eliza, 2021). Azizah and Eliza (2021) found children's literacy development was best supported by parents when they read to their child during learning at home. Hu et al. (2021) also found "parents' participation… affected the engagement of their children during online learning" (p. 1525). There were also concerns about the level of support and guidance parents were providing at home, sometimes giving "too much help and even completing the tasks for their children" (Timmons et al., 2021, p. 894). This varied with the parent's experience and skill with

technology, their communication with teachers and the responsibility of submitting their child(ren)'s work online (Ewing & Cooper, 2021). The literature also suggests that learning how to use digital applications and online resources, such as Zoom, had a learning curve and teachers spent much of their class time helping parents with their struggles with technology (Ford et al., 2021). Moreover, parents encountered several obstacles as they took on multiple roles at home, such as caring for more than one child, household chores, and their occupations during the day (Firmanto et al., 2020). Ford et al. (2021) recommended that families be provided with materials to be used during synchronous learning with the teacher. Spadafora et al. (2022) echoed this finding, revealing teachers adapted their teaching to the materials and technology students had available at home.

Chapter 3

3 Research Methodology and Methods

3.1 Overview

A qualitative case study was used to investigate a kindergarten teacher's knowledge, experience and implementation of literacy and the multiliteracies pedagogy in his virtual classroom. This chapter discusses the research design, methodology, data collection and the analysis process, and also includes the rationale for the choice of school board, participant recruitment, ethical considerations and trustworthiness of the study.

In the late 1960s and 1970s, case study research received increased attention in the field of education, evaluation, and curriculum development (Simons, 2009). More specifically, researchers were looking to "determine the effects of social and education programmes in order to inform decision-making and improve social and educational action" (Simons, 2009, p. 3). Simons (2009) states, *case studies* draw from "multiple perspectives… of a particular project, policy, institution, programme or system in a 'real life' context" (p. 9). The purpose of my study is to generate discussion and additional knowledge in the areas of literacy programs, professional development for teachers, and virtual learning environments, and to inform policy and curriculum development. The case study methodology supported the collection, assessment and interpretation of a variety of data sources.

3.2 Qualitative Research

3.2 Why a Qualitative Case Study Methodology?

This study used a qualitative methodology. Researchers who take on a qualitative methodology are interested in "*understanding the meaning people have constructed;* that is, how people make sense of their world and the experiences they have in the world" (Merriam & Tisdell, 2016, p. 15). Qualitative research is also an *inductive process*, where researchers "gather data to build concepts, hypotheses, or theories" based on observations in the field (Merriam, 2009, p. 15). Through the inductive process of data collection, which included direct quotes from the teacher's reflective notes, documents, and interview transcripts, as well as images of students' work, data analysis revealed unexpected findings related to the teacher's understanding and enactment of the multiliteracies pedagogy.

Qualitative methodology is "research that produces descriptive data - people's own written or spoken words and observable behaviour" (Taylor et al., 2017, p. 17). In this study, semi-structured interviews and virtual observations provided descriptive, in-depth data into a kindergarten teacher's understanding and practice of the multiliteracies pedagogy. The teacher also reflected on his practice on a secure online platform to ensure his voice would be accurately portrayed as quotes in the findings section. He was able to describe his experiences in the field and first-hand examples of philosophies and approaches he used with students, and the rationale for using them.

Qualitative researchers "develop concepts, insights, and understandings from patterns in the data rather than collecting data to assess preconceived models, hypotheses, or theories" (Taylor et al.,

2017, p. 18). In this study, these characteristics were met. Data was analyzed through an inductive approach to identify common themes throughout each data source. Virtual observations of the classroom focused on the teacher, were unobtrusive (as my camera was off), and the interview was treated as an informal conversation, rather than a formal question-answer format, to allow for authentic responses. Observations were not recorded due to ethical considerations; however anecdotal and reflective notes were taken.

Qualitative researchers explore the lives of their participants in relation to a specific time and place, and use the patterns they discover as "principles to think about in new situations" (Patton, 2015, p. 87). In this study, the process of data collection occurred over a period of four months and I was able to observe and identify changes in the teacher's literacy practices, lesson plans, and teaching philosophy over that time. In contrast to quantitative research, where data is generalized and a hypothesis is tested (Patton, 2015), this study explored emerging patterns in the teacher's lived experiences using multiple data sources including pre- and post-interviews with the teacher, virtual observations, and semi-structured interviews. In Chapter 1, I identified my positionality and subjectivity as a researcher to acknowledge any biases I brought to the study and to identify how they might shape data collection or interpretation.

This study is further guided by the interpretative framework of social constructivism. Under this framework, individuals "develop subjective meanings of their experiences - meanings directed toward certain objects or things. These meanings are varied and multiple, leading the researcher to look for the complexity of views rather than narrow the meanings into a few categories or ideas" (Creswell, 2018, p. 24). The kindergarten teacher's prior education, experiences, and knowledge of teacher education programs, literacy development and virtual learning contributed to his beliefs, pedagogies, and practices in the virtual classroom. In this instance, as a new

teacher, much of his learning was based on his own research and challenges he encountered teaching virtually. Social constructivists also focus on the specific contexts in which people live and work in order to understand the historical and cultural settings of the participants (Creswell, 2018, p. 24). As a result of the pandemic, descriptive data collection took place virtually as teachers and students adapted to learning online.

3.3 A Qualitative Case Study

A case study can be defined as "an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context" (Yin, 2009, p. 18) and be used to understand "individual, group, organizational, social, or political, and related phenomena" (p. 4). A case study is also unique in its "ability to deal with a full variety of evidence - documents, [artefacts], interviews and observations" (Yin, 2009, p. 11). Multiple sources of data were collected in this study, as they "provide[d] convergent and concurrent validity… and… [demanded myself, as the researcher] an ability to handle and synthesize many kinds of data simultaneously" (Cohen et al., 2018, p. 387). These were used to investigate and reveal descriptive data of the kindergarten teacher. A case study is also distinguishable by the following: it deals with "many more variables of interest than data points," "relies on multiple sources of evidence, with data needing to converge in a triangulating fashion," and stems from "prior development of theoretical propositions to guide data collection and analysis" (Yin, 2009, p. 18). This study considers multiple sources of data and their relationships. Various scholars define case studies in different ways. For example, one of the focusses of Merriam, a qualitative researcher, in defining a case study is on the unit of the study. Merriam defines a qualitative case as "an intensive, holistic description and analysis of a single instance, phenomenon, or social

unit" (Merriam, 1988, p. 21). Meanwhile, Stake "concentrates on experiential knowledge of the case and close attention to the influence of its social, political, and other context" (Stake, 2005, p. 444). In comparison to Stake, Yin (2009) describes case study research as a process (Merriam, 1998), and notes additional elements required of a study to be considered a "case study" such as having multiple sources of evidence and the need for triangulation (Yin, 2009). Although this study involved a single case, Yin's (2009) and Stake's (2005) approach best reflect the methodology I used.

As mentioned, this study used a single-case design where the contemporary phenomenon was the novel situation of teaching remotely during the pandemic, in the context of a virtual classroom. The sources of evidence included semi-structured interviews conducted online, virtual observations, and documents related to literacy teaching. The multiliteracies pedagogy was the theoretical framework used to support data collection and data analysis. This was also an exploratory case study, as its results can be used as a precursor "to generate hypotheses that are tested in larger-scale surveys, experiments or other forms of research" (Cohen et al., 2018, p. 377), due to limited research on the change to virtual learning during of the pandemic. Case studies can also serve as "a step to action" regarding professional development or educational policy (Cohen et al., 2018, p. 379). The experiences and challenges faced by the kindergarten teacher instructing young children remotely can be used to formulate recommendations for other teachers and curriculum developers in the process of creating changes aimed at successful online learning.

Being a new teacher myself, I have a personal connection this study. According to Hyett et al. (2014), "an interpretive or social constructivist approach to qualitative case study research supports a transactional method of inquiry, where the researcher has a personal interaction with

the case" (p. 2). This study used an interpretative approach to allow for categorization of common themes found and analyzed in the data, which were then traced back to the literature review, relating my findings to the extant literature. Semi-structured interviews also allowed for insight into the teaching background and knowledge of the participant. Observations and interviews with the teacher aided in gathering rich experiences of research and resources that informed his literacy practice and specific strategies the teacher used with his students.

3.4 Data Collection Methods

3.4.1 Site Selection and Participant Recruitment

As part of a larger study initiated and designed by my supervisor, the context of this case study is a virtual kindergarten classroom in Southern Ontario where students were learning remotely. Selection of elementary schools to complete the study relied on convenience sampling of individuals within my professional network. Convenience sampling involves selecting participants based on geographical proximity to the researcher and availability at the time of the study (Cohen et al., 2007). This involved contacting kindergarten teachers teaching remotely in Southern Ontario. The principal of the virtual school was contacted to inform her of the study and make her aware that observations would occur twice a week virtually. Generalization from case studies can take the form of "features of the single case to a multiplicity of classes with the same features" (Cohen et al., 2018, p. 381). Thus, findings from this study may be applicable to other virtual kindergarten classrooms regarding how teachers planned their instruction or the challenges they faced teaching children in an online setting.

The Letter of Information (LOI) for the teacher (see Appendix B) and the LOI for the parents and students (see Appendix C), stated the necessary criteria to participate in the study, as well as the benefits and potential risks that might occur. Inclusion criteria to participate in the study were kindergarten teachers who taught virtually since September 2020 and who were open to sharing their experiences and knowledge of teaching literacy and implementing the multiliteracies pedagogy with their students. Data was collected after receiving approval from both the Western Research Ethics Office and the school board. Parents and students were recruited by email from the one approved teacher researcher classroom. There were 23 students in the class and they were all observed in group settings. In addition, a total of five parents and their respective children consented to observations during one-to-one meetings, as well as the collection of their child's work samples.

3.4.2 Virtual Observations

Direct observations allow for contextual insight (Yin, 2014). In the case of this study, contextual insight was the virtual classroom with the teacher, his teaching partners (Early Childhood Educators [ECEs] and his 23 students. Contextual insight, also referred to as observational evidence, can also include new technology or organization and which "provide[s] additional information about the topic being studied" (Yin, 2014, p. 114). In this study, contextual insight also included the virtual classroom environment which was the online learning platform or Virtual Learning Environment (VLE), where the teacher posted activities, announcements, assignments, and parents posted their child(ren)'s work. Observational findings provided key evidence in answering two of my research questions: How is the multiliteracies pedagogy enacted in his virtual kindergarten classroom? What are the challenges the novice kindergarten

teacher was facing in implementing multiliteracies pedagogy in his virtual literacy classroom? Due to the pandemic, I obtained consent from parents through email and observed the virtual classroom with consent from the principal and teacher of the school. Data collection began with connecting with the teacher in order to be invited to join his Microsoft Teams live synchronous literacy block, which was provided weekly in an email to the parents and to me. Virtual observations occurred twice a week from March to June. In attendance, my camera and microphone were off, also known as taking the role of non-participant observer (Cohen et al., 2018). In person, a non-participant observer takes notes of teacher-student exchanges without interacting with the participants (Cohen et al., 2018). As part of Dr. Kim's research team, I engaged with ongoing meetings with the teacher participant, Michael and Dr. Kim to clarify, suggest and discuss his reflections and my interpretation of the data. In one of the conversations with Michael, he revealed one parent said there was never an opportunity to for her other child to participate in research and she was happy to have her daughter be a part of this process. Based on the consent from five parents, I was able to observe one-to-one and small group meetings between the teacher and his students. The teacher transitioned to one-to-one and small group meetings part way through the observation period. With ethical approval and the approval of the teacher, I was able to observe the individual meetings for the five students and their guardians who provided consent.

Daily anecdotal notes were taken of my observations while I observed the classroom virtually. Field notes were to include what happened in the setting and, people's activities, and were to record, "the observer's feelings, interpretations, hunches, preconceptions, and future areas of inquiry" (Taylor et al. 2017, p. 87). "A detailed description of the setting and people's positions within it can give you important insights into the nature of participants' activities, interaction

patterns, perspectives, and ways of presenting themselves to others" (Taylor et al., 2017, p. 89). The following is an example of my anecdotal notes: "the teacher is in his fourth month of implementing Jolly Phonics in his virtual classroom and reviewed letters a to j with students this morning," "Teacher introduces letter p to students. Letter p is shown on the PowerPoint slide and the teacher asks students for examples of words that start with the letter p." My field notes also indicated how enthusiastic the teacher was when teaching literacy and I was also able to observe some level of parental involvement during classes. Field notes included descriptive notes of the structure of the literacy block and interpretive memos of student-teacher interactions. Notes were organized by day, time, and descriptive vs. reflective notes. Ethical approval was received from the school board, the NMREB of Western (see Appendix A), and consent from the teacher (see Appendix D) and parents and children (see Appendix E). Virtual observations occurred twice a week for four months. The timeline of data collection in the virtual literacy classroom is due to triangulation of multiple sources of data and observation was one source of data used to answer the main research questions. In addition, data saturation was used to justify the timeline of virtual observations. Data saturation refers to "how much data (usually the number of interviews) needed until nothing new is apparent" (Saunders, 2017, p. 1895). In this case, data saturation occurred when observations of the literacy block presented no new information (Saunders et al., 2018) and there was redundancy in the teacher's instruction "with no necessary reference to the theory linked to these data" (Saunders et al., 2018, p. 1896). In this instance, data saturation happened when the teacher no longer presented new ways to incorporate multiliteracies in his teaching.

3.4.3 Semi-structured Interviews

Semi-structured interviews include the researcher creating “a blend of closed-and open-ended questions, often accompanied by follow-up *why* or *how* questions” (Adams, 2015, p. 493). After an interview guide is prepared, the questions are still a work in progress and “some questions and topics may need to be added or subtracted, expanded or condensed, recast or reordered” (Adams, 2015, p. 499). The strengths of conducting interviews include a focus directly on the case study and explanations based on the perceptions, attitudes, and meanings of participants (Yin, 2014). In a study conducted by Molbæk, interviews were used to understand the participants' reflections and opinions and observations were used to gain an understanding of the teachers’ interactions with their students (2019). “You can ask interviewees about their interpretations and opinions about people and events or their insights, explanations, and meanings related to certain occurrences” (Yin, 2014, p. 111). Their answers can be used as “propositions as the basis for further inquiry” (p. 111). In this study, data collection included scheduling a pre- and post-interview (30-45 minutes in length) with the teacher over Western Zoom, a secure online platform. Interviews were audio recorded and transcribed. This ensures accuracy and provides an opportunity for researchers to reflect on the effectiveness of their interview questions and probing or follow-up questions (Merriam, 2010).

According to Cohen et al. (2007) “interviews enable participants – interviewers and interviewees – to discuss their interpretations of the world in which they live, and to express how they regard situations from their own point of view” (p. 506). Qualitative interviewing also allows the researcher to gather the perspective and the thoughts, feelings, and intentions of the participant (Patton, 2015). The first interview was conducted at the beginning of April and the second two months later at the end of May. The pre-interview was used to gather information on the

background of the teacher, his knowledge and perceptions of literacy, and his understanding of the multiliteracies pedagogy. The post-interview was used to identify any changes in the teacher's knowledge and understanding of literacy teaching and address any questions from observations of the teacher's classroom. Insights from the interviews were compared to other relevant sources of data. A list of the pre-interview questions can be referenced in Appendix F and post-interview questions can be referenced in Appendix G.

3.4.4 Documents for Literacy Teaching

Documents refer to, "printed and other materials relevant to a study, including public records, personal documents, popular culture and visual documents, and physical [artefacts]" (Merriam, 2010, p. 86). These can be used to "help the researcher uncover meaning, develop understanding, and discover insights relevant to the research problem" (Merriam, 2010, p. 163). In this study, documents used for data collection included resources such as the Ontario Kindergarten Program, dayplans, PowerPoint slides, reflective notes on the Knowledge Forum 6 (KF6) platform, emails, literacy assessments provided by the school board, and student artefacts (PDFs of student's work). Teacher reflective notes were recorded and stored on the KF6 online discussion board. My supervisor, the teacher participant and I all had access to the KF6. Field notes and reflections were documented on an ongoing basis. Inquiries by the teacher and me were reflected on with scaffolds, such as students' multimodal meaning-making should be documented because, new information, my theory, what I could improve. These prompts were created by my supervisor and helped in ensuring data collection correlated back to the original research questions. Documents were used to answer the three research questions: How does a novice kindergarten teacher conceive literacy and multiliteracies pedagogy?" How is the

multiliteracies pedagogy enacted in his virtual kindergarten classroom?", and "What are the challenges the novice kindergarten teacher was facing in implementing multiliteracies pedagogy in his virtual literacy classroom?

3.5 Data Analysis

This study used deductive and inductive data analysis to identify connections between the research questions and the data sources, using thematic analysis by collaborating and regular research meetings between the research team members, including my supervisor, Dr. Kim and her research assistant, Yu. Braun and Clarke (2006) define thematic analysis as "a method for identifying, analysing and reporting patterns (themes) within data" (p. 79). In addition, "a theme captures something important about the data in relation to the research question, and represents some level of *patterned* response or meaning within the data set" (Braun & Clarke, 2006, p. 82). Braun and Clarke (2006) also suggest this process is flexible and involves researcher judgement, as the prevalence of the data item does not necessarily mean it is a significant finding. In general, thematic analysis can occur through six phases: (1) familiarizing yourself with your data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, (6) producing the report (Braun & Clarke, 2006).

Deductive coding involves creating an initial list of codes that are derived from "the conceptual framework, list of research questions, hypotheses, problem areas, and/or key variables that the researcher brings to the study" (Miles et al., 2014, p. 78). Deductive analysis can be described as data analysis that aims to validate hypotheses generated by the researcher and confirm their earlier assumptions (Thomas, 2006). In this study, the list of primary codes were cross-referenced based on three of the four components of the multiliteracies pedagogy: situated

practice, overt instruction, and transformed practice. Each of these elements was enacted in the teacher's classroom, and found in a review of the data. Table 1 provides a summary of each dimension, with a definition and an example from the data. Deductive analysis can be described as "testing hypotheses" (Merriam & Tisdell, 2016, p. 17), whereas inductive analysis occurs when "researchers gather data to build concepts, hypotheses or theories" (p. 17). Additionally, "other codes emerge progressively during data collection – that is, Inductive coding. These are better grounded empirically and are especially satisfying to the researcher who has uncovered an important local factor" (Miles et al., 2014, p. 78). Data analysis also revealed unexpected findings, which is where inductive coding played a role in the analysis process.

Inductive analysis aims "to allow research findings to emerge from the frequent, dominant, or significant themes inherent in raw data, without the restraints imposed by structured methodologies" (Thomas, 2006, p. 238). These findings are then presented in the form of themes, categories or tentative hypotheses (Merriam & Tisdell, 2016). Inductive analysis occurs as "qualitative researchers build toward theory from observations and intuitive understandings gleaned from being in the field… information from interviews, observations, or documents are combined and ordered into larger themes as the researcher works from the particular to the general" (Merriam & Tisdell, 2016, p. 17). This process involves "close readings of the text… [then the researcher] identifies text segments that contain meaningful units and creates a label for a new category to which the text segment is assigned" (Thomas, 2006, p. 241). The researcher then creates a description for each category and places relevant evidence in that category to support that theme (Thomas, 2006).

Inductive coding was a meaningful method of data analysis in this case when the participant shared personal experiences and knowledge in the interview and reflective notes. Inductive

analysis revealed multimodality and design, collaboration with teaching partners and parents, that the Kindergarten Program document which influenced the teacher's literacy practice, insufficient teacher preparation in the Bachelor of Education program, minimal resources provided for professional development at work, varying degrees of parental support, and difficulties with online learning with children. Utilizing both deductive and inductive methods of data analysis aided in supporting the guiding theoretical framework of the multiliteracies pedagogy and acknowledged emerging or unexpected findings revealed by the participant throughout the multiple data sources.

3.6 Triangulation

Methodological triangulation supports the validity of this study. Triangulation involves "using multiple investigators, sources of data, or data collection methods to confirm emerging findings" (Merriam, 2015, p. 229). Triangulation or gathering multiple sources of data can be used to "reduce bias and increase confidence in the robustness of the research results" (Kipping et al., 2013, p. 312). Triangulation is said to have occurred when "the case study's findings will have been supported by more than a single source of evidence" (Yin, 2014, p. 121). This will be evident in the findings section of this study. For example, the teacher's pedagogical practice was guided by the Ontario Kindergarten Program document. Evidence to support this claim is reinforced with examples from the teacher's lesson plans and reflective notes. When multiple sources of data are reviewed and cross-referenced simultaneously, this is called "developing convergent evidence… [which] helps to strengthen the *construct validity* of [a] case study" (Yin, 2014, p. 121).

According to Carter (2014) “triangulation also has been viewed as a qualitative research strategy to test validity through the convergence of information from different sources” (p. 545). This can include written documents, such as reports, memos, evaluation forms, and diaries (Taylor et al., 2017). The use of multiple methods of data collection, such as virtual observations, semi-structured interviews, and documents, supports between methods triangulation. Each method of data collection was purposeful in answering my three main research questions regarding approaches, knowledge and implementation of literacy and the multiliteracies pedagogy in the teacher’s virtual literacy classroom. The ‘between methods’ approach supported validity of the study as independent variables converged along a single objective (Campbell & Fiske, 1959).

A case study can be generalizable depending on the circumstances and context of the case (Cohen et al., 2007). In this study, the findings revealed specific literacy practices and approaches of one virtual teacher in a school, which may be applicable to other virtual kindergarten classrooms. Furthermore, this study will ensure internal validity (Cohen et al., 2007) through transparency between different parts of the data, ensuring findings are consistent with the chosen methodology. The use of multiple sources, such as interviews and observations ensured concurrent validity (Cohen et al., 2007). The steps taken to plan, design, and implement a case study were taken in this study to verify consistency from the research questions to data collection and interpretation (Cohen, et al., 2007).

3.7 Ethical Considerations

The ethical considerations taken for this study are in accordance with the Western Research Ethics Board (REB) and the chosen school board guidelines. A Non-medical Western (REB) research plan and protocol document which outlined the who, what, when, where, how and why’

of the study was approved for a study conducted by my supervisor and was therefore used as the ethics protocol for my study, which met similar eligibility criteria with one amendment. The research and evaluation officer for the school board of the teacher who agreed to participate in the study, and that officer was given a description of the study, participant criteria, as well as their roles and expectations, study duration and procedures, possible risks, and how I would maintain the confidentiality of the participants involved in the study.

During a challenging year for teachers and students due to the pandemic, along with ethical concerns, observations were not recorded and the teacher was not asked to go beyond his regular teaching duties. Participants, inclusive of the one teacher and the families who agreed to participate in the study had the right to withdraw consent at any time during the study, with no repercussions (Cohen et al., 2018). Participants also had the option to identify methods of data collection they would consent to through a checklist on the consent form. Parents were informed there would be no impact on their child's grades or academic status should they choose to participate or not participate in observations or providing their student work. Participants were informed that they would not be compensated for their participation in this research. Additional ethical considerations were taken for other adults in the virtual classroom, such as the ECE's, to inform them that observations of the class would be conducted, but that other adults would not be the focus of the study. Data was stored on a secure Western OneDrive with access by members of the Research Team. Data collected, such as student artefacts will be kept on file for seven years in accordance with Western University's Faculty Collective Agreement, and then destroyed by a member of the research team.

3.8 Trustworthiness

A study is considered trustworthy when it has met the following four criteria: credibility, dependability, confirmability, and transferability (Lincoln & Guba, 1985). Credibility refers to the researcher "describing [their] experiences as a researcher and verifying the research findings with the participants" (Cope, 2014, p. 89). Chapter 1 details my background and experiences with literacy and multiliteracies. Throughout the process of this study, I remained in ongoing contact with the participant to verify and clarify the data sources and results of the study. For example, the participant read over the interview transcripts and clarified my interpretations about teacher professional development. This is also known as *member checks* (Guba & Lincoln, 1982), where "data and interpretations are continually checked with members of the various groups from which data are solicited; done on a continuous basis throughout the study" (Guba & Lincoln, 1982, p. 247-248). "Stakeholder checks enhance the credibility of findings by allowing participants and other people who may have specific interests in the evaluation to comment on or assess the research findings, interpretations, and conclusions" (Thomas, 2006, p. 244). Member or stakeholder checks were used to uphold the credibility of the study. The teacher was given the opportunity to review initial coding and categories to clarify and provide interpretations of the data.

The three other criteria for trustworthiness: dependability, confirmability and transferability were also met. Dependability is accomplished when "another researcher concurs with the decision trails at each stage of the research process" (Cope, 2014, p. 89). This study was able to accomplish dependability, as an integrated study. Throughout this process, the other researcher, Yu and I were able to cross-reference ideas, analysis and findings of the study, as we used the

same data sources. In addition, confirmability occurs when the researcher provides explicit rationale using direct quotes from the participant in documenting the findings and interpretations of the study (Cope, 2014). Direct quotes from the interview transcripts, teacher reflections and documents accomplish the confirmability criteria. A study is said to be transferable if "the results have meaning to individuals not involved in the study and readers can associate the results with their own experiences. Researchers should provide sufficient information on the informants and the research context to enable the reader to assess the findings' capability of being fit or transferable" (Cope, 2014, p. 89). For this study, transferability was dependent on the participant and the research context. In this case, data is transferable to other kindergarten teachers teaching in a virtual literacy classroom and the approaches or challenges they faced as they adapted to an online learning environment with young children. This study meets all four criteria for trustworthiness.

Data Analysis

Table 1

Deductive and inductive data analysis table

Data Analysis Approach	Major themes	Definition	Example
Deductive Data Analysis	Situated practice	Situated practice stresses the importance of providing opportunities and meaningful experiences for students to draw upon their interests, prior knowledge, and out-of-school experiences to make meaning in new contexts (NLG, 1996).	Educators scaffolded the process of students' meaning making through multimodal texts during the Writer's Workshop. Integrated students' inquiry interests and lifeworld experience into curriculum activities, like asking students what they wanted to learn and organizing inquiry topics accordingly, planning a Special Person Day for students who may not have mother or father in their life.
	Overt instruction	Overt instruction refers to active interventions that scaffold students' learning by making explicit the patterns of meaning in order to help students gain a conscious understanding of their learning (NLG, 1996). According to the NLG (1996), "evaluation in overt instruction should be developmental, a guide to further thought and action" (p. 86).	Using evidence-based explicit instruction to teach phonological awareness hierarchy. Using assessment to identify the strengths and weakness of students and inform the next pedagogical step.
	Transformed Practice	Transformed practice occurs when learners transfer what they have learned in one context to new contexts or situations and shift their	Students had opportunities during independent reading to share information and literacy

		roles from consumers of the knowledge to designers and meaning makers (NLG, 1996).	concepts such as features of books they read during literacy centres. Utilizing two components of the multiliteracies pedagogy: situated practice and transformed practice, Writer's Workshop allowed for students to create and share their interests and experiences to transform their meaning.
Inductive Data Analysis	Multimodality and Design	Multiliteracies pedagogy stresses the importance of utilizing multiple modes (e.g., visual, audio, linguistic, spatial, gestural, etc.) to make meaning and communicate as "much of our everyday representation experience is intrinsically multimodal (Cope & Kalantzis, 2009, p. 179). Design looks at how people utilize the available multimodal resources in a given environment to make meaning and communicate (Adami & Kress, 2014; NLG, 1996). Specifically, design consists of "teachers' pedagogic designs of learning processes and students' designed constructions of meaning" (Jewitt, 2008, p. 252).	The teacher incorporated "Smart Notebook for a lot of the presentations," "google slides for literacy and numeracy activities," and "songs, YouTube videos, dancing, movement" in his teaching practice. - The teacher used self-purchased resources, the kindergarten document, and the electronic resources provided by the school board to teach in his classroom.
	Collaboration with teaching partners and parents	The teacher worked in partnership with early childhood educators and families to support student learning in online learning environment.	The teacher and the ECEs used Google Drive (e.g., Google docs, slides, spreadsheet, etc.) to collaborate on their curriculum, thinking, ideas, and resources for parents and students.

		ECEs were also responsible for doing pedagogical documentation in the classroom. Parents assisted their child(ren) by explaining activities or navigating the technological aspects of learning online.
The influence of the Kindergarten Program document on the literacy practice	Teacher's literacy practice in relation to the Kindergarten Program document.	The teacher's literacy practice in an online learning environment was also greatly shaped by the Kindergarten Program document and other literacy assessment tools. As outlined in the Ontario KP document, children's phonological awareness, phonemic awareness, and letter sound correspondence were critical literacy behaviours for kindergarten children.
Insufficient teacher preparation in the Bachelor of Education program and inadequate training and professional development at work	The lack of training and preparation for online teaching was one of the common challenges facing teachers when learning was shifted virtually (Ewing & Cooper, 2021; Graziano & Bryans-Bongey, 2018).	The teacher mentioned that he "never knew about phonological awareness, phonemic awareness" before entering the field. So, he had to look it up and construct it on his own because "obviously the board didn't provide it, or we didn't learn it in our teacher education program."
Varying degrees of parental support	Parents provided either too much help (Timmons et al., 2021) or inadequate support for their children due to their beliefs and	Parents were asked to submit samples of their child(ren)'s work under the four frames of the KP document. For example,

		attitudes about online learning (Darmiyanti et al., 2021; Fitri & Latif, 2021).	parents had to upload a literacy printing page and literacy play activity their child completed. The number of submissions of students' work and the details of the description of the work varies considerably from family to family.
	Constraints of online learning	The availability of technological tools, and accessibility and stability of the internet (Fitri & Latif, 2021; Rasini et al., 2021) were found to inhibit online learning.	Ensuring families and teachers had laptops and internet accessible at home was key to delivering and learning virtually. Other factors that influenced online learning included "the quality of the video and sound transmission" and "the poor-quality internet connection" of teachers and/or students. When students shared their work on screen and answered questions during whole or individual instruction, the quality of family's camera and microphones impacted learning and teaching experiences.

Chapter 4

4 Findings

This chapter will address the three main research questions: How does a novice kindergarten teacher conceive of literacy teaching and learning and the multiliteracies pedagogy? How is the multiliteracies pedagogy enacted in his virtual literacy classroom? What are the challenges the novice kindergarten teacher was facing in implementing multiliteracies pedagogy in his virtual literacy classroom?

The teacher participant of this study is Michael (pseudonym), a first year Full Day Kindergarten (FDK) teacher. Michael is an Ontario Certified Teacher in the Primary/Junior division, qualified to teach Kindergarten to Grade 6 and is also completing a Master of Arts in Education. His teaching background includes supplying for one year, teaching Grade 2 for two months in a LTO (Long -Term Occasional) contract prior to getting a one-year contract in a FDK classroom. Two Early Childhood Educators (ECE's) co-taught with Michael in his virtual classroom located in Southern Ontario, teaching twice a week and alternating Friday's. Michael's class consisted of 23 students who learned online this past year due to the pandemic. His innovative teaching and practice of the multiliteracies pedagogy will be further described below.

4.1 How does a Novice Kindergarten Teacher conceive Literacy and the Multiliteracies pedagogy?

In the pre-interview, Michael described the many approaches to literacy he has discovered or learned about through his own research online and school board provided resources. They

include the phonetics approach, ABC bootcamp, and Jolly Phonics. His school board also introduced the Heggerty approach later in the year which Michael singled out as a scope and sequence approach to literacy he would like to implement next year. He describes literacy as an "all encompassing term, in terms of reading, writing, oral communication, letters, sounds, phonological awareness, and phonemic awareness; it's all encompassing in terms of language development" (Pre-interview, April 9, 2021). Michael's conception of literacy was evident in his planning and implementation of literacy learning experiences and his whole group literacy teaching. This will be further explained in the next section regarding how he implemented literacy and the multiliteracies pedagogy in his classroom.

Components of children's development of early literacy can include oral language, phonological awareness, and print knowledge (Lonigan et al., 2011). Children can develop these early literacy skills through code-related and meaning-related activities (Lonigan et al., 2011). Code-related skills such as activities designed to practice blending sounds into words, and segmenting words into sounds were demonstrated in Michael's literacy teaching. Students had opportunities to practice these skills during phonological awareness Bingo and when they were individually chosen to identify words and sounds during direct instruction. Meaning-related skills, such as shared reading opportunities, were shown during Michael's read-alouds. An educator would often ask a few students reading comprehension questions, such as the main idea of a story after a book was read.

Phonemic awareness instruction is also used to support children's literacy development (Yopp & Yopp, 2000). This involves the teaching of phonemes and graphemes or drawing children's attention to sounds in words. Michael used songs and learning opportunities to have students practice phonemic awareness, such as rhymes, syllables and blends. This involved manipulating

hands-on materials, such as magnets and playdough to make and sound out words or singing and dancing to the phonemic awareness skill of the week. Conversations with parents revealed that students continued to practice these skills during reading and play-based inquiry learning.

Concerning the multiliteracies pedagogy, Michael held that "it's just different modes, or different exploration opportunities to expose children to different types of text, whether that is printed or audio or images or sound, graphics, and film, videos. That's what multiliteracies is" (Pre-interview, April 9, 2021). Michael emphasized that all the modes are essential. Gestures would help in terms of phonological awareness, phonemic awareness, and letter-sound correspondences as students enjoy singing songs and doing actions, and visuals show the picture of the gesture. Michael also expressed that he tried to incorporate a multiliteracies pedagogy virtually through embedded audio, videos, images, and other modes in his lessons and through activities that provided students with different opportunities and digital resources. In the post-interview, he added:

> Multiliteracies is like for students to understand the information, but for educators to see, design the meaning of it. It comes in different modes…whether it's images, visual, or audio or oral, or print, which is like visual, or movement, kinesthetic or gestural, or even spatial abilities.
>
> (Post-interview, May 28, 2021)

4.2 How is the Multiliteracies Pedagogy Enacted in his Virtual Kindergarten Classroom?

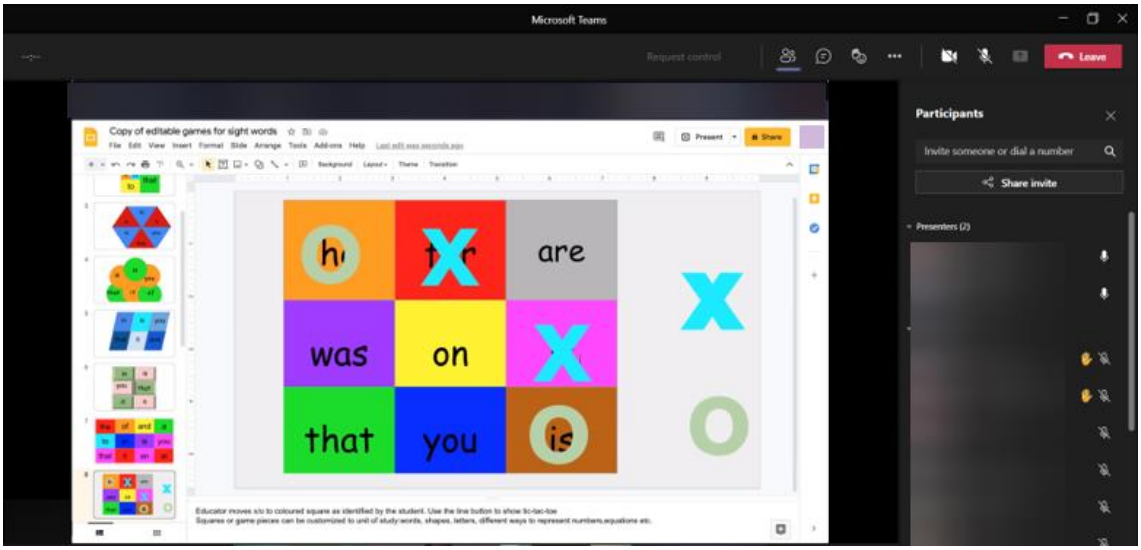
Through virtual learning, Michael offered diverse online learning platforms and digital resources to communicate and engage with students. His virtual classroom was conducted through the

online communication platform, Microsoft Teams to allow for video and chat during class. Learning was synchronous (in person) and asynchronous (offline). SMART Notebook is a software used to supplement a SMART board and make interactive presentations and was used for interactive literacy lessons. During each lesson, students were chosen to read a word on the slide and the teacher would move the word to reveal an image related to what students were learning. Figure 1 is an example of an instructional slide. He used Google Drive (which includes documents, PowerPoint slides, etc.) to exchange ideas, and content and plan their curriculum with other virtual educators.

When it comes to making learning interactive for students virtually, Michael's Choice Boards (see Figure 2) embedded an array of options to use multimodal resources available at home. Michael incorporated multimodality with "audio, video, virtually, text-based, on the screen, through art" (Pre-interview, April 9, 2021). Digital resources included "different tactile images, sound, games, dance, movement, like Head Sprouts [a digital library for kids]" (Pre-interview, April 9, 2021). Choice Board activities also recommended "Smart Choices", such as going outside, colouring/art, reading/writing, imaginative play, puzzles, playdough, cards, board games, building with blocks, loose parts, and constructive toys. In his interview, he mentioned that he used a variety of resources, such as self-purchased resources on Teachers Pay Teachers (an online marketplace for educational resources), the kindergarten document and resources provided by the school board, such as EPIC (online reading platform with accessible books and videos). Brightspace Virtual Classroom was another online communication platform used to post announcements, content, and assignments, and for parents to submit their child(ren)'s work.

Figure 1

Sample Sight Word Instructional Slide



4.2.1 Situated Practice

Situated practice stresses the importance of providing opportunities and meaningful experiences for students to draw upon their interests, prior knowledge, and out-of-school experience to make meaning in new contexts (NLG, 1996). Within this frame, teachers are encouraged to "draw on the socio-cultural practices of learners, providing crucial learning sequences that are important to learner identities" (Pullen & Cole, 2010, p. 22). However, this is not always an easy task in virtual education, as students are situated in different physical contexts (Pullen & Cole, 2010). Leneway (2014) suggests students are more engaged when they participate in a variety of digital technologies and devices, such as apps, tablets, or game-based learning. This increases student agency and students' responsibility for their own learning. The class in this study was situated in a Catholic school board, which meant a certain amount of time each week was dedicated towards religion. Michael incorporated his students' life experiences in his literacy program as he

embedded opportunities for students to express their religious, cultural, and family values in their work. For example, students engaged in discussions and read-alouds about gratitude, empathy and sacrifice to talk about what they could do for others during Lent. This experience acknowledged new and prior knowledge for students who may have talked about Lent with their families. Michael recognized his students' life experiences when he discussed family traditions and the meaning of Easter with them. Michael and his team explained how they prepared for Jesus' coming during Lent. Catholics participate in prayer and fasting, and usually sacrifice something of value during this time as well. Figure 2 shows three sample literacy Choice Board activities for the month of December. These activities support the situated practice component as they recognize upcoming holidays and encourage students to communicate with important people in their lives. Michael often fostered learning in inclusive ways by acknowledging his students' interests and diverse experiences.

Situated practice was also evident in Writer's Workshop, which is where students are provided the opportunity to draw a picture and write about a topic of their choice. One literacy activity celebrated special people in students' lives, where they were instructed to draw a picture and write a sentence about their father or another influential adult in their life. Michael recognized how families are different, so to make this learning experience inclusive, he acknowledged a special person could be a mother, father or other family member. This acknowledged the various environments of each individual student's at-home family life and allowed them to freely express what made their influential person of choice special in their eyes.

Michael demonstrated situated practice in his teaching when he provided students with opportunities to demonstrate their learning through Smart Choice activities or suggested activities, monthly Choice Boards, and Writer's Workshop. On the KF6 platform, he reflected on

how he accessed and supported the diverse interests and ideas of students in his class. He explained:

> To access the children's interest and ideas our team formulated an array of questions of the day to gather children's interest and ideas. Also, students shared their interest or ideas during day-to-day conversations at centre times. In order to support the diverse interests of our students, our FDK recorded and organized our students' interests in a Google document.
>
> (KF6 Reflection, February 13 2021)

Student responses were organized by theme and included some of the following: animals (e.g., ponies, dogs, giraffes, and hedgehogs), superheroes/dress up (Avengers), dance/ballet, and trains. Opportunities for students to explore and engage in the learning of these topics were facilitated during literacy centres and asynchronous learning time where students could choose activities from the monthly Choice Board related to their interests. Michael also took the initiative to include “How to” videos related to students’ interests, where an artist walked students through a guided drawing experience, such as volcanoes.

Each Wednesday, Michael incorporated Writer’s Workshop into his literacy block. During this time, students “practice their name, writing at the top, the date, they draw a picture…label it in terms of just writing the letter, and if they can, they can write a sentence at the bottom using their kindergarten spelling” (Pre-interview, April 9, 2021). Learning is scaffolded by the educators and the expectations get increasingly higher as the year progresses. At the beginning of the year, students were asked to write their name and draw a picture and later in the year the teacher focused on capital letters, finger spacing and punctuation. He encouraged kindergarten spelling or “when the child hears it phonetically trying to spell it out… when they are trying to sound out

those words, they spell it phonetically how they hear it." Using open-ended learning experiences, such as Writer's Workshop, engages students to activate their prior knowledge and build on their inquiries.

The focus of multiliteracies in practice is to engage a wide range of literacy practices drawing on "students' experiences, interests, and existing technological and discourse resources" (Jewitt, 2008, p. 245). Within the component of situated practice, Writer's Workshop ties in nicely as an example of embedding students' interests and sharing their prior knowledge. Figure 3 shows two students Writer's Workshop submissions where the children demonstrated their interests in Spiderman and where they did a science inquiry of what happens when you conduct a science experiment on how a volcano explodes. Michael and his teaching partners were intentional in their literacy programing considering the materials families would have at home to complete activities.

Figure 2

Sample Literacy Choice Board activities for the month of December

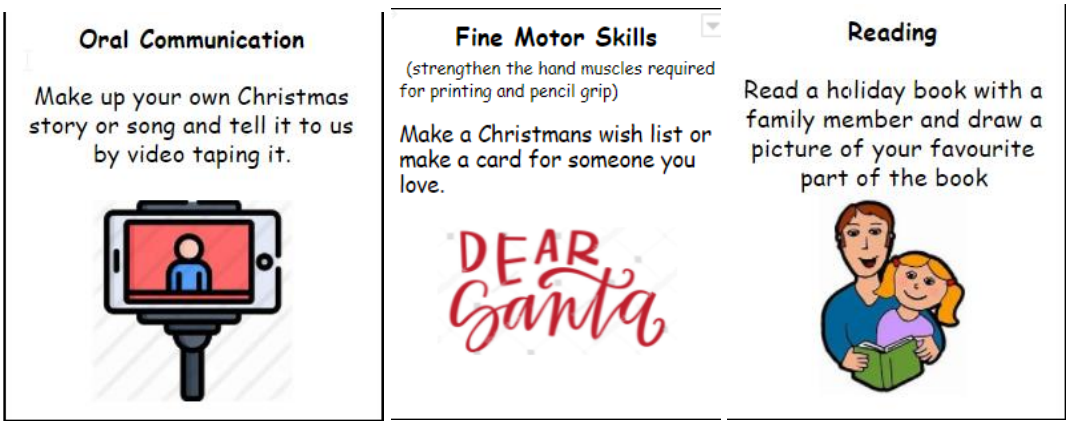
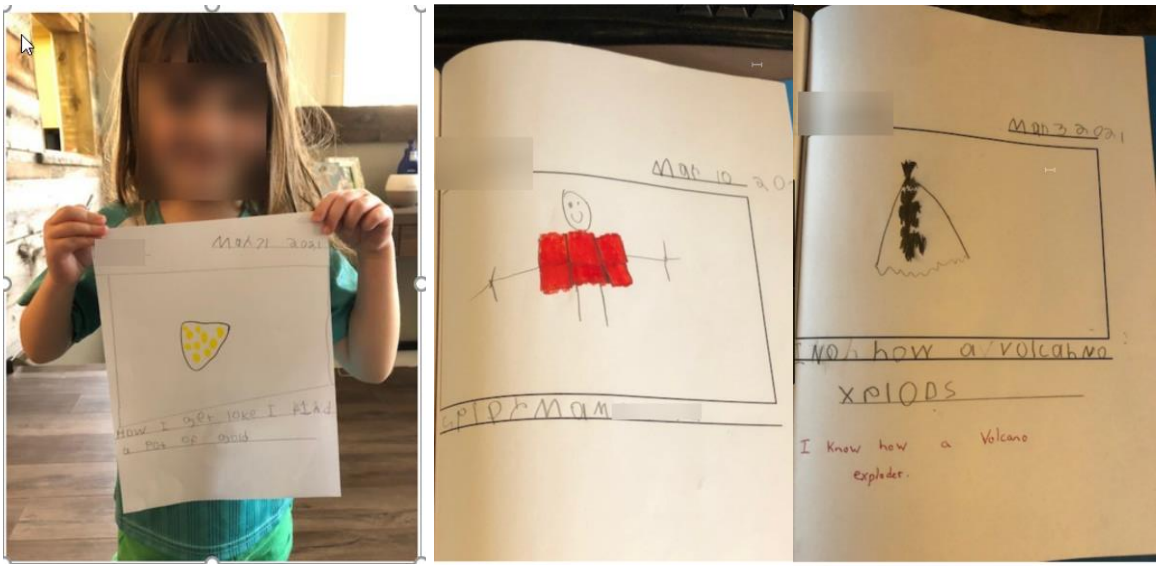


Figure 3

Student Work Sample of Writer's Workshop with Parent Description



Attached are [redacted] march writers workshop submissions
1- She explains how she gets lucky is by finding a pot of gold.
2-[redacted] drew a picture of herself as Spiderman
3- In this writers workshop she explains how a volcano explodes.

4.2.2 Overt Instruction

Michael described a scope and sequence approach to teaching literacy in his classroom by drawing on student's prior knowledge and scaffold students' learning in the process (NLG, 1996). He further states the literacy program is an, "evidence-based approach with direct, explicit instruction and in a scope and performed sequence manner" (Post-interview, May 28, 2021). He described that, traditionally, subjects are sequenced to be taught on a different topic each month. In contrast, in the pre-interview he explained his literacy approach as, "its kind of like a spiral or a ladder, and it comes back and you keep building on it, and it's just that repetitive practice, right, so, learn something, you are assessed on it, and then after you forget about it" (Pre-

interview, April 9, 2021). Instruction in Michael's virtual classroom was cyclical, where information was taught and practiced and concepts were revisited and extended upon to help with remembering the information. This is evident in his dayplans where he structures the literacy block with 20 minutes of whole group language, 20 minutes of literacy activity play and 10 minutes of literacy centres. During Michael's whole group language, he introduced a phonics component, such as vowel teams; next students participated in a phonics related song, then a couple of students were individually asked to read words associated with the learned vowel team, and then students watched a read-aloud. Literacy centres were often supported by an educator guiding students as they had questions, comments, and opportunities to share their knowledge and inquiries. If Michael teaches kindergarten again, he will use the board suggested scope and sequence Heggerty approach, which he describes as a program that uses the "phonological awareness hierarchy, and its scope and sequence so its rhyming all those subskills like blending, isolating, segmenting, deleting" (Post-interview, May 28, 2021). Figure 4 is a sample weekly dayplan, showing the structure of the literacy block by times and activities. Figure 5 is a sample of the literacy slides and videos Michael uses for his whole group language instruction.

Figure 4

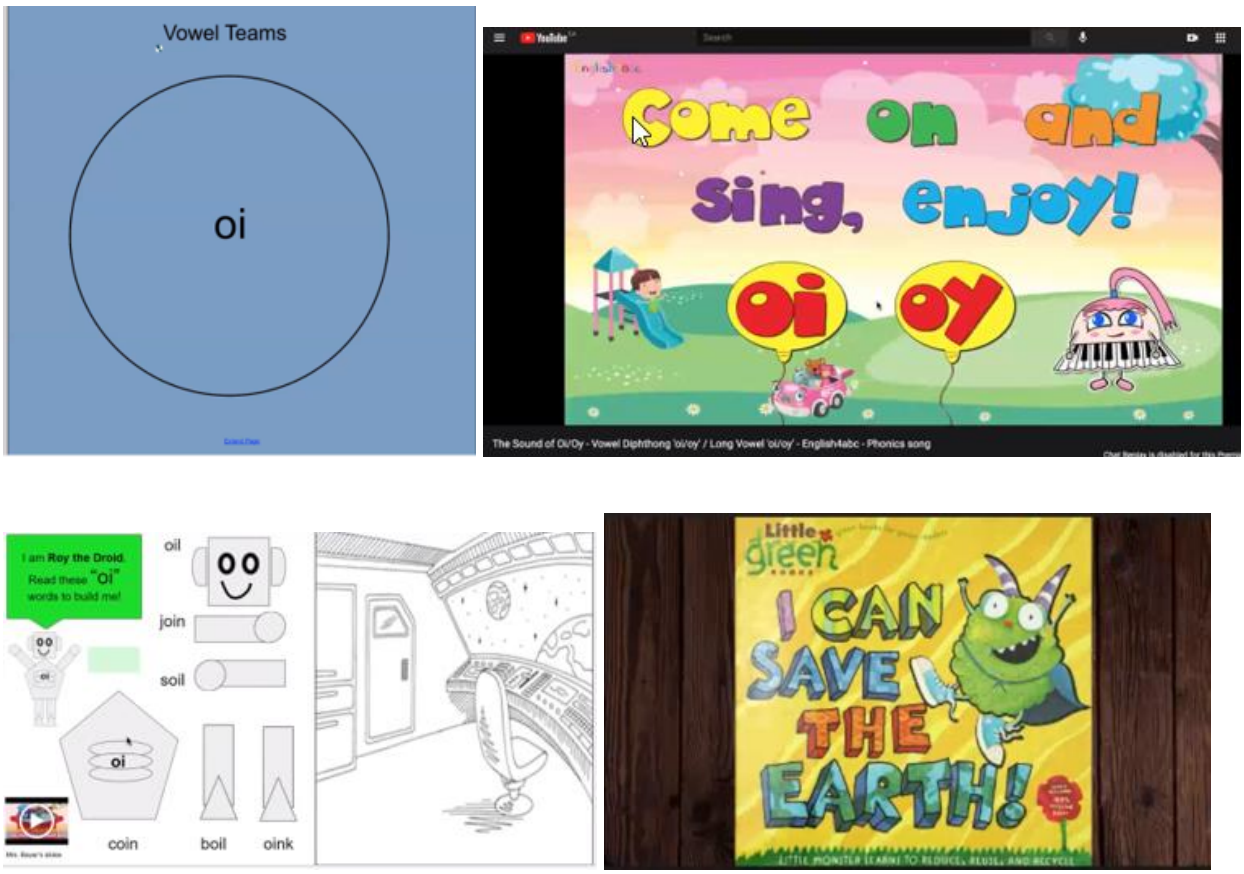
Sample Dayplan for One Week

OSO= Off-screen optional OS: off-screen

	Monday	Tuesday	Wednesday	Thursday	Friday (j)
8:15-9:00					
8:50-9:00	Student login with social time and music				
9:00-9:10	O'Canada, Prayer, Attendance, Morning Message				
9:10-9:30	**Whole Group Language** QOD:What gets composted sorting slide 2 Literacy focus/song: :oi, slide Read aloud 5 min: I can save the Earth	**Whole Group Language** QOD: What goes in the garbage sorting slide 3 Literacy focus/song ar, slide Read aloud 5 min: Earth Day, Every Day	**Whole Group Language** QOD:What gets recycled sorting slide 4 Literacy focus/song:er, slide Read aloud: How to Help the Earth with the Lorax	Earth Day wear blue and green **Whole Group Language** QOD: What gets recycled present mode Literacy focus/song::ir , slide Read aloud:Let's take care of the earth	**Whole Group Language** QOD:What are you so glad that God created for our Earth? Literacy focus/song: or tic tac toe game Read aloud :The Earth Book
Literacy turns					
9:30-9:50 OSO Child share /staff doc. Return 9:50	**Literacy Activity Play** Choice board literacy activities, suggested activity: Syllable counting. How many syllables do these words have? Clap them out. 	**Literacy Activity Play** Choice board literacy activities, suggested activity: Phonological Awareness Bingo #1	**Literacy Activity** Writers' Workshop: Compilation Earth Day Printables I can take care of the earth by:	**Literacy Activity Play** Choice board literacy activities, electronic resources., class literacy slides or Earth day eye spy printable see link from Wednesday	**Literacy Activity** Free Choice Reading Try reading and identifying a fiction (not true) and nonfiction (true) story. Check out these Earth day books on EPIC! 
9:50-10:00	Brain Break: JH Syllables Prayer:	Brain Break: JH Syllables Prayer:	Brain Break: JH Syllables Prayer:	Brain Break: JH Syllables Prayer:	Brain Break: JH Syllables Prayer:
	Asynchronous suggested activity: Check your recycling box. Look for different numbers on the recycling symbol. Write numbers on a piece of paper and group those recyclable materials with the number written. No need to print. 	Asynchronous suggested activity: Create a planet earth using materials of your choice 	Asynchronous suggested activity: Earth Day - Pointalism Art or Earth Day - Hat 	Asynchronous suggested activity:Magic Milk Earth Week experiment 	

Figure 5

Sample Instructional Slide for Vowel Teams, Phonics Video, Oi Vowel Team Slide



Furthermore, Michael reflected on his pedagogical philosophy on the KF6 online learning platform.

> My pedagogical philosophy is with anything in life; we need balance. Just like a balanced lifestyle, we need the same approach to our students' educational growth. Students need many learning opportunities to participate in active learning, which will increase their learning immensely. My pedagogy involves evidence-based approaches in a self-correcting manner. I set out a core curriculum where I want my students to grasp the

> fundamental skills to be successful and provide student agency to their learning through inquiry.
>
> (KF6, February 13, 2021)

With learning new knowledge under the theme of overt instruction also comes assessment. In comparison to standardized testing, “new assessment techniques mean redefining what is meant by terms such as competence, ability, capacity and intelligence” (Kalantzis et al., 2003, p. 24). Assessment techniques may include performance assessment which would measure a range of skills such as organization or problem solving. There is also project assessment which would evaluate students on the process of how they plan and present information. Additionally, “overt instruction should be developmental, a guide to further thought and action. It should be related to the other aspects of the learning process” (NLG, 1996, p. 86).

The second part of Michael’s teaching block was assigned for individual and small group meetings. During the second half of the school year, he sent out an email to parents addressing the following:

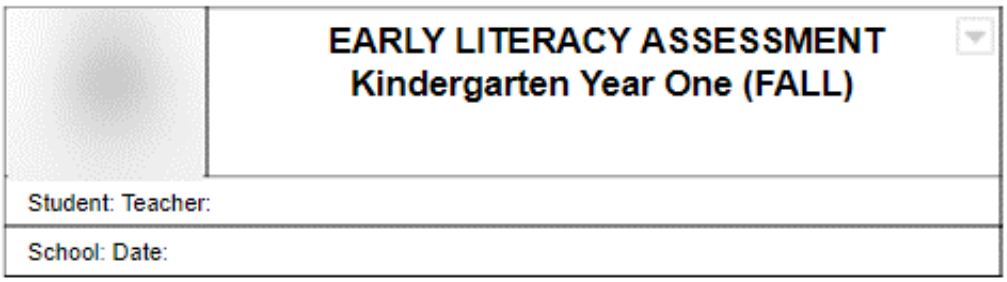
> As a team, we have decided to change our schedule this week to meet the needs of the students. For the rest of the year, we will have individual meeting times and small group times to support children’s unique learning and provide socialization opportunities. These opportunities will work on certain goals, strengths and weaknesses of students. In addition, students miss interacting, playing and talking with other students their own age. (Email, January 1 2021).

Along with Michael’s teaching philosophy, he believed students learn through play, socializing and asking questions. According to him, educators take a step back during small groups with

"minimal facilitating" and try to make the experience as "natural" as possible. In addition, his KF6 reflections stated "The purpose of these Individual Meeting Times is for review and assessment as well as to gauge general knowledge of early learning concepts. These assessments will allow your K-Team to see areas that require more in-depth review and will assist us in planning our curriculum" (KF6, January 18, 2021). His intended learning outcomes for students were to identify if they were "increasing in terms of their phonological awareness and phonemic awareness and that we were progressing in letter sound correspondences" (Post-interview, May 28, 2021). These skills were assessed through activities such as reading during individual meetings. Part of his assessment practices were those in which he and his FDK team conducting Early Literacy Assessments (ELA's) suggested by his school board (Figure 6). He reported "huge improvements" and an increase in students' phonological awareness, phonemic awareness and letter sound correspondences from September to December and projected similar results when the ELA's were conducted again in June.

Figure 6

Sample of ELA assessment tool for JK (Year 1) students



EARLY LITERACY ASSESSMENT
Kindergarten Year One (FALL)

Student: Teacher:

School: Date:

Section 1: Phonological Awareness

Recognizing Rhyming Words Generating Rhyming Words

Do these words rhyme?	Correct Response	
ball/tall/call	Yes	
dog/mouse/pig	No	
chair/bear/hair	Yes	
funny/bunny/sunny	Yes	
sing/sat/soap	No	
	Score	/5

Syllable Deletion

Tell me a word that rhymes with…	Student Response	
can		
go		
rake		
sun		
hot		
	Score	/5

Say ____. Say_____ again but don't say (___).	Correct Response	Student Response	
(base)ball	ball		
cup(cake)	cup		
(yell)ow	ow		
(pop)corn	corn		
ti(ger)	ti		

	Score	/5

Syllable Segmentation

Say the words and clap the parts.	Correct Response	
paper	pa-per	
dog	dog	
November	No-vem-ber	
table	ta-ble	
alligator	al-li-ga-tor	
	Score	/5

Section 2: Letter-Sound Correspondence

Administration Notes:

• This task assesses a student's knowledge of letter-sound relationships • Point to each letter and ask, "What sound does this letter make?" • For vowels and *c, g,* ask "What is another sound this letter makes?"

Letter	Correct Sound ✓	
a	long	short
f		
k		

p	
w	
z	
b	

h		
o	long	short
j		
u	long	short

Michael also used submissions from Writer's Workshop to assess student literacy development. He looked at the progress over time according to whether student's pictures were more detailed and if the writing was more legible. Parents were asked to upload images of their child's work to the Virtual Learning Environment (VLE) as a form of documentation for students, parents and educators.

4.2.3 Transformed Practice

In Michael's virtual classroom, transformed practice occurred when he encouraged students to engage with a variety of resources and multimodal texts in new contexts, resulting in new meaning and a new product (Anstey & Bull, 2018). During suggested play learning time, he said "now that you are all experts in your letters and sounds, now I need you to teach your stuffy [stuffed animal] and so they obviously had to write them down and then they were teaching their stuffies all the letters and sounds" (Post-interview, May 28, 2021). His students were often encouraged to take their learning outdoors by going on nature walks and recording their observations to extend the learning at home. For example, under one of the four frames of the KP document, students were asked to plant a seed, measure and record its height, and take a weekly picture of the growth of the plant. The teacher suggested students explore if other fruit and vegetable scraps would also be able to grow new fruit. In this way, students were designers, making meaning of their current knowledge within new contexts.

There were many learning opportunities planned throughout the curriculum for students to apply new concepts in different situations. Students had learned about the regions of Canada and during a period of asynchronous learning, a student completed a map of Canada with her parent. Monthly Choice Boards also provided activities that encouraged students to take concepts they learned in different contexts. Students had been learning about Earth Day and ways they could clean up the planet by recycling. An extended art activity involved making the earth by cutting out a circle and repurposing materials such as paint, markers, tissue paper or loose parts to recreate land and water.

As Cope and Kalantzis (2009) point out, the four pedagogical orientations of the multiliteracies pedagogy are not in singular forms and do not follow a linear sequence. Instead, the implementation of the multiliteracies pedagogy is a knowledge process of "weaving". In Michael's enactment of multiliteracies pedagogy, situated practice and transformed practice were sometimes intertwined. Since "students usually engage in the transformed practice stage by designing multimodal texts" (Rajendram, 2015, p. 2), the Writer's Workshop that exemplified the situated practice of Michael in implementing multiliteracies pedagogy is also a good example of the transformed practice. By providing the open-ended option, students could draw on their interests and life experience and use multiple modes and/or semiotic systems to design their multimodal texts and transform their meaning.

4.3 What are the Challenges the Novice Kindergarten Teacher was Facing in Implementing a Multiliteracies Pedagogy in his Virtual Literacy Classroom

Michael felt that virtual literacy teaching was "a very rewarding experience." However, he also encountered various challenges in his teaching. These challenges include insufficient teacher preparation at the Bachelor of Education program, inadequate professional development at the current work, varying degrees of parental support, and constraints of online learning. Michael describes the challenges of placing students in break out rooms and having students manipulate slides for lessons and activities. His school board directed the virtual classroom be treated similarly to in-person situations, and that students were not to be left unattended.

First, in light of the COVID-19 pandemic, he reported being unprepared to shift his pedagogical practices and prepare for authentic online contents under short notice. He indicated that there is a

lack of training and follow-up for teachers in Bachelor of Education programs and professional development (PD) sessions from the school board. Regarding his Bachelor of Education program, he mentioned “we didn’t learn a lot; I never knew about phonological awareness, and phonemic awareness” (Post-interview, May 28, 2021). This is especially surprising given how important pre literacy skills are in the development of reading, writing and general literacy skills. However, in one of Michael’s PD sessions, the coordinator introduced the pilot program for Heggerty and discussed phonological awareness, phonemic awareness and letter-sound correspondences. He also mentioned there should be follow-up to see how these programs and learned concepts are implemented in the classroom and to identify how effective they are in improving their intended outcomes. According to him “more experienced teachers are learning different things, and the newer teachers are learning what has already been done and what new strategies are being used in the classroom” (Pre-interview, April 9, 2021). He stressed in his Bachelor of Education program, he “learned a lot more on the ground, in practice” (Pre-interview, April 9, 2021). Also related to pedagogical practices is assessment and Michael emphasized the need to connect evidence-based research and practice. In his pre-interview, he stated his board-provided ELAs were “provided and recommended” (April 9, 2021), but he wasn’t sure if other teachers were implementing them. This suggests that teachers use provided resources as a guide to support and guide their teaching.

When asked if the school board provides any professional development or workshops for literacy or multiliteracies, Michael said “nothing from the PD days” (Pre-interview, April 9, 2021). When he was asked about his knowledge on different approaches to literacy, he said he heard about the whole language approach and “from what I’ve read it’s not backed up by science in terms of increasing children’s literacy; that’s why a lot of it is coming back to phonics,

phonological, and phonemic awareness" (Pre-interview, April 9 2021). Michael had high expectations for his students and said he despised "fluff" and that "we put this limit on children, when we should be raising the bar on it" (Post-interview, May 28, 2021). He believed in concrete evidence so he could identify students' areas of need and their strengths. Having a thorough understanding of evidence-based practice, the concepts of literacy and student's expected learning goals helps teachers plan their program and assess student learning.

When asked in his post interview, what support or training teachers have received from the school to implement technology and pedagogical skills to support young children with literacy development, he stated "there's not training for it…there's been no professional development about it or anything like that in terms of interactive devices or electronic resources" (Post-interview, May 28, 2021).

Secondly, Michael noticed that parents provided inadequate support for their children due to their beliefs and attitudes about online learning. During synchronous learning through the online learning platform, Microsoft Teams, parents, guardians, grandparents and siblings were present at some point during class time, whether they were sitting beside the child(ren) or nearby in the kitchen. For whole group literacy instruction, Michael manipulated the slides and videos for students. An educator was also present during literacy centres as they facilitated learning by prompting, asking questions, and extending students' learning. When it came to navigating technology, he found "there are still a few students where their parents sit in on our class and unmute/mute when the student is called upon" (Post-interview, May 28, 2021). In my observations of the class, I also noticed some students muting and unmuting themselves, "hanging up" the call to leave class, but were usually logged in by a parent. This suggests some

students were more independent than others in using technology and as the year progressed the level of comfort navigating technology improved for students.

Michael was diligent in continuous and ongoing communication with parents through email. Emails were sent weekly to provide parents with the Teams link for whole group as well as individual and small group meetings, in which read-alouds would be presented each day along with and suggested activities for asynchronous learning for literacy and numeracy. Monthly emails were used to introduce new concepts for that month, share the monthly calendar, and Choice Boards. The newsletters were sectioned into Curriculum News, Important dates, Subject and Exciting News. Concepts that would be learned that month were outlined under each subject and explicit reasoning was also stated in the emails. Michael also relayed friendly or helpful reminders for parents and guardians in the emails. For example,

> Reminder. Please allow your child to do the work independently. For your child to grow, they must learn skills and make mistakes on their own and employ the power of yet! You want your child to be strong, independent and resilient. As parents, you know how much to assist your child, a good rule of thumb is to help them as minimally as possible. (Email, May 2, 2021).

Parents were asked to upload images or videos of their child(ren)'s work to the VLE. There were seven subject areas for submissions: literacy play, numeracy play, writer's workshop, problem solving and innovation, gym, foundational support and other. Families submitted their child(ren)'s work to varying degrees. Some parents uploaded the minimum required, some upload multiple pictures with descriptions of their child(ren)'s work and others completed minimal submissions with too little or no description. Michael describes assessment in

kindergarten as “more of a narrative” and he adds he puts what the child excels in and what skills and concepts require next steps.

Parents also played a role in their child(ren)’s attendance. Generally, all students were present during synchronous learning, as well as their individual and small group learning time. However, Michael noticed as the weather got warmer, students’ attendance declined. At the beginning of the year when he started his literacy program of ABC Bootcamp and introduced the 26 letters and sounds each day, he could see if a child missed a day due to being sick or if the family went on vacation, then the child would also miss a letter, which would be a problem difficult to tackle later on. In his post interview, he shared “you just have to be transparent and honest, with parents at the beginning of the year that this is extremely crucial for your child’s education, and it will only compound after; you will see it when we do it in kindergarten” (Post-interview, May 28, 2021).

Finally, there were many obstacles to implementing online learning for young children. Some of the barriers included conflicting work schedules and students’ synchronous learning time, adequate online learning tools, parental knowledge of learning online, and accessibility and stability of the internet connection (Rasini et al., 2021). Michael and his FDK team found that one factor that impacted the new platform of teaching was “the quality of the video and sound transmission” (KF6 Reflection, December 2021). This included poor internet connection for teachers and students. Michael found, with everyone’s cameras turned on, the internet connection was very “blurry and choppy” (KF6 Reflections, December 2020). In terms of sound, he described “with distance learning, students must keep their microphones on mute unless called upon” otherwise there would be too much sound at once. He concluded “high-quality

internet connection and technological devices are required to provide a high standard of education to our students" (KF6 Reflections, December 2020).

When asked about how online learning could be more interactive for students, Michael said that, this would be too difficult to implement in kindergarten. "Since children's development ranges, only about ⅓ of my students would be able to participate in an interactive virtual activity" (KF6 Reflections, December 2020). He used the software, SMART Notebook, similar to Google Slides to share his lessons with students. SMART Notebook also offers many applications such as interactive activities, infinite cloner, pen, and eraser. However, it was the teacher's responsibility to manipulate the screen and he found it would be too difficult for students to move the applications "due to their fine motor skills not being developed well enough to maneuver a mouse" (KF6 Reflections, December 2020). He indicated if students were to participate, it would increase active learning.

Literacy centres opened the opportunity for students to share their work, such as activities they were playing, projects, or art they had created or writing samples with pictures they had made. During this time, students would hold their work up to the screen to share with an educator. However, the image presented on the screen was dependent on the student's camera quality and the internet connection. The image of the students sharing their screen was also very small, especially when there were twenty students, each on an inch-by-inch screen. Michael found it hard to see the student themselves, let alone their work. It was a similar experience during whole group instruction when all students were participating in a song or in a read-aloud.

Michael also noted that the time constraints of online learning reduced the opportunity to engage in reading comprehension skills, before, during or after a read aloud. Although students are exposed to new books, the ability to pause and ask questions takes too long. He explained "Its

just by the time, you ask a question and then you pick a child and then the child unmutes themselves and then they respond and then they mute themselves again, it just takes a long, long time, right?" (Post-interview, May 28, 2021).

Furthermore, one concern from parents that came up during the parent-teacher conferences was participation and how their child was upset if they did not get to ask a question, comment or share their ideas. The teacher decided which students would be asked to participate each day and if a child was away, he randomly asked a child by picking popsicle sticks with their names on it. This way each child from Monday to Thursday would have "a literacy opportunity, numeracy opportunity, and they'll have their one-on-one meeting or their small groups" (Pre-interview, April 9, 2021).

Chapter 5

5 Discussion, Implications, Limitations, Conclusions and Future Directions

5.1 Overview

This section will be used to draw connections between the findings of the study and the literature in Chapter 2. This study explored how Michael's classroom uniquely transformed and displayed multiliteracies and multimodal practices in his virtual classroom. This section synthesizes and draws connections to the findings of the study in relation to the literature on teacher perceptions and employed literacy and multiliteracies practices. Three of the four components of the theory of multiliteracies: situated practice, overt instruction, and transformed practice, were used to deductively analyze the data. Inductive analysis of interview transcripts, teacher reflective journals, observation notes, lesson plans, and student artefacts revealed unexpected findings pertinent to the literature on literacy, multiliteracies, and virtual learning in kindergarten. This section will also be used to discuss and answer the three main research questions presented at the beginning of the study. Again,

1. How does a novice kindergarten teacher conceive literacy teaching and learning and the multiliteracies pedagogy?
2. How is the multiliteracies pedagogy enacted in his virtual kindergarten classroom?
3. What are the challenges the novice kindergarten teacher was facing in implementing multiliteracies pedagogy in his virtual literacy classroom?

5.2 Literacy Teaching in Virtual Classrooms

Literacy programs can include a focus on oral and written skills related to literacy development, such as code-related skills (e.g., phonological and phonemic awareness) and meaning-related skills, such as dialogic reading (Lonigan et al., 2011). These skills can be taught through direct and indirect instruction. According to the National Reading Panel (2000), literacy teaching can also encompass alphabetics, fluency, and comprehension (vocabulary instruction, text comprehension instruction). Michael orchestrated many of these core concepts in his classroom each day when he taught levels of the phonological awareness hierarchy, such as vowel teams or syllables with correlated words and asked students questions before or after a piece of text was read. He used direct instruction, such as whole-group and small-group lessons (Pyle et al., 2018), as well as guided play where educators "embed or extend academic content within children's play activities" (Pyle et al., 2018, p. 222). Michael planned lessons and activities where students were encouraged to practice their oral and written language of new words. One student work sample demonstrated how to make words by changing the first letter of the word and using the ending *'ight'*. The student showed the words fight, right, night with the 'ight' ending with magnets. Michael also used indirect vocabulary instruction through multiple exposure to words and encouraging reading with digital texts on EPIC and Head Sprouts.

Michael's literacy teaching focused on phonological awareness, phonemic awareness, and letter-sound correspondences and was guided by the Ontario KP document. He used both direct and indirect approaches within his literacy teaching block. Direct instruction included teaching the components of the phonological awareness hierarchy, such as blends and vowel teams. For example, students were taught the *ar* vowel team in the context of words, such as star, mark, and

chart. Indirect teaching included open-ended literacy centres and Choice Board activities. Indirect word learning also occurs through play-based learning and multimodal media supports (Strauss & Bipath, 2020). Students in the class were often encouraged to learn through play and engage in indirect literacy experiences during their asynchronous learning and learning centres. For example, Choice Boards offered learning experiences to participate in imaginative play as students created their own grocery stores at home, participated in outdoor scavenger hunts, or identified and typed letters on a keyboard. These were opportunities for students to build their receptive and expressive language skills as well as learn through the modes of linguistics, visuals, audio, and gestures. Both approaches allowed for educators to interact, respond, clarify, challenge, and expand on children's thinking (OME, 2016).

Strauss and Bipath (2020) investigated how play-based inquiry can be incorporated in literacy teaching and learning in kindergarten, specifically sight word recognition and vocabulary development. The pacing of instruction was said to impact students' learning. In this case, guided play allowed teachers to scaffold learning for students who had difficulty following instructions, or remaining attentive during a direct lesson and the teacher could draw the students' attention to specific letter concepts. He modified the pacing of his phonics instruction to fit learning in an online environment, and took a scope and sequence approach, teaching a letter or phonological awareness skill a day, repeating all the concepts at the end of the week. These concepts were also revisited throughout the year to practice in areas of concern and reinforce literacy concepts. Michael described how his pacing was different than the traditional curriculum that teach a letter per week and don't allow enough practice. Michael hoped to have some of his Junior Kindergarten students back the following year to see how the pacing of his instruction impacted students' retention and literacy learning. Teachers can also foster students'

vocabulary development during play-based activities (Oers & Duijkers, 2013). Oers and Duijkers (2013) describe a scenario in which students are pretend cooking and the teacher labels a cooking utensil that was described by the child. Michael used learning centres as an opportunity to extend and challenge students' learning with prompts and by asking questions to leverage their curiosity. Another suggested activity for students was to read or listen to story, The Very Hungry Caterpillar. Students were encouraged to pause the video and examine the foods the caterpillar ate and identify symmetrical and asymmetrical features of the butterfly at the end of the story. This learning experience offered new vocabulary such as symmetry, and fostered oral and written literacy development.

Children's oral and written language can be further developed through play, such as through songs and phonemic awareness activities (Peterson et al., 2016). Play-based learning was incorporated in direct and indirect learning opportunities in Michael's class. Videos and songs engaged students to sing and dance along while learning about rhymes and vowels. Hands-on phonemic awareness tasks furthered literacy learning as students engaged in practicing manipulating letters and sounds, thus expanding their oral and written language skills. Another play-based, teacher-guided activity was high frequency word (HFW) tic tac toe, where students were individually chosen to choose a word, read it aloud and the teacher would move the x or o on the HFW. The first team of students to get three in a row or tic tac toe was the winner. This was another way Michael incorporated team building and social skills into his curriculum.

The KP document outlines four components of child development: cognitive, social, emotional and physical development. The transition to online learning impacted students' social and emotional learning (Harriott & Kamei, 2021). Similarly, virtual learning lacked the social

connectivity young children need to develop their communication skills. Michael's curriculum emphasized phonological awareness, phonemic awareness, letter-sound correspondences, and conventions of print and writing. He creatively found ways for students to learn phonics while engaging with their peers, participating in songs, dance, and exercise, and share their work during Learning Centres. Moreover, after parent teacher interviews, parents explained how their child(ren) missed participating in class discussions and socializing with their peers. As a result, Michael created small and individual group meetings for students to socialize in groups of three and he used individual meetings to assess students' understanding of new concepts.

Michael's literacy block also included read-alouds. This was often in the form of YouTube videos where an individual read a physical book to children or a digital video with a voice over of someone reading the book. Time restrictions of only 10 minutes for a read-aloud and the ability to pause the video, hindered opportunities for Michael to ask students questions before, during and after the reading. He or one of his teaching partners would ask one or two students a reading comprehension question related to how a character felt or related to a point in the book if there was time. Read-alouds also offered indirect vocabulary learning as students were able to listen and use pictures to understand new words and the main idea of a story.

5.2.1 The Multiliteracies Pedagogy and Multimodal Resources

Three of the four components of the multiliteracies framework: situated practice, overt instruction and transformed practice were used to deductively analyze the data. The analysis of the data indicated Michael believes in a holistic view of literacy encompassing all subject areas and inclusive of alphabetic literacy, phonological awareness, phonemic awareness and letter-sound correspondences. His literacy program encompassed opportunities for reading and writing,

digital resources, and modes of communication, such as visual, audio, oral and gestural (Cope & Kalantzis, 2009). As this was his first year of teaching, he used a combination of literacy approaches that he found online, such as ABC Bootcamp and Jolly Phonics. He used ABC Bootcamp to introduce a letter and come up with words associated with the beginning sound of that letter. Jolly Phonics was used at the end of each literacy block as students sang each letter of the alphabet with an associated action. Michael's literacy program was developed to address four developmental levels of the phonological awareness hierarchy: rhythm, rhyme, onset and rime, and phonemic awareness (Konza, 2016).

Teachers face various challenges enacting multiliteracies in practice (Kim, Meng, & Kim, 2021). Some of the challenges include creating multimodal material (Eteokleous & Pavlou, 2015), implementing multimodal texts, and assessment of multimodal projects (Mills & Exley, 2014). Although Michael's knowledge and understanding of the multiliteracies pedagogy was limited, his literacy teaching embedded a variety of multimodal resources, such as visuals, audio, oral, print, and gestural forms of communication. In other words, he used multimodal input and multimedia, such as videos and GIFs as teaching methods to support students' literacy learning. When Michael was asked if he had received any training or education on multiliteracies or literacy, he explained he never learned about multiliteracies and stated "I think there needs to be someone in the field doing the research to provide evidence-based approaches" and that he further elaborated that his teaching education was "ideologically driven, and there is no evidence to support it" (Pre-interview, April 9, 2021). Given the significance of students' interests in technology-based instruction and the prevalence of social changes and diversity in classrooms (Ajayi, 2010), changes to literacy instruction for teachers should be made. Furthermore, the pandemic and Bachelor of Education programs as Michael described the challenges of pivoting

to online learning, the limited resources and to plan his literacy curriculum, and lack of knowledge of how to incorporate technology-mediated instruction, both the pandemic and minimal training provided in Bachelor of Education programs can be attributed to the lack of preparation and knowledge teachers need to teach new literacies in their classrooms.

Michael took into consideration what families would have available at home when planning literacy activities, so materials included household items and recycled materials. He collaborated with his teaching partners to design his literacy program. The educators helped with creating slides on SMART Notebook with lots of pictures and the letter blend of the week which was used for Michael to move pieces of the slide around during instruction. Videos for the letter blend, read-alouds, and Jolly Phonics with lots of songs students could move and sing to, were included in the literacy block. Michael also embedded exercise when he was teaching students sight words. This was to get students to say the word and actively repeat it while completing the movement. In his lesson planning, Michael relied on online resources, such as YouTube. However, in the future he recommends teachers should be provided with evidence-based resources early in the year to support teachers' literacy teaching. The KP document also acknowledges the variety of ways students demonstrate their literacy knowledge and communicate with their peers and other adults. Michael described assessment of student work with multimodal texts as more of a narrative related to four frames of the Kindergarten Program.

5.2.2 Multiliteracies Pedagogy: Situated Practice

Michael made it a priority in his literacy teaching to incorporate situated practice through students' interests, prior knowledge and out-of-school experiences (NLG, 1996) virtually. Opportunities such as Writer's Workshop allowed for students' experiences and available

designs to be recognized as student-initiated learning experiences as it was open-ended. Students drew on important people in their lives, recent events, such as their weekend plans or something interesting they were learning in class. Situated practice considers "the affective and sociocultural needs and identities of all learners" (NLG, 1996, p. 85). Michael made a purposeful effort to create a literacy program reflective of students' interests, culture, and at-home learning environments. He inquired about his students' interests and out-of-school experiences with 'Questions of the Day', such as "If you were a teacher and you could teach your students anything at all, what would you teach them?", or "What fun activity did you do with your family on Family Day?". He also documented students' inquiries, such as animals and sports to incorporate in future literacy lessons. Since the class was in the Catholic school board, learning was reflective of the holidays students celebrated and the reciprocal relationship between students and God's creations (e.g., nature). Students' interests were also incorporated with virtual field trips, such as Disney World's Animal Kingdom.

5.2.3 Multiliteracies Pedagogy: Overt Instruction

Overt instruction involves active interventions that scaffold students' learning (NLG, 1996). Overt instruction is the "systematic and explicit teaching of an analytical vocabulary for understanding the design processes and decisions entailed in systems and structures of meaning" (Jewitt, 2008, p. 248 & 249). Students in this study were taught one phonological awareness skill per week such as rhyming or sentence segmentation and the concept was broken down to introduce one rhyme or blend a day. Michael incorporated overt instruction in his teaching of literacy. For example, he would introduce the sl blend sound, emphasize each sound with his hands, *'s'* and *'l'* and bring his hands together to 'blend' the sound. This was followed by a Jack

Hartman phonics song introducing the blends of the week ‘bl, cl, gl, sl’, then students were shown three pictures and had to pick the corresponding blend such as being shown a blanket and having a student pick the associated bl, cl, or gl blend. When students were unsure of how to read a word, Michael would demonstrate breaking up the sounds in the word with his hands. This helped students to sound out the word. He also used the strategy of using the word in a sentence to activate students’ prior knowledge. Learning was also reinforced with an interactive game, such as medial sound identification or comparison bingo. Medial sound instruction occurs where the teacher shows students two letters such as c and p and a picture of a roller coaster. Students might also have a choice of two middle sounds to complete a word, such as a and u; in this case students would choose ‘u’ for cup. Additional interventions were repeated each day, such as Jolly Phonics actions and associated song, so students could practice and associate beginning letters and sounds. In this way, students were directly learning the content they needed to practice their literacy activities.

5.2.4 Multiliteracies Pedagogy: Transformed Practice

Transformed practice was also reflected in Michael’s practices. Transformed practice is a reflective process where “teachers need to develop ways in which the students can demonstrate how they can design and carry out, in reflective manner, new practices embedded in their own goals and values” (NLG, 1996, p. 87). Similar to research conducted in kindergarten classrooms, students can engage in transformative practice as designers with multimodal texts, whether it is drawings or recycled materials used for students to present their understanding of a book or in the form of songs (Granly & Maagerø, 2012). Michael extended the concepts of living and non-living things by offering students to take a “living things” walk and document their learning with

photographs. This resulted in students' taking concepts they learned in class and bringing their learning to new contexts, such as the outdoors. Another Choice Board activity was to create a picture of earth using household materials, such as tissue paper and markers. Students had to consider their ideas of what earth looks like and take into consideration the shape and colours of earth. Since students were at home, they engaged in transformative practice with siblings and adults at home as they described, communicated, and recontextualized their learning from a visual image of the earth to a 3-D model.

5.3 Multimodality and Design

Multimodality proposes that knowledge is represented and constructed based on the choice of mode and media (Jewitt, 2008). Modes are "organized sets of semiotic resources for meaning making" (Jewitt, 2008, p. 246). A pedagogy of multiliteracies also addresses the notion of design which theorizes "the relationships between modes, pedagogy, and context, [in order] to understand the changed dispositions towards information and knowledge" (Jewitt, 2008, p. 252). Michael's virtual classroom primarily used digital tools (e.g., SMART Notebook, emails, and videos) to deliver content and communicate with educators, families and students. As the literature suggests, Michael did not receive training on instructional strategies that could be used to develop multimodal educational materials (Eteokleuous & Pavlou, 2015). However, he adapted his instruction online as he used digital resources to ask students questions and present information graphically as he manipulated the screen. Literacy centres and Choice Boards also offered opportunities for students to have choice in the materials they used, such as playdough, puzzles, writing or drawing tools and recycled materials to engage with multimodal resources in the process of design and interpretation. Multimodal production was correlated with what

materials students had available at home. This demonstrates how multiliteracies and multimodality and design can be enacted in a virtual classroom with unique variability given the remote context and resources available.

5.4 Collaboration with Teaching Partners and Parents

The pandemic presented many challenges for teachers and families. Michael pivoted his hands-on learning experiences and teaching resources for what would have been in the in-person classroom and planned his instruction to incorporate more digital resources such as videos and websites. The role and needs of ECE's were also present in the data. Needs of ECE's during remote instruction included in-service trainings to advance their technological competencies and "interactive resources that would ensure children's participation, and production of interactive content for children" (Ümran, 2021, p. 990). Michael and his teaching partners worked well virtually. Although the transition online was a learning curve for many teachers and families, there was a balanced relationship between Michael and his two ECE's. His educators provided guidance and prompts during literacy centres, helped create instructional slides for literacy, conducted pedagogical documentation of students' responses during direct and indirect instruction, and facilitated small and individual group meetings. This could also be attributed to how technology-savvy Michael and his teaching partners were and their experience with digital apps and tools such as PowerPoint.

The literature supports the findings of this study, where parental involvement varied during online learning with children, especially when it came to submission of student work (Ewing & Cooper, 2021). The results presented similar findings in parents submitting photos of their child(ren)'s work with minimal descriptions or none at all. Many guardians sat beside their

child(ren) or grandchild(ren) during synchronous learning, assisting with navigating technology and logging on and off Microsoft Teams.

5.4.1 The Influence of the KP document on Literacy Practice

This study found that the teacher used the programmatic curriculum to guide his instruction and cover the curriculum expectations outlined in the curriculum document. The KP document in Ontario outlines four frames, one of which is "Demonstrating Literacy and Mathematics Behaviours" (OME, 2016, p. 13). The document states that communication for children occurs through "gestures, physical movements, words, symbols, and representations, as well as through a variety of materials" (p. 15). This was evident in Michael's classroom during direct instruction, when individual students were asked to complete an exercise and read the corresponding word on the SMART Notebook slide. Students also had many opportunities to express their experiences with words and symbols in Writer's Workshop. During Literacy Centres at the end of the Literacy Block, students were also given time to explore their learning through play, engaging in "Smart Choices" such as imaginative play, building with blocks, or constructive toys, or completing an activity from the Choice Board. The Kindergarten Program (2016) describes this as an inquiry stance where educators use students' natural curiosity to plan and guide students' learning. Teachers who observe and document student learning and reflectively ask themselves questions such as "How are the children using letters in their play? How do they respond to text that they see in the environment? How do they use drawing and/or writing (graphic representation) to capture memory, describe experiences, represent thinking, negotiate, list, and label?" (OME, 2016, p. 26). This was evident throughout Michael's literacy block, when he asked students questions and observed students gathering information for assessment purposes.

Research shows incorporating digital media and tools, like computers and interactive games, such as Bingo into vocabulary instruction resulted in increased student engagement (Strauss & Bipath, 2020). Strauss and Bipath (2020) also found teachers were attentive to monitoring and guiding students as they completed the games. In line with the literature, Michael incorporated Bingo into his literacy teaching once to twice a week. He changed the skill each week, so students could practice deleting syllables and additional levels of the phonological awareness hierarchy. Strauss and Bipath (2020) also found "play-based learning to enhance sight word recognition and vocabulary development" (p. 7). Some of the factors that influenced these results were the teacher modeling oral and written language constructs, student engagement, pacing of instruction, and ongoing assessment of students' literacy development (Strauss & Bipath, 2020). Michael encouraged students' active participation in oral and written language, especially during videos and literacy activities. He monitored students' literacy development and adapted his teaching based on his observations and professional judgement of students' progress. Broadening literacy teaching to include multimodal media and interactive games resulted in increased student engagement and allowed teachers to model, scaffold student's attention to symbols and letter concepts, and assess their word recognition process (Strauss & Bipath, 2020). A guided activity like Bingo gave Michael the opportunity to pace and emphasize letter sounds, which in turn allowed all his students to actively participate.

5.4.2 Assessment of Literacy Learning

The findings show that the teacher evaluated student's knowledge based on district policies and initiatives, such as phonological awareness screenings. Although educational policy and curriculum documents state the "importance of students reading and producing multimodal and

digital texts" (Walsh, 2010, p. 212), these concepts are not articulated in how the teacher should be incorporated in assessment. Furthermore, Walsh (2010) states that preparing and administering for district initiatives and screenings was time-consuming. Teachers work with students in small groups to target specific skills and send home packages for students to practice skills in areas they are struggling in. Michael conducted initial Early Literacy Assessment (ELAs), and repeated them twice throughout the year, once in November and again in May, both after he had implemented his literacy program. ELAs were a board recommended assessment which evaluated student's phonological awareness, phonemic awareness, letter-sound correspondence and high frequency words. Since learning was online, this assessment was completed orally. Michael used ELA's as one piece of documentation to assess students' learning. According to the KP document in Ontario (2016), "Kindergarten programs, including assessment practices, should take into account the wide variety of backgrounds and experiences, interests, aptitudes, and learning needs of all children" (p. 102). The KP document also acknowledges multimodal assessment through pedagogical documentation. This is an opportunity for educators to "connect learning and teaching as they share, review, and interpret evidence of the children's learning with children" (p. 40). Teachers should also review all forms of pedagogical documentation such as videos, photographs, and verbal and non-verbal communication. In turn, this helps support "children's metacognition (learning about their own learning)" (p. 127). Michael used a variety of evaluation techniques to assess a student's individual growth and development. He and his teaching partners worked together using pedagogical documentation during morning meetings, observations of direct instruction, small group and one-to-one meetings, learning centres, and using submissions of student work to create a holistic narrative of students' learning. This helped support how he planned his literacy

program on an on-going basis and provided feedback to parents on their child's progress. Acknowledging multimodal forms of communication in literacy is integral to curriculum development and supports teachers in their planning and assessment.

5.4.3 Online Learning

Consistent with the literature on virtual learning during the pandemic, were the challenges Michael faced teaching online, such as student engagement and peer social interaction (Ewing & Cooper, 2021). This suggests that teacher education programs should consider augmenting training for teachers with knowledge and practical experience in online learning in K-12 virtual environments, such as how to create collaborative and interactive learning experiences for children learning remotely.

Teaching kindergarten remotely posed unexpected challenges for teachers and students. Before the 2020 pandemic, "teacher preparation programs… focused on curriculum, instructional pedagogy, student behaviour management, and serving diverse student populations in the face-to-face environments" (Abernathy & Thornburg, 2021, p. 3). Therefore, the transition to online learning for children shifted the priorities, knowledge and training that teachers needed to adapt to remote instruction and learning. On the KF6, Michael explained "The school and school board provided digital resources for teachers to utilize in their classroom; however, the board established no training for educators to learn and implement those digital resources" (December, 2020). In conversations with other teachers Michael also found "more veteran educators struggle with implementing technology and digital resources in the virtual classroom" (KF6 Reflections, December 2020). Moreover, there is an increase in blended and online instruction at the K-12 level (Archambault et al., 2016). However, there are limited opportunities for teacher candidates

to complete their practicum teaching online (Graziano & Bryans-Bongey, 2018). This is the result of "a lack of faculty readiness and interest, and external factors, such as state requirements and lack of a student demand" (Graziano & Bryans-Bongey, 2018, p. 272) and suggests that, teacher education programs should consider online practicum options for teacher candidates to gain experience in both in-person and virtual learning environments with students in grades K-12.

Digital read-alouds offer many benefits in the classroom. They "create opportunities to explicitly teach literacy practices… [and] model proficient reading habits, such as revising predictions through a think-aloud or evaluating a character's motives" (Stoetzel & Shedrow, 2021, p. 750). However, Michael described constraints to virtual learning such as limited time and the lack of ability to pause and ask questions, which hindered the read-aloud experience. Stoetzel and Shedrow say that using "ready-made read-alouds… allow teachers to focus on their professional expertise by building interactive experiences around the text" (p. 752). They also suggest that, read-alouds with primary-grade students should be conducted in small groups which "allows more opportunities for students to participate and can be less intimidating" (p. 753). It is recommended that further research explore how teachers can successfully support students' reading comprehension with read-alouds in virtual learning settings.

Literature on teaching and learning virtually during the pandemic in kindergarten settings found the importance of building relationships with parents and families in order to support with technology and activities, the preparation of instruction for students' cognitive, social, emotional, physical and technological development, and to support teacher preparation for developmentally appropriate and culturally relevant pedagogy, and while embracing technology for teaching, learning and assessment purposes (Manoukian, 2021). Similarly, many of these factors were

apparent in Michael's virtual classroom. For example, he found factors that influenced online learning were accessibility and quality of technology for educators and students (Rasini et al., 2021), constraints to meeting curriculum expectations while enacting a multiliteracies pedagogy (Kim et al., 2021), and varied levels of independence and agency of kindergarten students learning from home (Lau et al., 2021).

5.5 Implications

Student engagement and building students' phonological, phonemic awareness and letter-sound correspondence were priorities in Michael's literacy program. Although he did not have a thorough background knowledge of multiliteracies and evidence-based literacy programs, he enabled his students in the process of design and meaning-making in various student-led inquiry-based activities. His lesson planning acknowledged the social-cultural backgrounds (situated practice) and the explicit teaching of literacy concepts (overt instruction), which in turn resulted in building students' literacy skills and creating multimodal projects (transformed practice). Students also learned vocabulary and practiced their oral and written language skills with multimodal texts through videos and tactile learning experiences. This study contributes to current research on multiliteracies and literacy learning, while expanding on multiliteracies in virtual learning environments in kindergarten settings.

This study demonstrates how the four-component schema of multiliteracies can be implemented by teachers of young children in a virtual kindergarten setting. This paper also emphasizes that there is a greater need for Bachelor of Education programs and school districts to acknowledge and foster teachers' knowledge and teaching pedagogy in the areas of developing their literacy program and promoting the multiliteracies pedagogy for pre- and in-service teachers. Learning

opportunities were created based on the curriculum as well as students' curiosities. In addition, remote teaching and learning are an opportunity to advance the multiliteracies pedagogy, as teachers may feel persuaded to diversify the materials and digital media in comparison to an in-person classroom. Teachers' expanded familiarity with technology and multimedia, as a result of having to teach remotely may broaden their perspective of literacy activities.

5.6 Limitations

This study provides insight into a kindergarten teacher's online literacy classroom in Ontario, Canada. Limitations of this case study include a small sample size of one teacher and five of his students whose guardians provided consent to the collection of their work and a short data collection period of four months. However, with the collection of various data sources, such as interviews, reflections, observations, and lesson plans, an in-depth insight into how this novice teacher taught virtually were discussed.

Another limitation of this study was the time constraints of the structure of the school day. Students were only on screen for synchronous learning for three hours a day, half of an in-person school day. There was only 20 minutes of the literacy block for student-led play, and for two days of the week dedicated to a teacher led activity (e.g., Bingo). Another critique of this study was the time period for which data collection took place. As this was the teacher's first year teaching full time and in an online environment, his approaches or pedagogical approaches to teaching literacy may have changed from September to June, rather than later in the year when the teacher was actually asked to note any changes he saw in his teaching. Future studies may look to explore literacy pedagogies and approaches in virtual environments within kindergarten contexts from the beginning to the end of the school year.

5.7 Conclusions and Future Directions

This integrated article explored the concepts of literacy and multiliteracies in relation to the pedagogies and instructional practices of a first-year kindergarten teacher. Michael's pedagogical focus was on phonological awareness, phonemic awareness and letter-sound correspondences. He included student-initiated tasks and learning opportunities to reinforce skills of the phonological awareness hierarchy, such as vowels, blends, and rhyming. Choice Board activities where students practiced making words with play dough or magnets and Writer's Workshop embraced multimodal forms of communication through various materials and oral and written language development, as students described what they made verbally or in written format. In turn, literacy development was scaffolded through the practice of direct and indirect teaching.

Michael and his teaching partners created an online learning environment that was both engaging and embraced students' diverse needs and interests. He also created opportunities for students to socialize with their peers and excel in their individual learning goals. This was especially evident in his individual meetings with students. Michael was able to identify areas where students may have been struggling with phonics such as vowels or silent *e* sound and then incorporate these areas into whole group instruction. He also believes kindergarten is where children learn "through play, socializing, and asking questions" (Pre-interview, April 9, 2021). Given the unexpected and ongoing impact of the pandemic, this study contributed to the dialogue of virtual learning for kindergarten students and how the multiliteracies pedagogy is exercised in practice in an online environment. This study recommends changes in literacy curriculum planning, educational policy, teacher education training, and teacher professional development.

Recent graduates of Bachelor of Education programs bring their own knowledge, beliefs and perspectives on literacy education and practices. The teacher in this study found his teaching certification did not provide adequate training in preparing him to be a kindergarten teacher. It is recommended that graduate students and in-service teachers receive evidence-based practice in the area of multiliteracies, multimodality, and virtual learning.

Further research can examine the learning outcomes of literacy programs such as ABC Bootcamp, Jolly Phonics, and Heggerty in virtual classroom settings. Additional research on ways to make virtual learning more interactive and engaging for children can help support successful learning outcomes for students. Another further recommendation would be to examine the perspective of parents and students and their at-home literacy learning experience during the pandemic. The pandemic forced learning, even at the kindergarten level, online. The future of communication is multimodal, and teachers must be able to encourage even their youngest students to creatively express and explore learning in this multiliterate world. This begins with the training and practice teachers receive.

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Appendix A

Western Research

Date: 17 March 2021

To: Dr. Mi Song Kim

Project ID: 104799

Study Title: A pilot study: Understanding the Lived Experiences of Teachers In a Technology-Enhanced Curriculum

Application Type: NMREB Amendment Form

Review Type: Delegated

Full Board Reporting Date: April 9 2021

Date Approval Issued: 17/Mar/2021 20:28

REB Approval Expiry Date: 18/Feb/2022

Dear Dr. Mi Song Kim,

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the amendment, as of the date noted above.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Changes to Letter of Information and Consent Form. Consent form for Parents_Students.CLEAN_March9_2021	Written Consent/Assent	09/Mar/2021	1
Changes to Letter of Information and Consent Form. Consent form for TeachersSchool StaffVolunteer Teachers.CLEAN_March92021	Written Consent/Assent	09/Mar/2021	1
Changes to Letter of Information and Consent Form. Letter of Information for Parents_Students.CLEAN_March9_2021	Written Consent/Assent	09/Mar/2021	1
Changes to Letter of Information and Consent Form.Letter of Information for TeachersSchool StaffVolunteer Teachers.CLEAN_March92021	Written Consent/Assent	09/Mar/2021	1

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Kelly Patterson, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Appendix B

Letter of Information for Teachers

Project Title: A pilot study: Understanding the Lived Experiences of Teachers

In a Technology-Enhanced Curriculum

Principal Investigator:

Mi Song Kim, Ph.D. Faculty of Education, University of Western Ontario

Student Researchers:

Lian Chang, M.A. Candidate, Curriculum Studies, Faculty of Education, University of Western Ontario

Martin Wolak, M.A. Candidate, Curriculum Studies, Faculty of Education, University of Western Ontario

Fengchao Yu. Ph.D. Student, Curriculum Studies, Faculty of Education, University of Western Ontario

Letter of Information for Teachers/School Staff/Volunteer Teachers

1. Invitation to Participate

You are being invited to participate in this pilot study that will explore the experiences of teachers or facilitators with technology-enhanced teaching and learning because you are engaged in technology-enhanced teaching and learning.

2. Purpose of the Letter

The purpose of this letter is to provide you with information required for you to make an informed decision regarding participation in this research.

3. Purpose of this Study

The purpose of this study is to explore the experiences of teachers/school staff or/and volunteer teachers with technology-enhanced teaching and learning. We will also examine what innovative and effective pedagogical practices are being used in technology enhanced learning environments and what beliefs, experiences, and practices inform teachers in curriculum preparation and implementation.

4. Inclusion Criteria

Individuals (teachers/other classroom staff or/and volunteer teachers) who implement technology-enhanced learning activities for promoting student learning are eligible to participate in this study. Your students are also eligible to participate in this study.

5. Exclusion Criteria

Individuals who refuse to give informed consent shall be automatically excluded from research.

6. Study Procedures

If you agree to participate, you will be asked to invite the research team to participate in technology-enhanced teaching and learning. The research team will assist you in preparing and delivering technology-enhanced activities in your classroom from September 2014 to December 2014.

• You will be asked to participate in an interview at the beginning and at the end of the study and may also be asked to complete a survey. The interview and survey questions will ask about your perceptions and attitudes about technology-enhanced curriculum, your role, the role of technologies, and your beliefs about teaching and learning. The interview will take about 15 minutes to 1 hour and will be audio-recorded and transcribed into written format.

The research team will observe in the classroom and take notes. If you agree video recordings will be taken of lessons. Care will be taken to only video record those students and staff who have agreed to participate in the study. If others are inadvertently recorded, their likenesses will be altered so that they cannot be identified.

• The research team will also collect your lesson plans and related documents in order to document your ideas and plans for designing a technology-enhanced curriculum.

- With the consent of parents, students will be asked to complete surveys at the beginning and the end of the study and copies of their work will be collected (with permission of the parents and students).
- Participants will have the opportunity to opt out of video recordings and the survey before, during, and after the study.

8. Possible Risks and Harms

There are no known or anticipated risks or discomforts associated with participating in this study.

9. Compensation

You will not be compensated for your participation in this research.

10. Voluntary Participation

All participants must provide informed consent before participating in the study. Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future employment status.

11. Confidentiality

The research team will not use your name, the name of the school, the community name, or anything that would reveal the identities of participants in any presentations, or publications of the research.

All data collected will remain confidential and accessible only to the investigators of this study. If the results are published, your name will not be used. If you choose to withdraw from this study, your data will be removed and destroyed from our database.

12. Contacts for Further Information

If you require any further information regarding this research project or your participation in the study you may contact [redacted], email: [redacted].

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics ([redacted] email: [redacted]

13. Publication

If the results of the study are published, your name will not be used. If you would like to receive a copy of any potential study results, please contact [redacted], email: [redacted]

This letter is yours to keep for future reference.

Appendix C

Letter of Information for Parents

Project Title: A pilot study: Understanding the Lived Experiences of Teachers In a Technology-Enhanced Curriculum

Principal Investigator:

Mi Song Kim, Ph.D. Faculty of Education, University of Western Ontario

Research Team Members:

Lian Chang, M.A. Candidate, Curriculum Studies, Faculty of Education, University of Western Ontario

Martin Wolak, M.A. Candidate, Curriculum Studies, Faculty of Education, University of Western Ontario

Fengchao Yu. Ph.D. Student, Curriculum Studies, Faculty of Education, University of Western Ontario

Letter of Information for Parents/Students

1. Invitation to Participate

Your son/daughter is being invited to participate in this study that will explore his/her experiences with technology-enhanced teaching and learning because he/she is in a classroom of a teacher engaged in technology-enhanced teaching and learning.

2. Purpose of the Letter

The purpose of this letter is to provide you with information required for you to make an informed decision regarding your son/daughter's participation in this research.

3. Purpose of this Study

The purpose of this study is to explore the experiences of teachers/school staff or/and volunteer teachers with technology-enhanced teaching and learning. We will also examine what innovative and effective pedagogical practices are being used in technology-enhanced learning environments and what beliefs, experiences, and practices inform teachers in curriculum preparation and implementation.

4. Study Procedures

The research team will be in your son/daughter's classroom. They will be assisting the teacher in preparing and delivering technology enhanced activities in the classroom and will be observing the outcomes.

If you agree that your son/daughter may participate he/she will be asked to complete a survey at the beginning and end of the study and copies of their work will be collected for the research. The survey will take about 30 minutes to complete each time.

The research team will observe in the classroom and take notes. Video recordings may be taken of some lessons. Care will be taken to only video record those students and staff who have agreed to participate in the study. If others are inadvertently recorded, their likenesses will be altered so that they cannot be identified.

Participants will have the opportunity to opt out of video recordings and the survey before, during, and after the study.

5. Possible Risks and Harms

There are no known or anticipated risks or discomforts associated with participating in this study.

6. Compensation

Your son/daughter will not be compensated for his/her participation in this research.

7. Voluntary Participation

All participants must provide informed consent before participating in the study. Participation in this study is voluntary. You may refuse to allow your son/daughter to participate, your son/daughter may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on his/her grades or academic status.

8. Confidentiality

The research team will not use your son/daughter's name, the name of the school, the community name, or anything that would reveal the identities of participants in any presentations, or publications of the research. All data collected will remain

confidential and accessible only to the investigators of this study. If the results are published, your son/daughter's name will not be used. If your son/daughter chooses to withdraw from this study, his/her data will be removed and destroyed from our database.

9. Contacts for Further Information

If you require any further information regarding this research project or your participation in the study you may contact Mi Song Kim ([redacted], email: [redacted].

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics ([redacted], email: [redacted].

10. Publication

If the results of the study are published, your son/daughter's name will not be used. If you would like to receive a copy of any potential study results, please contact Mi Song Kim ([redacted], email: [redacted].

This letter is yours to keep for future reference. Please return the signed consent form to the school if you agree that your son/daughter may participate.

Appendix D

Consent Form (Teachers/School Staff/Volunteer Teachers)

Project Title: A pilot study: Understanding the Lived Experiences of Teachers In a Technology Enhanced Curriculum

Principal Investigator:

Mi Song Kim, Ph.D. Faculty of Education, University of Western Ontario

Student Researchers:

Martin Wolak, M.A. Candidate, Curriculum Studies, Faculty of Education, University of Western Ontario

Lian Chang, M.A. Candidate, Curriculum Studies, Faculty of Education, University of Western Ontario

Fengchao Yu. Ph.D. Student, Curriculum Studies, Faculty of Education, University of Western Ontario

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

	Yes	No
1. I agree to participate in interviews/surveys related to teaching and learning during this research.	☐	☐
2. I agree to video recordings during this research.	☐	☐
3. I agree to provide resources and documents I use to teach literacy.	☐	☐

Participant's Name (please print): _____

Participant's Signature: _____

Date: _____

Person Obtaining Informed Consent (please print): _____

Signature:_____

Date: _____

Appendix E

Consent Form for Parents and Children

Consent Form (Parents/Students)

Project Title: A pilot study: Understanding the Lived Experiences of Teachers In a Technology Enhanced Curriculum

Study Investigator's Name: Mi Song Kim, Ph.D. Faculty of Education

Student Researchers:

Lian Chang, M.A. Candidate, Curriculum Studies, Faculty of Education, University of Western Ontario

Martin Wolak, M.A. Candidate, Curriculum Studies, Faculty of Education, University of Western Ontario

Fengchao Yu. Ph.D. Student, Curriculum Studies, Faculty of Education, University of Western Ontario

I have read the Letter of Information, have had the nature of the study explained to me and I agree that my son/daughter may participate. All questions have been answered to my satisfaction.

Quote my child directly in reports or publications on the premise that a pseudonyms is used.	Yes	☐	No	☐
Audio-record my child during this research.	Yes	☐	No	☐
Video-record my child during this research.	Yes	☐	No	☐
Photograph my child during this research.	Yes	☐	No	☐
Survey my child during this research.	Yes	☐	No	☐

Student's Name (Please Print):_____

Student's Signature:_____

Date:_____

Parent/Guardian's Name (please print): _____

Parent/Guardian's Signature: _____

Date: _____

Appendix F

Pre-Interview Questions for Teacher

Interview for Teacher-Researcher in Virtual Literacy Classroom

1. **Please tell me a little a bit about yourself.**

   Prompts: a teacher's biological sex, age, number of years of teaching, current grade level, teaching specializations, number of students in the classroom, number of support staff, what post-secondary degrees have they completed (e.g., undergraduate, masters, Ph.D) and what division are they qualified to teach.

2. **Approaches and Resources to teach Literacy and Vocabulary Instruction**

2a. How would you define literacy?

2b. In your reflective notes, you mention using a Scope and Sequence Approach, can you explain this further and why you find it effective over monthly subject intervals?

2c. Do you see literacy in other areas of the curriculum? (How is literacy expanded into other areas of children's lives?) Ex. Dramatic play, science, math, physical education.

3. How do you break up your long-range literacy plans week by week? (how do you choose what blends to introduce each week and in what order?)

3a. How do you break up the hour of your literacy block?

3b. What is your approach to vocabulary instruction?

Prompts: Teacher instructed program, interactive game, free play, phonics, spelling?

3c. Examples of lessons plans and activities (tasks that you complete every wed, thurs or Friday, because I haven't observed those days.)?

(Ex. Phonemic Bingo, fill in the blank, vowel teams, word blends, songs, Jolly Phonics)

3d. How do you deliver (design and implement?) your literacy lessons? (Ex. Are students presented with videos?)

3e. Are students and parents provided with access to Apps to support literacy learning asynchronously? (Ex. RAZ kids, Epic- read-alouds, books that get read to students)

3e1. Benefits to these apps compared to traditional learning?

3e2. What do you perceive as the learning outcomes of these literacy applications?

3e3. How do you monitor students' reading progress? (reading log, assessments)

4. Describe the approaches you use to teach Literacy? Explain why you use this approach.

Prompts: exposure vs what is expected in the curriculum document?

4a. What are your goals for students? Or your expectation by the end of the year? Why, what is it based on? (based on the curriculum document they are expected to read and write one sentence?)

Prompts: How do you support students' oral and written development?

4b. What resources do you use to teach vocabulary in your virtual literacy classroom?

4b1) Is it a government document (The Kindergarten Program, Ontario Language Curriculum), or a document/resource supported by the school board)?

4b2) Through technology, what kind of teaching practice supports authentic activities?

4b3) Who completes pedagogical documentation? (Parents, teachers, students)

5. What strategies are you using to teach vocabulary in the virtual literacy classroom? (cross-curricular approaches, read-alouds, small groups)

5a. I noticed part of your programming includes Writer's workshop. What is that and what does it entail?

5b. What types of activities are provided through each monthly Choice Board? (Ex. For April)

6. What is your definition or understanding of the multiliteracies pedagogy?

6a. Can you think of examples of how the multiliteracies pedagogy has been used in your classroom during your literacy block?

6b. How is the multiliteracies pedagogy used within your classroom to promote student vocabulary growth and play-based learning?

6b1. How is learning documented and who documents it? (who's responsibility, students, teachers) (pictures, videos, audio, written descriptions, anecdotal notes)

7. Describe any professional development, workshops or courses that are offered within your board or that you have taken related to literacy, multiliteracies or vocabulary development?

Thank you for participating in this interview. Do you have any questions or additional comments you would like to add?

Appendix G

Follow Up Post Interview Questions

This follow up interview is based on research I've looked at, observation of your class and your reflective notes and lesson plans.

Thank you for participating in this second interview. Do you have any questions before I begin recording?

Approaches to Literacy Teaching and Vocabulary Instruction

1. In our first interview, you mentioned you follow the phonological awareness hierarchy. Do you still use this approach in your literacy teaching?
2. I noticed you chose to introduce sight words at the end of the year. Why did you take this approach?
3. Has your approach to vocabulary instruction changed in the past 2 months?
    a. How did you develop this approach to vocabulary instruction? (teacher education program? Online)
    b. When creating your literacy program, what are some factors you considered? What were your expected learning outcomes for students (ex. Reading comprehension, letter sound correspondence)?
4. You've described teaching a letter a day vs a letter a week as part of your literacy approach.
    a. Can you tell me a little bit about that approach? What have you chosen that pacing and how did you learn about it as a new teacher?
    b. If you teach kindergarten again, what parts of your literacy program would you keep the same? What would you change?
5. What resource are you using for literacy? (do you have a link?) tpt?

6. Have you noticed any differences in your instruction since the last interview? Have you adapted your programming? (more games to engage students)
7. Have you noticed any differences in student's literacy/language performance from the beginning of the year to now the end of the year? (Progress and Process vs Product) (ELA Assessments)
    a. (Process) Changes in motivation
    b. (Product) Changes in being able to full words? Sentences?

Strategies to teach Literacy and Vocabulary Instruction

8. Have you modified a program you found online (ABC bootcamp)? How and why? You mentioned you found resources online. How did you pick the one you wanted to use for your class and why?
9. What is your understanding of the Heggerty approach? How would you implement it in your classroom?
10. What is the purpose of a read-aloud to you? How do you use and incorporate it into your literacy program?
    a. Do you use multimedia (text, sound and interactive features) storybook reading in your literacy block? (or is it a traditional print book being read by someone on video?)
        i. Do any of the literacy apps like Headsprouts offer interactive reading? (click on a word and it gets read to the child?) (Leapfrog (pen reads to child), Osmo)
        ii. What electronic literacy activities or apps are provided for students? Are they interactive?

b. What is the purpose of a read aloud during your literacy block?

c. How can you support a story read aloud through questioning? What types of questions could you ask students before or after a read aloud?

(unfamiliar words), draw attention to sight words)

i. How can a read aloud be used to support students' vocabulary learning?

ii. Do you ask open-ended or close-ended questions to students?

iii. How can you tell if students are engaged with the read aloud? (physical, verbal and emotional engagement)?

d. Miscues are "deviations readers make from the text on the page when asked to read aloud… [they are] evidence of the way the reader is processing the print".

e. How do you perceive deviations (reading a word wrong, skipping a word, reading a different word than what is on the page) when students are reading a piece of text?

f. Do you have sentence starters when students write? What does a typical writing session look like?

i. My favourite colour is _____blue because… the sky is blue.

ii. What is kindergarten spelling?

11. What is your interpretation of the progression of the ELA scores from students in December and now in June?

Multiliteracies Pedagogy

12. What support or training have teachers received from schools or school boards to learn and implement technology and pedagogical skills to support young children to use and interact with devices for their literacy development?

13. In your own words, how would you describe the multiliteracies pedagogy?
14. You previously described the multiliteracies pedagogy as “different modes, or different exploration opportunities to expose children of different types of text, whether, that is printed or audio or images or sound, graphics and film, videos”
15. Has this view changed since our last interview?

    How did you learn about the multiliteracies pedagogy?

    When did you first hear about it? in your Bachelors of Education? Or your Master’s?

    a. Can you provide me with one example of each of the following multimodal forms of communication and how they are in your lesson planning or Choice board activities for students? (you can describe how multiliteracies is used in your classroom holistically, or one way all modes are used)

       (visual, audio, linguistic, gestural)

    b. How can you use the multiliteracies pedagogy to support student’s literacy and vocabulary development? (their learning of words, spelling, sounds, phonemic awareness)

16. In what ways do you embrace students’ different backgrounds in their learning?

    (diversity in culture, family structure, experiences of students)

17. In what ways is learning made applicable to student’s lives? (when they learn about empathy through a read aloud)

18. How do you differentiate your instruction to meet the diverse learning needs of all your students?

19. What is your understanding of a play-based pedagogy? How does your understanding of play integrate with literacy in your classroom? Or through your literacy instruction?
20. In what way are students' learning opportunities multimodal in your classroom? (Visual, sound, graphics, text)

Assessment

21. How do you assess student work? (ex. Literacy assessments)
22. How do you measure students' learning outcomes? (ELA assessment, are you looking for phonological awareness or reading fluency)?
    a. Are your assessments written, oral? Do you provide visuals during your assessment? (4 frames)
23. What are you looking for when you collect and assess student work samples? (Ex. Choice board activities, writer's workshop)
    a. When parents submit work to the VLE, you see the product (picture, 3-D model, or coloured in picture). Can or how do you assess the process? How do you know how much the child is doing on their own?
24. Do you assess how students read, or what they understand and comprehend from text? Or both?

Curriculum Vitae

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