An Exploration of a Novice Kindergarten Teacher's Enactment of Multiliteracies Pedagogy during the Pandemic: A Case Study of a Virtual Kindergarten Classroom

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Abstract: We aim to gain insight into technology-enhanced literacy learning for kindergarten students during the COVID-19 pandemic by exploring a novice kindergarten teacher's practice of multiliteracies pedagogy in his virtual kindergarten classroom. This qualitative case study collected data from multiple sources such as virtual interviews and classroom observations, the Kindergarten Program (KP) document, teacher's reflective notes, lesson plans, students' artefacts, and researchers' observational notes and reflective journals. This study found that although the novice kindergarten teacher provided various multimodal learning opportunities for students, his literacy practice emphasized phonological awareness, phonemic awareness, and letter-sound correspondence. Also, he faced numerous challenges due to inadequate teacher preparation and professional development, inconsistency of the quality and utility of technology, constraints of virtual learning for young learners, varying degrees of parental support, and challenges of implementing multiliteracies pedagogy with young children virtually. This study contributes to the existing literature on online learning for kindergarten students and expands the burgeoning multiliteracies research from physical to virtual learning environments. Also, this study demonstrates how virtual learning opens up opportunities to advance the multiliteracies pedagogy and highlights the importance of strengthening teacher education programs and providing continuous professional development for teachers.

Keywords: Technology-enhanced literacy learning, multiliteracies, multimodality, virtual learning, kindergarten

1. Introduction

Literacy education has gone through tremendous changes over the past few decades (Bull & Anstey, 2018; Cope & Kalantzis, 2009). The term literacy was first defined as the ability to read and write print-based texts in the late 1800s, and literacy education emphasized teaching knowledge and skills such as "grammar, spelling and punctuation and comprehension" (Anstey & Bull, 2018, p. 5). However, as a response to the increasingly diversified modes of communication and multiple forms of culture and language, the New London Group (NLG) (1996) coined the term *multiliteracies*, referring to the ability to communicate with and make meaning of the multimodal texts, and proposed multiliteracies pedagogy to reconceptualize literacy teaching and learning in a globalized environment. The multiliteracies pedagogy expands literacy education to embrace the diversity that learners bring from their social, cultural, and linguistic backgrounds and the multimodal forms (e.g., visual, audio, linguistic, spatial, gestural) that learners adopt for meaning-making and representation (Cope & Kalantzis, 2009).

The multiliteracies pedagogy comprises four components: (1) situated practice; (2) overt instruction; (3) critical framing; and (4) transformed practice (NLG, 1996). Specifically, situated practice underscores the importance of providing opportunities and meaningful experiences for students to draw on their prior knowledge and out-of-school experience to make meaning in new contexts. Overt instruction refers to active interventions that scaffold students' learning by making

explicit the patterns of meaning to help students gain a conscious understanding of their learning. Critical framing encourages students to interpret the designs of meaning from a critical perspective and interrogate its situated social-cultural contexts and purpose. Transformed practice occurs when learners transfer what they have learned in one context to another and shift their roles from consumers of the knowledge to designers and meaning makers (NLG, 1996). It is worth noting that these pedagogical orientations are not in singular forms or linear sequences but are a knowledge process of "weaving between different knowledge processes in an explicit and purposeful way" (Cope & Kalantzis, 2009, p. 187).

Aside from the four fundamental components, central to the multiliteracies pedagogy is the notion of design (Cope & Kalantzis, 2009). As the forms with which people interact and make meaning in their everyday life have become increasingly multimodal (NLG, 1996), meaning-making and representation can be conceived as "a form of design" that allows learners to move freely between different modes (Cope & Kalantzis, 2009, p. 166). Also, since design consists of "teachers' pedagogic designs of learning processes and students' designed constructions of meaning," it is very useful for "theoriz[ing] the relationships between modes, pedagogy, and context," and "understand[ing] the changed dispositions toward information and knowledge" (Jewitt, 2008, p. 252).

Literacy education has been challenged unprecedentedly with the outbreak of the COVID-19 pandemic. The school closure has forced learning at various levels to shift online, including kindergartens. This move has triggered heated discussions over the impacts of online learning on students' academic performance (Dore et al., 2021; Hu & Lu, 2020), particularly literacy loss (Bao et al., 2020; Chamberlain et al., 2020). Therefore, this study aims to gain insight into technology-enhanced literacy learning for kindergarten students during the pandemic by exploring a novice kindergarten teacher, Michael's (pseudonym) practice of multiliteracies pedagogy in his virtual kindergarten classroom and the challenges he faced. Specifically, we asked the following research questions: 1) How did the novice kindergarten teacher enact multiliteracies pedagogy in his virtual kindergarten classroom? 2) What challenges did the novice kindergarten teacher face when implementing multiliteracies pedagogy in his virtual kindergarten classroom?

2. Literature Review

2.1 Multiliteracies Practice in Kindergarten

Over the years, scholars all over the world have drawn upon the multiliteracies framework to examine literacy practices in diverse socio-cultural contexts (e.g., Anstey & Bull, 2018; Baguley, Pullen, & Short, 2010; Jewitt, 2008). For instance, in a kindergarten to Grade 5 setting in an Innu community, Lavoie et al. (2012) illustrated how the conscious introduction of multiliteracies pedagogy and its enactment allowed teachers to acknowledge and respect the identity formation, meaning-making, and expression of culturally and linguistically diverse students by drawing on their lifeworld experiences and the available multimodal and multilingual resources in their local community. Taylor and Leung (2020) also described the experiences of teachers who promoted multimodal learning experiences reflective of students' social and cultural backgrounds. As our previous study (Author, 2021) indicated, through multiliteracies as a culturally responsive pedagogy, teachers need to intentionally create spaces and learning experiences that encourage the development of multimodal literacy and further develop socialization skills. However, as Zhang et al.'s (2019) systematic review on multiliteracies practice showed, teachers faced various challenges when enacting multiliteracies pedagogy, such as the lack of "training in recruiting multimodal resources and designing learning environments," "insufficient, inappropriate, or missing materials," and contradiction between multiliteracies pedagogy and the prescriptive literacy curriculum (p. 48). Also, of the 66 reviewed studies, only six were conducted in kindergarten settings. They thus called for more multiliteracies research "in various contexts of the globalized world, including virtual spaces" (p. 41). Since most of the studies on multiliteracies practice were conducted in physical classrooms before the pandemic, it is critical and time-sensitive to explore the implementation of multiliteracies pedagogy in a virtual kindergarten classroom.

2.2 Online Learning for Young Children
Online learning that uses various educational platforms such as email for asynchronized learning and

Google Classroom, Google Teams, Zoom, and SeeSaw to support students' synchronized learning (Hu & Lu, 2020) is a valuable alternative to teaching and learning during school closures (Abernathy & Thornburg, 2021; Dore et al., 2021). However, since online learning was uncommon for young children before the pandemic, teachers faced various challenges. For instance, teachers generally lacked sufficient training and preparation and struggled with engaging students in an online learning context (Ewing & Cooper, 2021). Moreover, the availability of technological tools and the accessibility and stability of the internet posed challenges for effective online learning (Fitri & Latif, 2021). Also, as young children were not equipped with relevant knowledge and/or skills to handle online learning, parents' guidance and support were expected. However, parents often provided either too much help or inadequate support for their children due to their beliefs and attitudes about online learning and digital literacy (Azizah & Eliza, 2021; Firmanto et al., 2020).

3. Methods

As part of a larger research project hosted by the third author, we aim to explore a novice kindergarten teacher, Michael's (pseudonym) practice of multiliteracies pedagogy in his virtual kindergarten classroom in Ontario, Canada, where kindergarten programs (KP) were guided by the Ontario KP document. Teacher participant Michael was an Ontario Certified Teacher, teaching kindergarten to Grade 6, and a Master student in Education. Michael was in his first Long-Term Occasional full-year contract position when the study took place. He partnered with two part-time early childhood educators (ECE) to teach 23 students, among whom five parents granted us consent. We employed a qualitative case study to capture the complexity of the implementation of multiliteracies pedagogy as it allows "a rich portrayal of insights and understandings interpreted in the particular context" (Simons, 2014, p. 466). Michael learned about multiliteracies pedagogy in his Master's program, which made him realize the importance of diversifying literacy practices in an increasingly globalized society and eventually motivated him to adopt multiliteracies pedagogy in an online environment with his kindergarten students. Interviews and classroom observations were conducted virtually, and data collection lasted for four months until data saturation occurred (Saunders *et al*., 2018). To help "reduce bias and increase confidence in the robustness of the research results" (Kipping et al., 2013, p. 312), we also analyzed data from multiple sources such as the KP document, lesson plans, student artefacts, Michael's reflective notes in computer-supported collaborative learning platform (i.e., Knowledge Forum, KF), and researchers' observational notes and reflective journals. Drawing on the multiliteracies pedagogy, we employed deductive and inductive thematic analysis to go through each of these phases: familiarizing with our data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, and (5) defining and naming themes (Braun & Clarke, 2006).

4. Findings

4.1 The Practice of Multiliteracies Pedagogy in a Virtual Kindergarten Classroom

Deductive data analysis found that situated practice, overt instruction, and transformed practice were evident in Michael's multiliteracies practice. Also, inductive data analysis revealed three emerging themes: multimodality and design, collaboration with teaching partners and parents, and the influence of the KP document on his literacy practice.

4.1.1 Situated Practice

In multiliteracies practice, the situated practice encourages the teacher to integrate students' interests, funds of knowledge and out-of-school experiences into teaching, so the learning experiences are authentic and meaningful for students (NLG, 1996). Michael asked his students what they wanted to learn at the beginning of the semester, organized their inquiry interests into learning activities (e.g., living things/animals, superheroes/dress up, dance/ballet, art/craft, building/construction), and provided relevant learning experiences for students. Also, he embraced students' lifeworld experiences in his teaching and took their culture and family situations into consideration in curriculum design. For instance, Mothers' Day or Fathers' Day could be a special moment between a child and their grown-ups, but as Michael explained in the post-interview, sometimes students did not

have a father or a mother in their lives. So, he proposed a Special Person Day to honour anyone like grandmas or neighbours (May 28, 2021) (Figure 1).

Figure 1. Mother's Day Artefacts and Special Person Day Template

Situated practice also "require[s] the skillful scaffolding or temporary support structures of experts to enable learners to draw upon the cultural resources for meaning making necessary to transfer knowledge to new, multimodal designs" (Mills, 2006, p. 28). For example, the Writer's Workshop in Michael's class allowed his students to use multimodal forms and different semiotic tools to express their ideas. At the beginning of the semester, students were asked to draw a picture and write something about it with the teacher's help, such as their names, dates, letters, or words to label the pictures. As the semester went on, students were asked to write kindergarten sentences, meaning that when the students heard words phonetically, they tried to sound out these words and spell them out phonetically how they heard them. Also, educators explicitly talked about finger spacing, capital letters, punctuation, etc.

4.1.2 Overt Instruction

Overt instruction refers to the explicit instruction of the patterns of meaning by identifying students' specific needs (NLG, 1996). In the post-interview, Michael noted the importance of "explicit instruction that is evidence-based in terms of phonemic, phonological awareness, phonemic awareness, and letter-sound correspondence, in a scope and sequence manner" (May 28, 2021). For sight words instruction, he also highlighted the importance of meaning-focused activities by providing "an example of a sentence for that comprehension" and explaining "why do we use that word and what does it mean" (May 28, 2021). Further, overt instruction comes with new assessment techniques. Specifically, evaluation "should be developmental" and serves as "a guide to further thought and action" (NLG, 1996, p. 86). Michael also noted that "the direct instruction is reflective of the assessments" and could help identify "where the child excels in," "where the child's strengths are," "where do they still require more," and "(where) requires next step to continue with" (Post-interview, May 28, 2021). Additionally, the assessment allowed Michael and his team to "see areas that require more in-depth review" and assist them in curriculum planning (KF, January 18, 2021). Therefore, he carefully observed and documented his students' learning progress in a Writer's Workshop.

4.1.3 Transformed Practice

Transformed practice occurs when learners transfer what they have learned to new contexts and shift their roles from consumers of the knowledge to designers and meaning makers (NLG, 1996). Michael provided opportunities for students to apply what they learned in class to new learning situations. For example, he asked students to get an old magazine and look for sight words or write down all the letters they know and teach their stuffies the letters and sounds. In free reading time, Michael encouraged students to share pictures, interesting facts, ideas, or literacy concepts learned in class. He

also encouraged students to take their learning outdoors by going on nature walks and recording their observations. According to Cope and Kalantzis (2009), situated practice and transformed practice were sometimes intertwined, which could be seen in Michael's enactment of a multiliteracies pedagogy. Since "students usually engage in the transformed practice stage by designing multimodal texts" (Rajendram, 2015, p. 2), the Writer's Workshop that exemplified Michael's situated practice was also a good example of the transformed practice.

4.1.4 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). As Michael's class was primarily conducted in the synchronized online form, he heavily relies on technological tools such as Smart Notebooks, Google Slides, songs, YouTube videos, dance, and movement in his teaching practice. He also integrated multimodal forms using audio, video, and art in his teaching. For example, reading a physical book was difficult for students to see, so Michael used the video-based read-aloud on YouTube instead. To promote students' engagement when practicing sight words, he integrated cartoon GIFs (i.e., someone jumping, hacking, squatting, push-ups) into his teaching. Specifically, after doing a sight word, they exercised for 20 seconds and repeated the cycle. He also tried different strategies, such as saying the sight words in a funny voice like Mario or a monster.

As design encompasses 'teachers' pedagogical designs of learning processes and students' designed constructions of meaning' (Jewitt, 2008, p. 252), Michael used "a lot of resources from everywhere," including the self-purchased resources, the kindergarten document, and the electronic resources provided by the school board" (Pre-interview, April 9, 2021). Also, Michael and ECEs carefully designed Choice Board activities in which they explicitly asked parents to choose activities that align with their child(ren)'s interests and can be easily implemented with materials available at home (Figure 2). As Michael stated in the pre-interview, "we try to be cognizant of… Obviously, we don't want our parents to spend enormous amounts of money. We just try basics that can be used in all different aspects. So, we try our best, to provide parents with opportunities, either with recycled materials, or things around the home" (April 9, 2021).

Figure 2. Robots Using 3D Shapes and Recyclables at Home

4.1.5 Collaboration with Teaching Partners and Parents

In Michael's virtual classroom, ECEs played an indispensable role. In addition to leading instructions when needed, ECEs were also responsible for conducting pedagogical documentation. Moreover, Michael and ECEs worked as a team to assess student learning by using Early Literacy Assessment (ELA) and other assessment tools. Once Michael completed the report drafts, the ECEs would read the report, point out any typos or errors, and provide other recommendations. As Michael said, "these progress reports would have been much more challenging if the ECEs did not have the well-done daily pedagogical documentation" (Post-interview, May 28, 2021). Further, since kindergarten

students need guidance from their caregivers (Azizah & Eliza, 2021; Firmanto et al., 2020), parents played a critical role in Michael's virtual classroom. Based on the KP document, Michael provided parents with a monthly checklist and examples of what could be evidence of their child(ren)'s learning, so Michael and ECEs could "assess the child(ren)'s learning and growth" (Pre-interview, April 9, 2021).

4.1.6 The Influence of the KP Document on the Teacher's Literacy Practice

The Kindergarten Program (KP) document greatly influenced Michael's virtual classroom. The KP document, issued by the Ontario Ministry of Education (2016), suggests "thinking about literacy in the broadest possible way," viewing children's communication "through gestures, physical movements, words, symbols, and representations, [and] the use of a variety of materials," and seeing children's literacy behaviours as "evident in the various ways they use language, images, and materials to express and think critically about ideas and emotions" (p. 64). The definition of literacy in the Ontario KP document is consistent with the key components of multiliteracies pedagogy, namely design and multimodality. As such, the KP document recommends the literacy practices that encourage students' expressions and practices of skills needed for 21st century learning. The KP document stressed the importance of providing rich and engaging learning experiences that build on children's strengths, prior knowledge, and experiences and working collaboratively with families. Also, the KP document listed examples of critical literacy behaviours of kindergarten students, such as "matching spoken words with 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). In our pre-interview, Michael stressed several times that he has used the KP document as a "guide" and has "looked at all the learning goals to see what has missed, if he missed anything." For Michael, phonological awareness, phonemic awareness, and letter-sound correspondence were the "basic fundamental skills" that he "want(ed) to make sure that the students know and have" (April 9, 2021). Regarding the expected learning outcomes for students, Michael stated that "the only one was I wanted to make sure that we, the students, 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). As described earlier, Michael's virtual class encompasses various activities to foster students' phonological awareness, practice sight words, recognize word families, and learn rhyming words. He also provided electronic resources with all these blends for parents so their child(ren) could continue to practice these skills. As Michael reflected, "[w]e as a team and our parents have noticed tremendous gains in our student phonological awareness, phonemic awareness, and letter-sound correspondences" (KF, April 2021).

4.2. Challenges the Novice Kindergarten Teacher Faced

Overall, Michael felt that the virtual literacy teaching was "a very rewarding experience" (Pre-interview, April 9, 2021). However, due to the complexity of enacting multiliteracies pedagogy with young children in a virtual learning environment, it is interesting to note that the challenges Michael encountered in implementing multiliteracies pedagogy in his virtual classroom was largely in line with the research findings from the literature on online learning for young children in general. Specifically, these challenges were: insufficient preparation in the teacher education program, inadequate professional development from the current work, varying degrees of parental support, and constraints of online learning for young children. The research also revealed the unique challenges of implementing multiliteracies pedagogy with young children virtually.

4.2.1 Insufficient Teacher Preparation and Professional Development

Consistent with the literature, the lack of training and preparation for online teaching was one of the challenges Michael encountered (Ewing & Cooper, 2021). In the post-interview, he noted that his teaching certification did not do its justice in preparing him to be a kindergarten teacher. The Bachelor of Education program he took was ideologically driven, and no evidence-based research to support it. As a result, he has "learned very little," and he "never knew about phonological awareness, phonemic

awareness" when he was a student. 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." When asked if he has learned anything about the multiliteracies pedagogy in the teacher education program, Michael responded that "I don't think so. Maybe it was very shortly talked about, but it was nothing in-depth. Maybe it was brushed over or something like that" (May 28, 2021). It needs to be pointed out that Michael was teaching the kindergarten and doing his master's degree in curriculum studies when the research was conducted, which provided a great opportunity for Michael to apply what he had learnt in his master's program into his teaching practice.

Michael also encountered inadequate professional development from the current work. When asked in the pre-interview if the school board provided any professional development opportunities for things related to literacy, multiliteracies, or even vocabulary, Michael expressed that "nothing from the PD days." Even though the school board has provided many electronic resources like Headsprouts and Epic, teachers were "just given those resources," but "there's no training for it," no professional development or anything like that in terms of interactive devices or electronic resources. Michael recalled his last PD Day and said that "we had the coordinator provide that phonological, phonemic awareness, letter-sound correspondences, and the pilot for Haggerty, but that's about it." Instead of doing a "one and done" type of professional development, Michael mentioned that the school board "would need to train all the current teachers now and then each year" (April 9, 2021). Also, Michael believed that "educators require more workshops… and many would come in to learn how to incorporate meaningful and purposeful technology to augment learning" (KF, December 2020). However, due to the pandemic, of the seven professional development days allocated for teachers, three were used for health and safety training.

Although multiliteracies pedagogy is recommended, it is not mandatory for teachers in his school board to implement it. However, as a passionate, self-driven and reflective teacher, Michael took his time to look for research and evidence-based instructions from the school library where he was doing his master's degree, Google Scholar, and other resources. He believed that the teaching profession should "be highly regarded as doctors and lawyers, who are in their own time keeping up with the literature or those case studies and stuff like that" (Post-interview, May 28, 2021). Also, Michael constantly reflected on his teaching practice, asking himself what else could have been done differently, and collaborated with his ECE partners to make changes along the way and refine his teaching skills.

4.2.2 *Varying Degrees of Parental Support*

Like any other online learning with young children, the implementation of multiliteracies pedagogy requires the support of caregivers. For instance, Michael intended to embed active learning opportunities such as singing, dancing or hands-on experiences into his multiliteracies pedagogy, which needed the collaboration of parents to encourage their children to implement these activities at home. However, as Michael said, "it's just difficult virtually" (April 9, 2021). Similar challenges were found when requesting parents to submit children's work for assessment. For example, Michael asked parents to describe their child(ren)'s work when submitting them as it would allow educators to see the students' thinking processes. However, some parents submitted students' work based on the checklist educators provided and added detailed descriptions to the work. In contrast, others submitted a few works with little or no descriptions or did not submit at all. Also, when the weather was getting better and families started enjoying the warmer weather, Michael noticed the changes in student attendance. Michael has expressed concerns because they were doing ABC Bootcamp that introduced students to all 26 letters and sounds in 26 days. "Student attendance is necessary" for the ABC Bootcamp to be effective. However, if parents took a vacation or the child was sick in extenuating circumstances, the child would miss one letter a day. It would be hard to combat that problem later as "this is extremely crucial for the child's education, and it will only compound after" (Post-interview, May 28, 2021).

4.2.3 *Constraints of Online Learning*

As Michael reflected in the KF, one challenge his team faced during online teaching was "the quality of the video and sound transmission" and the internet connection of teachers and/or students. The

picture was very blurry and choppy during class lessons when everyone's camera was on. Michael believed that high-quality internet connections and technological devices are required to provide students with high-standard education (December 2021). Further, Michael found that he could not see the students well while he was teaching and sharing his screen, let alone see every child's work when the educators wanted the students to do some extended activities. Also, it was difficult to pause and ask questions or draw students' attention to some unknown words during read-aloud in a virtual classroom, whether reading a physical book or playing a read-aloud video. As Michael said, "read alouds are important, it's just difficult virtually" (Post-interview, May 28, 2021). Similar challenges could be found when teaching the sound of the letter to students. Michael reflected that "with distance learning, students must keep their microphones muted unless called upon" because of the background noises in their homes (KF, December 2021). However, "it's 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, it just takes a long long time, right?" (Post-interview, May 28, 2021). Additionally, the implementation of interactive software was challenging in his kindergarten since "only about ⅓ of my students would be able to participate in an interactive virtual activity" and "there are still a few students where their parents sit in our class and unmute/mute when the student is called upon" (KF, December 2021).

4.2.4 *Challenges of Implementing Multiliteracies Pedagogy with Young Children Virtually*

In addition to the above-mentioned challenges posed by online learning for young children in general, Michael also encountered some unique challenges in implementing multiliteracies pedagogy with young children. Two important components of multiliteracies include "increasing multiplicity and integration of significant modes of meaning-making" and "increasing local diversity and global connectedness" (NLG, 1996, p. 64). Although Michael took advantages of the affordances of digital technologies and provided various multimodal learning opportunities for students' meaning-making and representation, there was a lack of autonomy and social interaction for children to explore and manipulate technology and discuss their learning with peers. Michael stated this level of independence and peer collaboration was due to the age of his students and the learning curve of virtual technology. In addition, as one of the key components of multiliteracies, critical framing was not utilized by Michael in this study. Under critical framing, teachers create learning experiences and encourage students to view design in its situated social cultural context (NLG, 1996). This level of higher order thinking can be challenging for children to grasp as it is crucial for them to learn the basics before moving towards this step.

5. Discussion & Implications

Our research findings show that Michael's multiliteracies practice highlighted situated practice, multimodality, and design which are essential aspects of multiliteracies practice (Cope & Kalantzis, 2009). For example, he integrated students' interests into his curriculum plan, embraced students' lifeworld experiences and family traditions, and provided opportunities for students to express their ideas and cultural identities through multimodal forms and different semiotic systems. Moreover, he took advantage of the affordance of online learning and incorporated a wide variety of modes and learning forms in his literacy practice. Particularly, he encouraged students to use available resources like recycled materials at home to make meaning and transfer learning to new situations. Also, his multiliteracies practice was significantly influenced by the KP document that emphasizes phonological awareness, phonemic awareness, and letter-sound correspondence.

The findings also revealed the complexity of implementing multiliteracies pedagogy in a virtual kindergarten classroom. Michael faced similar challenges as those who enacted multiliteracies pedagogy in physical classrooms, such as lack of appropriate training in multiliteracies pedagogy and the contradiction between prescriptive curriculum and multiliteracies pedagogy (Zhang et al., 2019). As a novice teacher, neither Michael's Bachelor of Education program nor his current work prepared him for enacting multiliteracies pedagogy or conducting online teaching. Michael's literacy practice centred around the expectations of the KP document. Meanwhile, he also faced similar challenges

identified from the literature on online learning for young children. For example, the lack of training and preparation for online teaching (Ewing & Cooper, 2021), varying degrees of parental support (Firmanto et al., 2020), and the constraints of online learning for young children (Fitri & Latif, 2021). This study also highlighted the importance of collaborating with teaching partners in the virtual learning environment, which was not evident from the existing literature.

Thus, our findings enrich the extant literature on online learning for young children during the pandemic. This study also contributes to the burgeoning research on multiliteracies practice while expanding it to virtual learning environments in kindergarten settings. Our study shows how virtual learning opens up opportunities to advance multiliteracies pedagogy. Through the exploration of the lived experience of a novice kindergarten teacher, our qualitative case study may broaden teachers' conceptions of literacy activities and persuade them to diversify literacy activities and embrace technological tools in physical classrooms in meaningful ways. Further, this study reveals the challenges the novice kindergarten teacher faced in enacting multiliteracies pedagogy in his virtual kindergarten classroom and calls for the actions from relevant stakeholders to strengthen teacher education programs and provide continuous training and development for teachers. Since communication and meaning-making are getting increasingly multimodal and learners come from diversified social, cultural, and linguistic backgrounds, it is critical for teachers to have multiliteracies pedagogy in their repertoire. Also, as the pandemic is still going on and the future is uncertain, it is imperative to integrate online teaching into the existing teacher education curricula and professional development plan to better prepare teachers for the future.

This study is limited to one novice kindergarten teacher and five students whose parents granted consent for data collection. Although data from multiple sources were collected for triangulation and the trustworthiness of the study, the research findings may be only applicable to other similar research settings. Therefore, working with diverse participants such as novice and experienced teachers and students from various cultural and linguistic backgrounds may enable more generalizable research findings. This study only looked at the implementation of multiliteracies pedagogy in a virtual kindergarten classroom from a novice teacher's perspective. Future research may examine other relevant stakeholders' perspectives like students, parents, the school board, etc. Also, future research could explore the actualization of multiliteracies pedagogy in virtual kindergarten classrooms with children from culturally and linguistically diverse backgrounds. Another limitation of the study is its short data collection period. This study may miss the possible changes in Michael's multiliteracies practice as he accumulates more experiences and becomes more comfortable with online teaching. Thus, a follow-up study may reveal the changes that the current study may have missed.

Acknowledgements

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