# Pivoting from In-class to Online Early Literacy Instruction and Contributing Critical Insights

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*The shutdown of in-person learning in March 2020 threatened to end an Alberta Education Research Partner Project focused on implementing a supplemental early literacy program in kindergarten classrooms. As graduate students developing the project, we faced a critical decision to either cancel the project or shift it to an online medium. The decision was not easy as the project emphasized utilizing embodied cognition and engagements with language. In addition, central to the project was the use of hands-on-materials, and physical exploration in real-world contexts to promote literacy learning, making the online environment an extra challenge. As we pivoted our project online three major challenges emerged: engaging young students through a computer screen, overcoming an online interface that limits simultaneous interactions, and incorporating hands-on activities within a traditional 2D non-touchable platform. In this article, we consider each of these challenges and our design response. We discuss how moving our program online allowed enhanced professional learning for classroom teachers and created a powerful platform to help parents support literacy skills.*

In February 2020, as graduate researchers working on an Alberta Education Research Partner Project grant, we were preparing to implement a supplemental sensorimotor and oral language program to enhance early literacy skills in kindergarten classrooms across two school boards. This design-based research (McKenney & Reeves, 2012) hinged on connecting graduate researchers and teachers to model and co-construct literacy programming for kindergarten students and then implement new pedagogy into kindergarten classrooms. The shutdown of in-person learning in March 2020 threatened to end this project and resulted in the loss of extra support for the kindergarteners who would no longer receive the planned supplemental play-based literacy supports. Critical problem solving was required to evaluate alternative courses of action to

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preserve the project and, more importantly, support kindergarten students who would benefit from increased engagement with literacy learning.

We pivoted our project to engage students' literacy learning through an online model. This was challenging given the project's emphasis on embodied cognition and oral language development, utilizing engagements with language, materials and physical exploration in real-world contexts to promote literacy learning (Ionescu & Vasc, 2014). Our quest to design an online early literacy program led us to connect findings from current literature on embodied programming and oral language approaches to observed challenges in working with young students online. Three challenges emerged in the literature: the management and engagement of young students through a computer screen, overcoming an online interface that limits simultaneous interactions, and increasing learning transfer through hands-on activities within a traditional 2D non-touchable platform. In this article, we consider each of these challenges and our design response. Finally, we end by considering how moving our supplemental program online allowed us to create a new model for professional learning with kindergarten teachers and a powerful platform to help parents support literacy skills.

## Management & Engagement of Young Students Online

### *Managing Teaching Demands*

Even with adult-guided support, managing a group of kindergarten students online requires different considerations than a classroom setting. Norberg (2012) found that teaching students online results in an exponential increase in teaching demands, splitting a teacher's attention between the content, and multiple speakers and screens. By limiting the student-to-teacher ratio to one teacher to four students in our program design, we enhanced the student learning experience in several ways. First, teachers performed consistent visual checks on students, helping to confirm that the students could hear, see, and share as required. In addition, smaller group sizes encouraged increased student participation, making students more accountable for participating and sharing their work with the group. Finally, the small group numbers afforded more time for the teacher to interact with students and prompt them to expand and elaborate on their ideas.

### *Creating Online Engagement*

Video conferencing with students often does not provide the level of student engagement needed to sustain student attention, enthusiasm, or high levels of learning (Plowman et al., 2012). Hence, we designed activities that enhanced the engagement of our young students and helped to build a trusting community of learners.

**Building A Community of Trust.** It was critical to build a community among the learners to foster a sense of trust between the teacher and students (Zhao et al., 2005). Online lessons began with a Sharing Circle Structure (see Appendix A for details) where each child had time to *hold the floor* and discuss their ideas without interruption. This structure established a safe group culture where every idea was honoured, and students felt valued.

**Teacher Direction**. Research suggests that the quality of online learning depends on the quality of interactions that take place during teaching-learning processes, including both instructor-student interactions and student-peer interactions (Chiu et al., 2010).  For this reason, we embedded several practices to foster student engagement. First, research indicates that an online medium's similarity to in-person communication is a significant factor in student oral participation and enhanced learning (Blau et al., 2017). The use of Zoom with its flexible screen

configurations allowed the adult helpers to maximize the screen to see multiple speakers at once, increasing the naturalness of the encounter and encouraging more interaction between multiple speakers. This, coupled with the small number of participants, allowed the children to see all the speakers on the screen, helping them to focus on and respond to important non-verbal social communication cues.

Teaching techniques such as wait time, prompting, and *cold calling*, where teachers intentionally prompted individual students to share their thinking at critical points in the lesson, encouraged student participation in online discussions. Judicious use of extended wait time after posing questions encouraged extra think-time and resulted in more frequent contributions from traditionally reticent students. Teachers also provided thinking time to organize ideas by prompting students before asking questions. For example, teachers said something similar to, "Billy, I will ask you to describe the house you created after John talks." Cold calling has been shown to increase participation and build accountability over time in synchronous online discussions (Dallimore et al., 2012).

### Oral Language Through Simultaneous Interactions

A critical challenge moving our program online was maintaining a strong focus on oral language development. Modelling explicit facial expressions, lip movement, and pronunciations is crucial to early oral language acquisition (Price, 2012). Using a Zoom platform provided synchronous speaker views during lessons, allowing students to see the teacher's mouth movements and pair them with auditory phoneme cues. When minor issues occurred with the synchronization of the audio and visual cues, teachers encouraged students to independently produce the sounds while they waited for the video to synchronize and then repeated the prompt. The teachers also overemphasized their speech patterns and facial expressions during the lessons to help students attend to the pronunciation movements.

Also critical to the oral language lessons was increasing the number of opportunities for children to repeatedly practise pronouncing speech sounds and pairing auditory phoneme cues with visuals of letters.  Teachers first explicitly introduced a letter, emphasizing the sounds with the entire group of students, then together, students practiced pronouncing the letter sounds and applied target sounds to different words, responding in a choral manner. To close, students were encouraged to independently brainstorm words with the target letter, sharing their ideas with the online group.

Finally, our online project design considered ways to enhance students' oral participation in extended discussions. Teachers built discussion topics around shared online experiences. Whether it was a shared read-aloud or creative building activity, common experiences created a shared context, which became the foundation for the meaning of the talk that followed (Hirsch, 2003).  Teachers also supported students in sharing and elaborating their own, and others' ideas by modelling elaboration and explanation in their speech, posing questions that required students to expand or qualify their thinking (Nystrand et al., 2003).

### Creating Opportunities for Hands-On Manipulatives

One of the most critical goals of our project was to provide students hands-on learning experiences. These experiences offered crucial opportunities to encode literacy learning through sensorimotor pathways (Wellsby & Pexman, 2014). Children who are offered learning opportunities through various playful engagements with language, materials, and physical exploration in real-world contexts, readily close the literacy gap (Glenberg et al., 2013). Simply

moving objects around on a 2D computer screen would limit pre-operational children's knowledge transfer (Moser et al., 2015). Hence, our online lesson design drew on three aspects of embodied cognition: engaging significant physical movement, utilizing activities to develop the small muscles in children's hands (fine motor movements), and structuring fine-motor activities that drew on real-world application of early literacy skills.

Screen use is often considered a passive activity. All our lessons included at least one activity that engaged large physical movements, including standing up and large movements. For example, during lessons, students were asked to stand and act out physical movements associated with the letters and their accompanying phoneme (e.g., becoming tap dancers tapping their feet while enunciating the /t/ sound).

To build fine motor skills with real-world activities, pre-packaged kits corresponding to the lessons were sent to each child. The kits contained small manipulatives that could be sorted, constructed, or sequenced, building skills that underlie early literacy (Suggate et al., 2016). These kits often encouraged creativity and play linked to real-world constructions, such as using Lego to build animal enclosures at a zoo and letter stamps, markers, and stickers to create signage for zoo enclosures. Children were then asked to describe and explain their design choices, connecting their fine-motor constructions to extended talk and vocabulary, promoting embodied cognition of early literacy (Glenberg et al., 2013).

## A New Model for Professional Learning

Although significant modifications and careful lesson design were required to move a classroom intervention program online, we saw benefits in this new medium. First, as we employed a Zoom format, we recorded the online sessions without disruption to the students. Video recordings were later viewed with the kindergarten teachers together through a professional learning community. Then we collaboratively deconstructed the lesson design and delivery, developing an understanding of the activities that fostered oral participation and enhanced transference of early literacy learning. These recorded sessions also allowed for a close critique of the lesson design, enabling modifications of subsequent lessons through the design-based research process.

While the use of Zoom required an additional adult helper to facilitate the online lessons, this was also beneficial in other ways. Parents were present during lessons and watched as the teachers modelled different interactions that build early literacy skills. For example, parents learned firsthand the types of questioning that can be highly engaging and build early inferencing skills during read-aloud. Had this intervention program been carried out in the classroom, parents and teachers would have had fewer opportunities to learn from this project. In the original project, parents would not have been present in the classroom. Teachers managing the remaining students in the classroom would also have had fewer opportunities to focus on the specific learning techniques employed by the researcher with small groups of students. By mobilizing our project online, we discovered important understandings of how to deliver an effective supplemental early literacy program using a medium that can reach more children in remote places. Research into the efficacy of online early literacy delivery versus in-person sessions and the measured effects on early literacy skill development added to our understanding of the power of this medium.

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**Appendix A**

**Lesson Structure: Zoo Theme**

**Opening:** Welcoming Children, trouble shooting and circle share time
*Objective:* Relationship building and connections to last week's lessons

**Activity #1:** Phonemic awareness song
*Objective:* Discriminating sounds and snakes identifying initial sounds for different animals.
    *Materials. Party in the Jungle by Kathleen Bostrom*
    *Instructions.* Students will stand up and perform corresponding actions to the each of the animals that come up in the song. Students can brainstorm the sounds or actions the animals will make that match the first sound of the animals' name. Ex. Hippos – hip & hop, Baboons – Boo, boo, boo, boogaloo, Hyena – Hee, hee, ha, ha
 Teachers can sing song on their own or link to YouTube video accompaniment
https://www.youtube.com/watch?v=KR-c0FXR9sA

**Activity #2:** Read Aloud: The View at the Zoo by Kathleen Bostrom
*Objective #1:* First read through vocabulary and core knowledge building
   1. Introduce **key vocabulary** to facilitate **discussion & knowledge.**
      *Tier 2 words*. creatures, habitat, enclosure relationship, needs, view, primp, preen, prance, cause & effect words (if-then, because)
      *Tier 3 words & Core knowledge words.* "tower of giraffes", Marsupials, Australia, pouch, symbiotic
        Teachers use a text talk for this read aloud. They choose two or three words from the list above and introduce and discuss the target words before reading. During reading teachers stop at target words, discuss the target words and new context.
   2. Students identify (with action or auditory signal) rhyming words as teacher reads
      *Possible rhyming words*: bear/hair, nose/toes, straight/great, do-zoo, feet-beat, speak-shriek, stop-pop, fright-bright, sleep-sheep
*Objective #2*: Second read through students will focus on habitats and needs of animals
   1. Review what habitat and needs mean. Discuss in context of habitats and human needs and providing proper enclosures for animals.
   2. Stop at predetermined pages and ask students to discuss the things in the animal's enclosures that the animals need.

**Activity #3:** Building a zoo animal enclosure
*Objective:* Facilitate **fine-motor skills** and **real-world literacy application**
      **Instructions and materials**. Each student will receive an activity kit with the following,
- Large bag of Lego bricks & base plate (labelled zoo materials)
- Small bag of plastic zoo animals (labelled zoo animals)
- Bag of 4 stand up signs covered in construction paper
- Bag of writing supplies including letter stamps, markers, and animal stickers
    Children are given 15-20 minutes to choose an animal, build an enclosure and make signage for their animal. During the building process the teacher will interact with

students asking prompting questions and reminding students to think about the needs of the animals and the visitors to the zoo.

Prompting questions: (focus on cause-and-effect words)
- o Why did you choose that animal?
- o What kind of needs does your animal have?
- o How will you make your animals comfortable?
- o What do visitors to the zoo need to know about your animal?
- o What kind of signs would you include by or around your animal's enclosure?
- o How would you group the enclosures together? What makes the most sense for the animals? What makes the most sense for the humans?

**Activity 4: Share Out & Discussion**
*Objective:* Students incorporate new vocabulary as they engage in discussions to explain their thinking.

   **Instructions.** Share your enclosure and why you chose to build it the way you did? (Emphasize & prompt cause and effect words) Ask every student to listen carefully and comment afterwards on what they would have done differently and why? If two or more students choose the same animal how are their designs different?

**Activity #4: Closing Activity**
*Objective:* Students reflect on the session.

   **Instructions.** Students are asked to reflect on their favourite part of the lesson. Students describe one word or idea that was new to them today. Students can contribute ideas that they would do differently.

**Additional Optional Activities:**
1. Comprehension questions developing inferencing: Discussion of why the animals were relieved that the humans went home at the end of the day? (reference book pages 34-35)
2. Have students sort their bag of plastic zoo animals. Explain how they categorized the groups (by colour, initial sound, where they live, what they eat).
3. Students independently or with the teacher in the group could sort word cards with animal names on them by initial sound, number of syllables, number of letters.