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Table of Contents

Volume 47, Number 1, 2021

FROM THE EDITOR'S DESK

2 Sherry Woitte

FEATURE ARTICLES

Play, Oral Language, Writing and Cultural Relevance in
Northern Rural Kindergarten Classrooms: Teachers' Roles

3 Jade Kim, Audrey Madsen
and Shelley Stagg Peterson

Mindful Practice in Kindergarten to Grade 3 Classrooms

9 Kimberlee C Wrathall

New Insights from Embodied Cognition About Children's
Learning of Language and Concepts

16 Lorraine D Reggin and
Penny M Pexman

BOOK REVIEW

*Read with Me : Engaging Your Young Child in
Active Reading*, by S Cleaver and M Richardson

25 Christina Leung

From the Editor's Desk

This is my first issue as editor, and I am excited for this opportunity. First, I want to take this opportunity to thank the former editors, Miwa Aoki Takeuchi and Cynthia Prasow, for their hard work and support of the journal.

I am so pleased to offer the latest edition of *Early Childhood Education*. Despite the challenging year that we have all had dealing with the COVID-19 pandemic, the journal includes new and exciting information on early childhood practices and research. I hope this edition finds our membership and readers well and managing during this ongoing stressful time.

This issue includes three articles and one book review that span several areas and topics that I think you will find particularly pertinent.

In their article, "*Play, Oral Language, Writing and Cultural Relevance in Northern Rural Kindergarten Classrooms: Teachers' Roles*," Jade Kim, Audrey Madsen and Shelley Stagg-Peterson show how two kindergarten teachers in northern Alberta classrooms take up roles that support children's oral language and writing during classroom dramatic play. This research focuses on how play contexts encourage children to build on their background experiences and knowledge to make meanings that reflect their rural life and culture.

Kim Wrathall examines research about mindful practices in the classroom in "Mindful Practice in the Kindergarten to Grade 3 Classroom." She looks at both long-term and short-term studies relating to

children in kindergarten through Grade 3. This topical examination highlights self-regulation strategies for lifelong learning.

In their article, "New Insights from Embodied Cognition About Children's Learning of Language and Concepts," Lorraine Reggin and Penny Pexman discuss new research in cognitive theory and education. The article looks at recent research about how the mind works might inform teaching practices in early childhood. More specifically, there are discussions about the role of the body, sensory motor development, sensorimotor vocabulary, fine motor skills, and sensorimotor motor processing and reading. Reggin and Pexman conclude with many concrete teaching ideas connected to this research.

Christina Leung reviews *Read with Me: Engaging Your Young Children in Active Reading*, by Samantha Cleaver and Munro Richardson, from the perspective of an early childhood teacher and examines how active reading might be facilitated in the classroom.

All articles in *Early Childhood Education* are peer reviewed by our dedicated reviewers. We appreciate their constructive feedback to maintain the quality of this journal.

I hope you enjoy the 2020 issue of *Early Childhood Education*!

Sherry Woitte
University of Alberta

Play, Oral Language, Writing and Cultural Relevance in Northern Rural Kindergarten Classrooms: Teachers' Roles

Jade Kim, Audrey Madsen and Shelley Stagg Peterson

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In this paper, we show how two kindergarten teachers in northern Alberta classrooms, Polly and Kahli (all names are pseudonyms), take up roles that support children's oral language and writing in classroom dramatic play. Their practices offer a counterargument to those who perceive school as a place where children learn to read and write only through formal pencil-to-paper activities (Kane 2016; Stagnitti et al 2016).

The play contexts encourage children to build on their background experiences and knowledge to make meanings that reflect their rural life and culture. Through analysis of excerpts of dramatic play interactions in the two teachers' classrooms, we make a case for the importance of play in young children's language and literacy learning, and for the need to consider rural culture and experience in conversations about culturally relevant learning experiences (Ladson-Billings 1995).

This paper draws on data from our Northern Oral language and Writing through Play (NOW Play)

project, in which kindergarten teachers use play as a context for developing children's language and writing in their collaborative action research projects. As long-time residents of their rural communities who are familiar with perspectives, values, activities and rhythms of rural life in their communities, participating teachers consciously integrate rural experiences and perspectives in classroom play and literacy activities.

Through this paper, the oft-overlooked voices of rural teachers, such as Polly and Kahli, can join those of urban teachers, whose work is most frequently presented in educational research (Burton, Brown and Johnson 2013). For example, Polly's and Kahli's classroom activities draw on rural children's experiences, such as riding a school bus down a gravel road or riding an all-terrain vehicle with family members through the bush or across a field. These experiences are far less likely to be documented in research reports in early childhood settings than the experience of riding a subway, LRT or city bus through city streets where many intersections have stoplights. Given the focus on urban education in research and policy, rural teachers may "feel like they are dancing a dance choreographed in an office in the city" (Corbett 2014, 8). Along with the challenges of trying to modify the dance to fit their rural contexts, rural teachers may feel that their practices are less important, and peripheral to those of urban teachers (Corbett 2014).

We begin with a short summary of theoretical perspectives and research on young children's oral language and writing development, the role of play in children's learning, and teacher scaffolding of children's language and writing.

Perspectives and Relevant Research

This study is based on a view of literacy learning as a social process of constructing meaning (Hetherington, Parke and Schmuckler 2005; Vygotsky 1978). Young children in kindergarten classrooms make meaning through marks, drawings, letters or letter-like forms (Anning 2003; Lancaster 2007). Thus, any form that is used to communicate with others is considered to be writing. Given the social nature of literacy, it follows that oral language is foundational to literacy. Young children learn new vocabulary and ways of meaning making through interacting with others in various social contexts (Owocki and Goodman 2002; Resnick and Snow 2009). Dramatic play has been shown to be a particularly effective context for supporting children's language, literacy, social and conceptual learning, problem-solving and divergent thinking skills, and creativity (Bennett, Wood and Rogers 1997).

Teacher support of young children's oral language may take the form of suggesting possibilities, posing a problem or expanding on children's language (Peterson and Greenberg 2017) and funds of knowledge (Esteban-Guitart and Moll 2014). Previous studies also emphasize the importance of using open-ended questions (Turnbull et al 2009).

Much of the research on the teacher's role in writing instruction involves planned lessons in which teachers ask questions, explain or model writing processes, and use published texts as model text forms in whole-group or small-group settings (for example, Coker 2007; Watanabe and Hall-Kenyon 2011). Teacher-directed lessons are followed by independent writing time that often includes opportunities for children to talk with each other as they write.

In the following sections, we describe Polly's and Kahli's kindergarten classrooms and the data sources for our study. We follow this with a discussion of our analysis, showing how the two teachers took up roles that supported children's language and writing in ways that align with and extend previous research, and how they drew on rural experiences.

Research Methods and Contexts

The larger NOW Play research project involves 13 schools in four Canadian provinces. All participating teachers used iPods set up on tripods to record children's play in their classrooms,

uploading the videos to a project website for analysis. Graduate assistants transcribed the videos using Jefferson notation (Atkinson and Heritage 1999) to record the utterances and associated actions of all participants in the play.

Polly, who has more than 30 years of teaching experience, teaches in Aspen; Kahli, who has 5 years of teaching experience, teaches in Deerview. Aspen has a population of approximately 2,700, and Deerview's population is approximately 350. At the time of the study, Kahli had 4 kindergarten students, 3 boys and a girl, in her class. They arrived by school bus for full days on Mondays, Wednesdays and Fridays. At the time of the study, 20 girls and 12 boys attended Polly's kindergarten class half time, with some attending only in the mornings or afternoons and some attending two full days per week. English is the mother tongue of Polly, Kahli and all the children in their classes.

Kahli's classroom was spacious, with room for a large sand table, which is the site of the video clip used in this paper, as well as dramatic play centres with themes such as a restaurant and a store, and a construction centre. During centre time, which was approximately 45 minutes in the morning and 45 minutes in the afternoon, children chose to play at one of the centres.

Polly had two large classrooms located across the hall from each other. The room that is the site of our study houses the sand centre, climbing equipment, a puppet theatre and a two-story frame house that had also served as a restaurant, a store and other buildings, depending on the dramatic play theme of the month. Children were expected to visit every centre at least once during the twice-daily 45-minute centre times in a month.

For this paper, we chose one video from Polly's class and one from Kahli's to examine teachers' roles that support children's language and literacy, and that provide culturally relevant learning experiences for their rural students (Table 1 has information about the videos). The videos were chosen because of their extended length and for their culturally relevant content. We analyzed the ways in which Polly and Kahli scaffolded children's language and their writing, and the ways in which they created culturally relevant contexts for their rural children's learning.

TABLE 1. Video theme, length and participants

Type of video	Type of play	Teacher (pseudonyms)	Children involved (pseudonyms)	Video length
Farm in the Sand Table	Dramatic	Polly	Ryder, Jace	9:10
Building Bridges	Construction	Kahli	Melitta, Ruth, Alexis	17:25

Teacher Roles: Creating Culturally Relevant Contexts and Scaffolding Language and Writing

Our analysis showed that Polly and Kahli scaffolded children’s language by taking on a role in play, asking prompting questions and helping students negotiate storylines. They scaffolded writing by modelling purposes for writing within dramatic play narratives and by inviting children to create texts to communicate with others in the play.

Supporting Language: Teacher Takes a Dramatic Play Role and Explains New Vocabulary in Context

This excerpt shows Kahli playing alongside three students using kinetic sand to build things collaboratively. When Kahli joined, the group had constructed some bridges and roadways between land masses. Kahli started to play, using a toy rake to first prick holes along the roadways, then to push the edges of the road back together as shown in Figure 1.



FIGURE 1. Kahli uses the blue rake to straighten the edges of a road, like a grader.

Kahli: rrrrrr [engine noise as she pushes the rake along]
Alexis: Ah!

Kahli: I’m grading the road.
Ruth: Uh-oh they grade the road here.
Kahli: Rrrrr
Alexis: Don’t grade the hills!
Melitta: Don’t grade it! [pounding the sand to smooth it down]
Kahli: Why not?
Alexis: No. Don’t don’t don’t. [rolling over sand]
Kahli: Did you know that’s actually how they fix the roads? Grade them.
Alexis: Don’t grade the roads. I’m fixing them. With nice flat road.

We observe Kahli using a strategy to develop students’ oral language skills when she introduces new vocabulary at the sand table. While she is playing in role with the students, she uses her hand-held rake to straighten the edges of the road. She uses specific vocabulary related to children’s rural lives, where gravel roads must be graded when they become rutted, explaining that she is grading the road while moving the toy as a demonstration. The students repeat and engage with the new vocabulary. Shortly after, Kahli provides a specific definition of the new vocabulary, describing it as “that’s how they fix the roads. They grade them.” She and the children then talk about one child’s dad, who drives a grader, and tell stories of watching the grader go past their farmyard or acreage. Together, they search for pictures of graders on websites and then the children make graders out of Play-Doh to use in the sand. The children and Kahli make lumps in the sand and then use their graders to smooth out the lumps.

Beck, McKeown and Kucan (2013) suggest that for early learners, the best way to learn new vocabulary is orally and in context. If possible, children should have opportunities to hear and say the word multiple times, in order to reinforce their new learning. Children can make connections between what is familiar and contextually relevant to them (for example, their observations of the grader smoothing out the road past their farmyard) and the new vocabulary. In this particular instance, Kahli uses the play setting to introduce and reinforce vocabulary that reflects children’s rural experience.

Supporting Language and Writing: Negotiating a Storyline That Includes Print

Polly often participated in children's play, taking on roles that allowed her to support children's language, literacy and conceptual learning. Her action research involved introducing writing by creating signs that are meaningful within the play contexts. She had previously made signs with cardstock glued to popsicle sticks, placing them in a container beside the sand centre. She introduced the signs by asking children to describe signs that they saw on their way to school and to hypothesize why the signs were there. Like Kahli's example above, Polly also draws on children's own rural experience to aid in the process of learning. Polly invited children to create their own signs using the popsicle stick signs she had made. She instructed children to stretch out the sounds of words they wanted to write on the signs and use whatever letters or marks they knew to write the words. Later that morning, Polly was at the sand centre with a group of children, facilitating their sign writing. The following interaction has been previously published in a teacher's resource from many participating teachers' action research projects:

Polly asked: "Have you ever seen a sign that says, 'Keep out. No trespassing?'" The children nodded and Polly got some paper to write a sign for the farm in the sandbox. She asked, "What do you think 'keep' starts with?" The children suggested the first letter "k", and Polly helped out with the two "e" letters in the middle and the children provided the final letter "p". She explained that the "ou" sound in "out" is tricky and wrote it for them. She then asked the children to provide the final letter after repeating the /t/ sound. Polly placed the sign in the sandbox and the children discussed whether it was friendly or unfriendly to have a "Keep Out" sign and why such a sign might be needed (Portier and Peterson 2017, 25).

On another occasion, two boys, Ryder and Jace, are bending over a sand table to build a farm using animal figurines including pigs, horses, sheep, cows and donkeys, as well as a farmer. Each child comes up with a sign for the farm, as shown in Figure 2.



FIGURE 2. Responding to Polly's prompt, Ryder and Jace came up with the signs for their farm.

Polly: Well, maybe we should make a sign for our farm. Here's a sign. What do you think that says?

Ryder: Umm ... it says ... "Come look at these animals!"

Polly: Come and get these animals?

Ryder: No, it says "Come look at these animals! They're so cool!"

Polly: What does the sign say? What's the sign say, Jace? You can decide what it says.

Jace: I want to say, "No going into the fence."

Polly: "No going into the fence." Then that's what it says!

Ryder: No, my—no, this sign says "Come look at these animals. They're so cool!" That's what it says, Jace!

Polly: He says—his sign says the opposite. His sign says "Don't go by the animals." So maybe you can put your sign over by—

Jace: It says "No going in!"

Polly: Oh, "No going in!" So you're saying "Come look at them!"

Jace: Yeah. No leaving the door open.

Ryder: But they can't go in. They can't go in.

Polly: That sounds like a really good rule. They can come look, but they can't go in.

Joining children in this interaction, Polly contributes to advancing the narrative by suggesting that the students make a sign for the farm and prompts each student individually. The children are encouraged to provide their own opinions and each comes up with an idea. Children use ways of expressing their needs (for example, "I want to say") and correcting someone else's misunderstanding (for example, "No, it says"). As Jace gives his suggestion, Ryder thinks that Jace's idea is contradictory and asserts his own idea. Polly then adds her explanation and suggests a solution to this contradiction when Jace interjects to explain the meaning of his sign further. In response, Polly again makes a comment to resolve the misunderstanding,

clarifying that the children's signs do not express opposing ideas.

While children are already interacting with each other to create a storyline and negotiate the signs themselves, Polly extends their conversation, narrative and learning in play by prompting children to give their own ideas, helping them to negotiate opinions and resolve a misunderstanding, and summarizing information. She creates an authentic context for the children's communication through print by suggesting that they create and use signs to direct the play narrative. It is important to note that the setting of dramatic play has been constructed using a farm, which can be easily found in the children's rural settings, so that students can draw on their cultural experience as part of funds of knowledge and reflect these understandings in the narrative.

In the final section, we suggest ways in which teachers might draw upon Polly's and Kahli's play-based practices to support young children's language and writing in their classrooms.

Culturally Relevant Language and Literacy Learning Through Dramatic Play

Other teachers may benefit from Polly's and Kahli's examples in order to create culturally relevant contexts that support young children's language and literacy (Ladson-Billings 1995). Teachers might begin by getting to know their communities' perspectives and values, and participating in or at least being familiar with community activities. Examples from rural and Indigenous communities might include harvest fairs, rodeos, tractor pulls, drumming and dancing ceremonies, First Night festivals, hockey or soccer tournaments, ice fishing, farmers' markets and so on. These community activities and events can be the themes for dramatic play centres that are reflective of children's lives so that children can draw on their funds of knowledge (Esteban-Guitart and Moll 2014).

Teachers can then introduce the themes, activities and objects in the centre through field trips, guest speakers and modelling. Modelling may involve taking on a role in the children's play narrative and capitalizing on the natural opportunities that arise in play to introduce, define and practise using new words (Beck, McKeown and Kucan 2013). While children play in the centre, teachers may, as Polly and Kahli did, participate in keeping the play narrative moving by asking open-ended questions and offering opinions and possible ways to resolve

misunderstandings. Additionally, because many community activities and events involve print, teachers may also model various uses of text in the play narrative (for example, signs, posters, tickets, brochures, schedules of events, instructions, directions, and programs that list the activities and the people carrying them out). In kindergarten, the meanings of these texts may be communicated through drawings, scribbles and print (Anning 2003; Lancaster 2007).

In addition to serving as a culturally responsive, open-ended pedagogical tool, dramatic play provides an authentic context for teachers' observations and assessments of children's uses of oral and written language for meaning making and communication. This is especially important for teachers in nonmainstream communities because the limited culturally responsive tools for assessing children's written and oral language tend to remove children from authentic interactions (Alberta Education 2018; Dunn and Dunn 2007).

Dramatic play settings offer rural, urban and suburban teachers the flexibility to create themes that engage children in authentic interactions using oral and written language. Play is open ended and allows teachers to use children's inquiry to guide curriculum engagement. Students are able to draw on their home and community experiences to choreograph dances with their teachers that support children's language and literacy.

Acknowledgements

We would like to thank participating children and their teachers, as well as members of the communities in which they live. Please note that we would like to name our collaborators because their conversations about the children's play have in many ways made them coauthors of this paper. To do so, however, would compromise the anonymity of their communities and the children in their classrooms, which we have promised community leaders that we would honour. We are also grateful to the Social Sciences and Humanities Research Council for funding this research through a partnership grant.

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Mindful Practice in Kindergarten to Grade 3 Classrooms: Building Social-Emotional Skills Through Experienced Practitioner Implementation

Kimberlee C Wrathall

Kim Wrathall has been working as a kindergarten teacher for the Calgary Board of Education for the last 16 years. She is also the Early Childhood Education Council's Issues, Events and Ideas newsletter editor. Having just completed her Master of Education in June of 2020, with a focus on mindful practice in kindergarten to Grade 3 classrooms and its effects on social emotional learning, she found a consistent gap in the research relating to this age group. In the review of the literature, noticeable trends and information gathered spoke to the positive impacts that mindful practice made when trained practitioners were used and to the need for more long-term studies to provide further data on the impact of students in this age range.

Abstract

The investigation of mindfulness practices and their implementation shows a gap in long-term studies with students from kindergarten to Grade 3. Short-term research observes significant positive impacts on well-being, cognition, academics and classroom culture when experienced practitioners implement mindful practices. Conducting long-term studies to support mindful practice would provide concrete evidence on the success of implementation when applied early in a child's learning journey. By providing young learners with the necessary self-regulation strategies for lifelong learning, the needs of the whole child are being met.

Keywords: mindfulness, social-emotional learning, early learning, self-regulation, academics

Classrooms today come with various commitments beyond those of academic rigour and advancement in learning. Considering a child's emotional needs is essential to their well-being and success in school. When a child's emotional needs have not been met, the impact on their overall ability to function in a classroom space is significant. The emotional, cognitive, physical and spiritual needs of the whole child must be considered. Social-emotional learning (SEL) has often been referred to as the missing piece, embodying a part of education that is inextricably linked to school success (Lawlor 2016). Historically, SEL has not been explicitly acknowledged or prioritized in public education in North America (Lawlor 2016, 67). Mindfulness-based education is closely aligned with SEL and meeting children's overall needs (Lawlor 2016). A regular mindfulness practice, especially when guided by an experienced practitioner, can benefit individual students, as well as contribute positively to a classroom learning environment.

Mindfulness and Its Benefits

Mindfulness is the intentional practice of "present-centered, non-judgmental attention" (Young 2016, 31). To be mindful in a classroom is to guide students through awareness of self by building emotional regulation skills and making connections that promote positive social interactions and academic success. Implementing SEL skills like mindfulness early in students' learning has the ability to create positive effects long term (Napoli, Krech and Holley 2005; Durlak et al 2011). The focus on

mindful practice helps children make connections within the brain. These connections help children learn to be present and aware, so they can process emotions. Building pathways through cognitive flexibility, inhibitory control and working memory is most effective when students are regulated (Zelazo and Lyons 2012). As educators, our impact on building these neural pathways starts with modelling strategies so students know how to cope with stressful situations. Mindful practice, when implemented by an experienced practitioner, is one of these strategies.

Research has shown that implementing long-term, intentional mindful practice to improve social-emotional regulation and academic achievement positively influences well-being and school success (Jennings 2016; Lawlor 2016; Lantieri et al 2016). As a noted problem of practice, research in this area of learning from kindergarten to Grade 3 has been limited. Many studies relating to this subject matter are small scale and short term, often relying on qualitative data and observation from teachers. Relying on educators' perceptions leaves information open to contradiction due to potential biases in statistical data. Lawlor (2016) comments that there is a missing piece of evidence of how mindfulness-based practices provide support for the improvement of SEL in an educational setting. This gap in the research opens up many questions about mindful practice and its effectiveness when each study has more questions than answers.

Understanding mindful practice is of utmost importance in the process of implementation. Mindfulness is the practice of paying attention on purpose, in the moment and without judgment (Kabat-Zinn 2003). It requires moments of pause and intentionality in being aware of feelings and emotions within yourself (Zelazo and Lyons 2012). To learn how to be present, focus on the breath and be in the moment takes time and direct instruction and practice for adults and children. Educational practitioners need to have a fundamental understanding of the practice before teaching children how to use it. For a child being guided to notice and build awareness internally, it has a substantial impact on SEL skills (Jennings, Demauro and Mischenko 2019).

Reflexivity Statement

Embarking on this exploration of mindful practice came from my own desire to reach my students' emotional needs with greater impact. Dysregulation was having a significant influence on classroom culture, the students and myself. Applying my own

practice and then using the understanding and research I had gained to build intentional mindful breaks into the foundation of my classroom was the basis of my work. The impact was swift and immediately guided me to looking further into research done specifically for kindergarten to Grade 3 students. This investigation led me to discover a notable gap in concrete long-term studies conducted specifically for young learners. This problem of practice became my foundation in exploring further why long-term studies were so limited, what was the consensus about the impact on SEL for these learners, and what challenges were affecting researchers in further investigating this age group.

Significance to the Profession

Why is having long-term studies in the area of SEL in kindergarten to Grade 3 classrooms so important to our profession? When new ideas are shared within the pedagogy of our field, it is important to also have reviewed them with some rigour and understanding of why they make an impact on the classroom setting. As an educator, I can state openly that something works and holds true, but when we become active members in reviewing the research that has been conducted, it furthers our field as professionals. SEL has great significance for all educators at a time when mental health is so important to our classrooms and our own well-being. Having current evidence of the benefits of mindful practice to present to administration, parents and colleagues builds direct action and implementation that is informed and effective. Building the capacity to further acknowledge and take action for areas of SEL is critical. Often, as educators, we forget that we need also to be researchers of our craft. In this article I will share why I think this is so important to all teachers. In conducting a review of the literature to support my own pedagogy, I found some significant gaps that are worth noting.

Reviewing the Literature

Data analysis comprised an integrated literature review of both quantitative and qualitative data (Torraco 2005). Using a research matrix that coded the information by theme and narrowed the focus to kindergarten to Grade 3 and journalling my findings became a reflective process that made me focus deeper on the heart of why this was so important to the SEL of young students (Machi and McEvoy

2016). Knowing the impact it had made in my own context, I became more curious as to why there was so little information on this subject. Assembling the data, organizing the information by subject and analyzing patterns provided concrete evidence of my problem of practice (Machi and McEvoy 2016, 85). Having a process that critically reviewed and synthesized my topic allowed me to build on my knowledge and understanding, look for gaps in my own thinking and understand my own biases in the work (Torraco 2005). Having a clear plan of action in the writing and reviewing of content in the area of mindful practice and SEL was incredibly important. Specific themes emerged: SEL, executive functioning, attention, mindful practice in young learners and teacher training of mindful practice. Because of the ever-changing nature of this field of study, it was important to me to cite research conducted in the last 20 years unless an older resource was a primary reference noted by many. In conducting the integrated literature review, I also reviewed articles that noted biases or areas of concern in the field. These articles spoke specifically to limited sample sizes, biases in methodology, reliability of student responses and teacher influence on results.

Narrowing and developing my themes was based on the connections made in the literature. Repetition by researchers throughout the articles focused on cognitive connections in learning, training by professionals and improved academic achievement when mindful practices were used. Moving forward in my review, these were the areas of focus in developing a better understanding of the gaps in early learning and the next steps in this area of SEL.

Findings

Kindergarten to Grade 3 SEL is a problem of practice that demonstrates a lack of investigation. There are minimal studies related to this group (Durlak et al 2011). Significant occurrences of dysregulation among students in schools and the lack of research imply that this problem of practice needs to be investigated and focused on (Durlak et al 2011; Lawlor 2016; Jennings 2016). In conducting an analysis of mindfulness practices, SEL, academic achievement and executive functioning, the consistent message from researchers is that more investigation and long-term studies relating to implementation need to be conducted (Lawlor 2016; Jennings 2016; Napoli, Krech and Holley 2005; Durlak et al 2011). Researchers noted repeatedly that they could see benefits in the implementation of mindful practice

and that in smaller short-term studies it appeared to make a significant impact on SEL and academic success (Durlak et al 2011; Jennings 2016; Lawlor 2016; Zelazo and Lyons 2012). Without long-term studies that focus on teacher training, classroom culture and consistent daily implementation of mindful practices, it is challenging to know the overall positive impact that mindfulness practices make on students. The validity of the research has been questioned for reliability because of teachers collecting data from their current students and the age of the students. My further investigation raised additional questions about whether schoolwide implementation, if continued for students past kindergarten to Grade 3, would provide tools for vulnerable students reaching into adulthood and lay the foundation for SEL and academics.

As noted by Jennings, Demauro and Mischenko (2019), “it has become more evident than ever that we must prioritize resilience and adaptability so we can cope with these rapid social changes” (p 3). To find ways to “calm our nervous systems and tackle change we need to acknowledge the desire for mental clarity and emotional calm through kindness to others” (Jennings, Demauro and Mischenko 2019, 3). Through “mindfulness and compassion-based practices growing popularity, it is suggested that many are starting to recognize these practices as a way to cultivate strengths in emotional well-being” (Jennings, Demauro and Mischenko 2019, 3).

There is consensus that mindful practice has a positive impact on young learners. In the largest study conducted, results showed a 95 per cent confidence interval obtained across all categories in the area of mindful practice intervention (Durlak et al 2011). Further to this information, when compared to the controls in this sample of 213 school-based universal interventions, students “demonstrated enhanced SEL skills, attitudes, and positive behaviors following [an] intervention, and showed fewer conduct problems and levels of emotional distress” (Durlak et al 2011, 412–13). Interpretation of this data noted that mindful practice was a powerful tool for increasing self-awareness and attention, executive functioning, academic success, and overall well-being. Also noted in Durlak et al (2011), an area of importance was that because of this positive intervention, there was significant improvement in academic success. The research shows that “the average member of the control group would demonstrate an 11-percentile gain in achievement if they had participated in an SEL program” (Durlak et al 2011, 417). This additionally embraces the importance of balance and of the needs of the whole child being upheld. Further investigation noted a strong message in

both the medical and education fields on the impact of mindful practice and the necessity for further research in the area of mindful practice for kindergarten to Grade 3 students. The US Public Health Service has now claimed that “mental health is a critical component of children’s learning and general health ... fostering social and emotional health in children is a part of healthy child development [and] must, therefore, be a national priority” (Durlak et al 2011, 420). As noted by many in the field (Jennings 2016; Jennings, Demauro and Mischenko 2019; Durlak et al 2011; Lawlor 2016; Roeser 2016), much of the lack of research being conducted is due to insufficient funding and lack of permission to conduct long-term studies with children that are so young.

This area of study is in the contemplative sciences or contemplative education (Dorjee 2016).

Contemplative sciences relate to the interdisciplinary study of metacognitive self-regulation and the natural propensity of the mind to enable introspective awareness and mental processes (Dorjee 2016). As this area of research is becoming more widely recognized, more research is being conducted with adults, with the potential for children to play a more active role (Dorjee 2016). Learning of this area of methodology worked to further inform my research. Gathering this knowledge of educational and medical fields, as a comprehensive area of study, allows me to see that mindful research practices, although in their infancy, are being considered. As noted by Dorjee (2016), the term “contemplative is now being frequently used in the field of meditation research” (p 1). As the wording implies, contemplating is much of what mindfulness practice entails and therefore it makes sense to use this as an area of guidance in reviewing the literature.

Trends

Significant trends in the research include a focus on implementing a mindful practice through meditation, awareness and well-being. With mindfulness being a current area of interest to many, numerous articles have been written related to its effectiveness and well-being for adults. When looking more specifically at young children, the research narrows dramatically. The transition of building mindful practice into the classroom has only more recently been a factor when discussing SEL and the perceived increase in dysregulation of students. As we head back into the classroom in the middle of a global pandemic, this becomes increasingly important.

Durlak et al (2011) note that when student engagement decreased due to lack of social-

emotional competencies, it had a negative impact on academic success, behaviour and health. Mindful practice has been introduced as an option to combat this area of need only within the last decade (Durlak et al 2011). The focus of the work has been on how teachers can implement the strategies, with less about the impact on students themselves. Only recently has there been research examining the components of a mindfulness approach, the importance of teacher training in implementation, and its effectiveness and impacts on both social-emotional and academic learning. Prioritizing regular contemplative SEL practice in schools creates the conditions for young students “to become healthy, compassionate, competent, and contributing citizens of tomorrow” (Lawlor 2016, 77)

Themes related to this practice involve mindfulness-based intervention, teacher training, executive function, academic achievement and the impact of having a whole-school approach. Discussion throughout the articles examined stated that if a mindful practice was to be implemented in school settings, teachers need to be trained in the philosophy, conduct their own practice and believe in the process (Durlak et al 2011; Jennings 2016; Lawlor 2016). Shapiro, Rechtschaffen and de Sousa (2016) state that inviting teachers to build skills of mindfulness to gain mastery is not meant to be a way of controlling behaviour, but to teach the mindfulness philosophy and improve well-being. When the mindfulness philosophy and understanding are not adopted by teaching staff, the impact is not felt. Researchers’ future directions note that mindful practice “appears to have the potential to enhance and deepen our educational system” (Mind and Life Education Research Network 2012).

Researchers agree that there is an impact on implementation when mindfulness practice is guided by a trained adult. Opinions differ on how it should be delivered and the frequency of delivery. Many agree that implementation into the classroom culture is significant (Durlak et al 2011; Roeser 2016; Lyons and Delange 2016). Most agree that delivery should be by someone who is trained in mindful philosophies, but disagreement lies in whether that is teachers, counsellors or other experts in the field (Su and Swank 2019). Additionally, discrepancies occur as to whether there is enough research to provide a definitive long-term understanding of the impact on SEL. To date, there are no formal studies that have carried this work from childhood into adulthood. More specifically, only 11 to 29 per cent of studies conducted looked specifically at the duration of mindfulness training programs and their impact in

schools (Roeser 2016). Often these studies cost money long term, which schools often do not have. The question from administration then becomes whether introducing mindfulness-based interventions to improve the SEL and classroom/schoolwide culture is significant enough that it warrants long-term studies (Roeser 2016).

Implementation

Several conclusions on how schools could possibly implement a mindful practice that has a whole-school approach show benefits to both SEL and academics when trained professionals who believe in the process implement it. Having mindful practices as a cultural mindset to enhance student achievement and well-being should be part of everyday schooling. Implementing the practice through professional learning for school personnel creates support for staff in maintaining mindfulness practices in their classrooms, thus encouraging a school culture that values mental health for all who attend.

Researchers in the field have offered numerous ideas on ways to implement these practices through teacher training, student supports between home and school, counsellor involvement, and opportunities for students and teachers to share their thoughts in embarking on this process (Shapiro, Rechtschaffen and de Sousa 2016; Lawlor 2016; Lantieri et al 2016; Jennings 2016). Refining and expanding our knowledge and possible applications in the area of mindfulness education would develop broader directions for future studies in the field and is essential for the next steps in the area of long term SEL research for young learners (Shapiro, Rechtschaffen and de Sousa 2016). Shapiro, Rechtschaffen and de Sousa recommend further analysis of the differing types of mindful practice, examining temporal effects, conducting follow-up assessment, and component analysis as places to start in this process (Shapiro, Rechtschaffen and de Sousa 2016, 94). However, considering mediating variables for implementation, qualitative data analysis and the value of personal practice are all areas to consider as well (Shapiro, Rechtschaffen and de Sousa 2016, 94). Others suggest the implementation of specific mindfulness-based intervention (MBI) programs, like the Inner Resilience Program, Care for Teachers or mindfulness-based stress reduction (MBSR), that train teachers in mindful practices in more prescribed ways (Lantieri et al 2016; Jennings 2016; Kabat-Zinn 2003).

The consensus overall is that long-term studies that span a student's learning career need to be conducted to truly see the impact of mindful practice, implemented by a trained practitioner, on

students' social-emotional regulation and academic achievement. Without these studies, relying on teacher observation creates biases due to the strong relationships educators often build with their students, resulting in data that leans in one direction. Disregarding the need for SEL as an area of need also creates further stress and strain on the education system for both students and teachers (Jennings 2016). When educators are not provided with a means to deal with the stresses of the classroom, through professional development in the area of SEL, it leads to a classroom culture that fails to support the needs of educators and students alike.

Limitations and Challenges

Noted limitations of whole-school research, the willingness of participants, training of professionals, and reliance on observation and reliability of young children's recounts have made research challenging in this field of study (Janz, Dawe and Wyllie 2019). Due to the multitude of directions and ethical concerns with working with small children, there are often constraints on the frequency and willingness of school-based officials in conducting this work. Biases have also been noted in having educators provide narratives as to the impact on their students, often resulting from personal connections that cloud the results. Research consistently demonstrates that even with these challenges of limitations and potential bias, mindful practice creates a positive impact on overall well-being for educators and students regardless of age (Jennings 2016).

Mindfulness practice requires some clarity when being introduced, because there are noted discrepancies between researchers on what mindful awareness actually is (Young 2016). Having strong literature that speaks to these areas of insecurity within the fields of contemplative sciences and contemplative education supports the concerns, with practical guidance that will positively influence the willingness of educators to partake in this important work with their students. Focusing on research from well-known professionals in the field who have been conducting research and practising the philosophy for years is fundamental to its understanding.

As an educational researcher, I encountered my own challenges in realizing the vast scope of my work in this area of mental health. When narrowing the focus from my original research proposal to only SEL, mindful practice and academic achievement, I soon realized that the importance of teacher training needed to be part of the analysis. The research I obtained continued to mention that in order for a mindful practice to positively influence

SEL and academic achievement, it needed to include trained professionals that believed in the process (Durlak et al 2011; Shapiro, Rechtschaffen and de Sousa 2016; Jennings 2016; Roeser 2016; Lantieri et al 2016). Effectively, if this area of the research had been left out, an important component would be absent from the findings.

Direct Connections to the Classroom

As noted above, there are many benefits to the implementation of mindful practice in classroom settings. There are vast numbers of articles about teachers' experiences with students and things they have tried. I can attest to this, as an educator who has seen this first hand in the last three years in my own kindergarten setting. The reason that testimonials are problematic when trying to advocate for funded programs is that, as educators, our own biases, relationships with students and connections are not viewed as concrete evidence for the need to implement a program for students. Having independent, long-term studies conducted by educational researchers in partnership with classroom teachers allows for concrete evidence to be validated and legitimized. SEL would then receive the desired program supports that include training for educators and daily mindful practice being woven into kindergarten to Grade 3 classrooms. This contemporary evidence would directly support the positive impact that mindful practice makes on the overall well-being of the school environment.

Resources in this field are plenty, from books about the benefits to printable items for starting mindful practice in your classroom on Monday. These are all incredibly important in building SEL and mindful practice into any classroom space. This is so close to my heart because I want to be able to see the impact of this work as being part of the fabric of a student's well-being long after they have left kindergarten. When programming is a single-year activity that has great impact and is then never used again, there is little to discuss about its effectiveness on students. SEL and mindful practice should be a long-term, whole-school action that is monitored for the change it makes to the whole child and their social-emotional well-being as they continue their learning journey.


Conclusion

Reflecting, reviewing and being in the present moment are the basis of mindful practice. Embarking on this review of the literature was an act of awareness. Analysis of the data, noticing the gaps and contradictions, and confirming the need

for SEL practices to be implemented for students once they enter school long term was key to understanding the potential impact of mindfulness-based practices. The research affirmed that integrating supported mindful practice improved academic achievement and overall well-being. There is no doubt that implementing mindful practice into school settings has a positive impact overall. Having trained practitioners that believed in mindfulness philosophy was key to its success. The need is strong for further long-term studies to be conducted to address student SEL and for funding to address the needs of students. If students are not able to regulate their own emotions, their ability to focus on learning is negatively impacted. Future studies need to include long-term mindful practice that focuses on young children (kindergarten to Grade 3) improving SEL and academic achievement. Having research that shows the need to acknowledge this as a fundamental area of learning for students would then validate the impact and could ultimately create future funding models for wellness-based learning. School is often seen as an area to build academic success; as this research has demonstrated, the need for emotional well-being for students is just as important.

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New Insights from Embodied Cognition About Children's Learning of Language and Concepts

Lorraine D Reggin and Penny M Pexman

On May 6 and 7, 2019, the Werklund School of Education at the University of Calgary held a Play and Literacy Think Tank with support from an SSHRC connection grant, the University of Calgary Vice President Research and the Werklund School of Education. Approximately 40 teachers, early childhood educators, facilitators in outdoor and indoor physical literacy and active lifestyle, and researchers gathered to listen to world-renowned scholars Bryan Kolb, PhD, Sebastian Suggate, PhD, and Magdalena Janus, PhD, speak about brain development (Kolb and Gibb 2011), the impact of play and fine motor skills on learning (Suggate, Stoecker and Pufke 2017), and current Canadian measures of kindergarten readiness as measured by the EDI (Guhn et al 2016). This paper was inspired by discussions of that event.

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Recent years have seen fairly dramatic changes in our understanding of the mind and brain. Our current understanding may differ from what teachers learned about the mind and cognition in an introductory psychology, educational psychology, developmental psychology or even a cognitive psychology course. In the current article, as researchers in cognitive psychology and particularly in language processing, we consider what recent research shows about how the mind works and describe the implications this may have for teaching.

The Role of the Body

It is not hard to imagine that a child learns their first words through bodily experiences with their environment, and research provides extensive evidence for this (Smith, Maouene and Hidaka 2007). A baby puts objects in their mouth, holds things, moves them around and touches them. Even a very young baby lying on the floor sees a mobile and bats at it with their hands.



FIGURE 1. A baby holds and puts things in their mouth to help learn first words, for example, sock.

This way of experiencing the world through the body is at the heart of the theory of *embodied cognition*, the notion that our knowledge and our representations of concepts are a direct result of our physical experience with the environment (Wellsby and Pexman 2014a). Embodied cognition has changed the way we see the human mind and how we understand children's learning of language and concepts.

Embodied cognition represents a shift in our understanding of the mind because it is a stark departure from earlier theories of cognition. The traditional view of cognition characterized thinking

as the manipulation of arbitrary symbols, representing information much like a computer (Fodor 2008; Pylyshyn 1985). In order to explain the capacity for human language, it was proposed that the mind hosts a language system separate from the sensory and motor systems (Chomsky 1976). In contrast, the embodied cognition view explains much of human language capacity through common sensorimotor systems. The same sensory and motor systems that we use to experience the world are recruited when we store and retrieve information in the mind, whether language information, visual information or emotion information. The mind is characterized as multimodal, using information from sensory, motor and language systems together, and it is this multimodality that supports our cognitive functions.

In short, embodied cognition says that the sensorimotor systems are more important for cognition than was previously thought (Glenberg 2015). In the following sections, we will discuss how the body connects to experiences in the environment, development of children's fine motor skills, and how children's physical skills can shape their cognition and therefore influence learning. We will also discuss the role of the body in children's early word learning and how that contributes to the concepts they develop. We will then discuss the role of embodied cognition in reading comprehension. Finally, we will give a short summary of the main points from the article and implications for teaching and learning.

Sensorimotor Development

In early development, children play and manipulate objects in their environment. These experiences are crucial for the child's visual system to form shape-based categories. Children distinguish objects from each other based on visual shape, and then learn object names that map onto and help refine those categories (Smith 2013). Thus, early object recognition builds a child's early vocabulary (Pereira, Smith and Yu 2014) and begins to lay the foundation for later learning; vocabulary learning is a key predictor of academic success (Hjetland et al 2019).

This relationship between sensory experience with objects and language learning is reciprocal: while identifying the object helps the child learn the label, learning the label for the object also teaches the child to pay attention to the shape of the object and helps create experiences necessary to develop the child's visual object recognition system. This creates a multimodal system in which a young infant uses information from various subsystems: motor,

vision, audition; the overlap and coordination of these systems and many more components in the larger neurocognitive system become the drivers for cognitive development (Smith 2013).



FIGURE 2. Forming categories based on shape.

The emergence of the theory of embodied cognition has led researchers to examine more carefully the links between the physical world, children's actions with their hands and body, and the consequences for children's cognition. For young children, play has been shown to be the instrument to create this interaction between the body and language learning. Play, while not easy to define, is commonly agreed to be any activity that is self-motivated, involves active involvement and creates a joyful discovery (Yogman et al 2018). Play promotes not only current language learning but also future language learning. During play, and specifically pretend play, children practise their ability to recognize basic categories; for example, knowledge of *hat* allows a child to make substitutions—for instance, using a pot as a hat. This ability to substitute one object name for another is predictive of children's vocabulary learning (Smith 2013), and early vocabulary learning causally predicts later language development (Hjetland et al 2019).

So, while a child is pretending to be a princess in a castle or a truck driver at a construction site, they are learning and experimenting with essential vocabulary, which predicts their later language learning and can even predict their future reading comprehension ability (Castles, Rastle and Nation 2018; Duff et al 2015; Nation and Snowling 2004). This vocabulary goes beyond the words for the objects with which a child interacts. The child's interactions and the labels used to describe those interactions also contribute to their verb learning and their acquisition of adjectives (Wellsby and Pexman 2014a).



FIGURE 3. Experimenting with essential vocabulary: making a pretend car out of boxes and paint.

The Advantage of Sensorimotor Vocabulary

Thus, sensorimotor experience with objects and events in the world helps children to develop vocabulary skills. Embodied cognition explains this quite easily: sensorimotor experiences are the building blocks of language and cognition. This is also evident in the fact that some words are easier to learn and remember than other words. For example, children and adults can more easily recognize and remember words that are associated with mental imagery, like *kite* and *cake* (Inkster et al 2016).

These imageability effects are thought to be due to high-imageability words having richer sensory representations in the brain. In addition, our research group has found that children and adults also recognize words more readily when those words refer to things that a person is likely to have a lot of motor experience with, like *phone* and *chair* (Inkster et al 2016; Wellsby and Pexman 2014b). These studies have shown that we can respond faster and more accurately to words that refer to objects we can easily interact with using our body than to words that refer to objects we do not interact with as easily (for example, *nest*, *ship*).



FIGURE 4. Children can more easily recognize words that refer to things they can picture (for example, cake) and with which they have a lot of motor experience (for example, chair).

The idea that sensory and motor experiences influence the way we learn words and concepts and also the way we later think about and remember those concepts is consistent with the tight relationship that embodied cognition proposes between mind and body. This idea has been further examined by studying the role of fine motor experiences in early childhood, to try to understand how those experiences might shape learning and cognition.

Fine Motor Skills Support Academic Development

While motor development and language skills have typically been examined separately, Suggate, Steoger and Pufke (2017) showed that fine motor skills are critical for academic development in early childhood and are related to children's literacy skills, mathematical achievement and overall cognitive achievement. Fine motor skills are "small muscle movements requiring close eye-hand coordination" (Luo et al 2007, 596) and can include dexterity, the skillful manipulation of small objects. Fine motor skills also include graphomotor skills—the skills involved in combining input from visual and motor modalities such as drawing and writing—and speed-dominated fine motor skills such as key-tapping (Martzog, Steoger and Suggate 2019). In addition, Pexman and Wellsby (2016) found some evidence that there is a relationship between children's manual dexterity and their speech skills.



FIGURE 5. Turn taking and learning: a child-led activity removing lids from milk jugs and putting them back on while taking turns with a parent.

Suggate and Stoeger (2014) reported numerous links between children’s fine motor skills and their cognitive skills. For example, there are reported relationships between children’s fine motor skills, like peg moving, and their reasoning and memory abilities, and between children’s pattern copying and block arrangement and their general school readiness. Thus, there is some support for the idea that cognitive development does not occur in isolation from motor development. Further, children’s language skills have been found to play a critical role in their early math skills (Slusser, Ribner and Shusterman 2019). As a result, Suggate and Stoeger (2014) argue that children should be given ample time to engage in activities that develop their language skills and also activities that develop their motor skills. For example, children continue to need active play time (opportunities to move around the classroom, physical education classes, recess time) in addition to focused literacy time (listening to stories, practising reading or writing, working at literacy centres). Opportunities to engage in both activities, for example, acting out a favourite story such as “The Three Little Pigs” or “Henny Penny,” can engage both language and motor skills at the same time.

Suggate, Stoeger and Pufke (2017) examined how the specific activities in which children engage are related to early childhood development. They found that engaging in activities during the preschool years such as art experiences and crafting (operating scissors, drawing, weaving and playing with small toys—for example, Lego and other building toys) was related to preschool children’s fine motor development at the start of kindergarten.



FIGURE 6. Fine motor skills in preschool—for example, Lego, crafting, scissor skills

In turn, children’s acquisition of fine motor skills at the start of kindergarten is related to several later cognitive achievements, such as reasoning, memory, and acquisition of knowledge and skills (Martzog, Stoeger and Suggate 2019; Suggate, Stoeger and Pufkin 2017). This relationship is specific to fine motor skills and not true of other motor skills (for example, gross motor). Therefore, there is evidence that children’s fine motor skills not only support important graphomotor skills necessary for classroom activities such as writing but are also linked to broader cognitive skills necessary for all classroom activities and for general learning. While there is evidence for relationships between children’s fine motor skills and their cognitive and academic development, we should note that the picture is complex.

Our research group has examined the linguistic and cognitive skills involved when children learn new vocabulary. We have also looked at whether certain characteristics of the words’ meanings (that is, emotion, imageability, concreteness) facilitate acquisition. We have found in some studies that children’s fine motor skills do not directly relate to *every* aspect of their language development (Lund, Sidhu and Pexman 2019). We have speculated that some underlying skills such as executive function, attention and sequencing are common among these domains and help contribute to the observed relationships between fine motor skills and cognitive skills (Pexman and Wellsby 2016).

Sensorimotor Processing Supports Reading Comprehension

The *simple view* of reading was originally conceptualized by Gough and Tunmer (1986), and they argued that reading comprehension includes both *decoding*, or identifying words in print, and *linguistic comprehension*, characterized as the

understanding of spoken language (Nation 2019). All readers need to be able to identify individual words *and* derive meaning from the text. These two component skills have been shown to explain a large amount of the variance in children's reading comprehension, and it is important to understand how the component processes work and develop to optimize children's reading and language instruction (Nation 2019). The child's sensorimotor experience has been shown to have an impact on both these components of reading development.

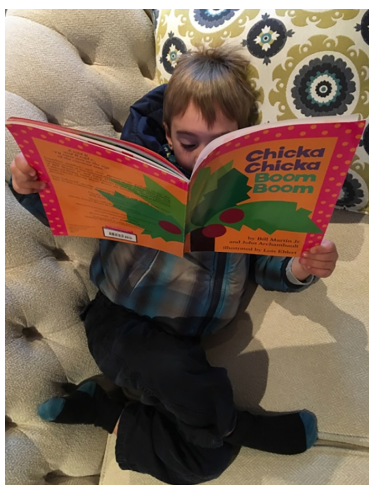


FIGURE 7. Learning to read involves both decoding the individual words and deriving meaning from the text.

Decoding

Learning to read necessarily requires children to explicitly be taught how to crack the alphabetic code. Children need to learn that patterns of lines, curves and dots match onto specific letters, which map onto sounds, which can be blended together and mapped onto meaning (Castles, Rastle and Nation 2018). Castles, Rastle and Nation (2018) provided evidence that without explicit teaching, children will not detect the alphabetic principle and need training both to break down words into their sounds and to map them to the graphic symbols (sound-letter correspondences).

Decoding involves individual letter recognition, and research suggests that embodied experience is important to children's mastery of letter recognition (James and Engelhardt 2012). James and Engelhardt taught prereading children to produce letters and simple shapes by printing free form, tracing or using single-key typing. Next, the researchers measured children's brain activation using neuroimaging (functional magnetic resonance imaging [fMRI]). During the fMRI session, the children passively viewed the letters and shapes they had learned along with additional letters and shapes that had not been included in the training. This

allowed the researchers to see how the children's brains responded as a function of the method they had used to produce the letter. Their results showed that the part of the brain known as the *reading circuit* was activated only for letters produced during the free-form printing task and not for letters produced during tracing or typing. The results suggest that children's visual processing of the letters is influenced by their motor experience: the act of printing a letter leads to brain changes not seen from tracing or typing (James and Engelhardt 2012). These findings provide evidence for the influence of the child's sensorimotor experience on their learning of individual letters.

In the early stages of reading development, children need support and training to learn how the code works for their language. Once they have at least some rudimentary decoding skills, the path to becoming a skilled reader involves developing the ability to recognize words accurately and easily. However, there is much evidence that even skilled readers continue to use the alphabetic principle (Pexman, Lupker and Jared 2001). This transition from slow tentative reader, sounding out every sound, to fluent reader involves *exposure*. Children need to build expertise through experience with print and learn to be both *precise* (that is, to know the exact spelling) and *flexible* (that is, to be able to adapt to different print-meaning combinations). As children become more proficient, cognitive resources are freed up for comprehension (Castles, Rastle and Nation 2018).

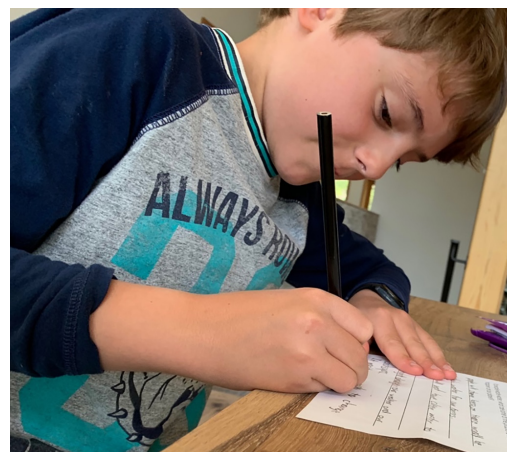


FIGURE 8. A child who practises printing by hand (not on computer or by tracing) builds valuable connections with the reading circuit.

The connection between sensorimotor abilities and decoding is emphasized in a number of existing training programs. For instance, in the Lively Letters program (Telian and Castagnozzi 2001), each phoneme is given an action, eliciting a

relationship between the sound the letter makes and a body action. For example, the *u* letter that makes the sound /ʊ/ as in *up* has a *U* with the vertical lines or “arms” of the *u* designed to look like a baby’s arms reaching up; the teacher says “/ʊ/ ... /ʊ/ ... up, just like the baby reaching up to get out of his crib.” These types of action connect sensorimotor experience to decoding skills. Another example from current teaching practice is the use of sandpaper letters typical of a Montessori teaching environment (Ginns et al 2016).

Listening Comprehension

In addition to decoding, a child needs to derive meaning from the words they read in order to achieve successful reading comprehension. A child’s reading comprehension is tied to their linguistic comprehension and vocabulary development (Castles, Rastle and Nation 2018; Nation 2019). Many experiments demonstrate that children’s sensorimotor experience can scaffold their comprehension abilities during reading (Glenberg, Brown and Levin 2007; Glenberg, Goldberg and Zhu 2011; Glenberg et al 2004; Marley, Levin and Glenberg 2010). For instance, based on the theory of embodied cognition, Glenberg et al (2004) predicted that there would be positive effects on children’s recall and application of material read if children were explicitly taught to manipulate toy objects in order to enact events described in text. When compared to a group of children who simply reread the text, the children in the manipulation group had better recall and memory of the stories they read. Glenberg et al (2007) also found that the enactment strategy could be equally effective for enhancing reading comprehension in small groups. Recognizing the logistical difficulty of having to provide a classroom full of children with toys for every possible storybook, Glenberg, Goldberg and Zhu (2011) extended these findings to a virtual environment, by having Grade 1 and 2 children manipulate images of toys on a computer screen. Results showed that children’s reading comprehension was improved just as much by virtual manipulation as by physical manipulation of the toys. Glenberg inferred that this was because virtual manipulation provides sufficient enactment through mental imagery and simulation to support comprehension. This suggests an important use of educational technology to enhance early reading comprehension.

Overall, reading comprehension is complex and multifaceted and so is reading instruction (Castles, Rastle and Nation 2018). Castles, Rastle and Nation recommended a number of strategies, including text discussion with peers and teachers, chances for

clarification, summarization, and question generation. The most recent iteration of the *simple model of reading* highlights the complexity and interplay between reading comprehension, decoding and oral language comprehension, with these component skills all feeding forward and backward, resulting in both positive influences and negative influences depending on the child’s individual abilities in each domain.

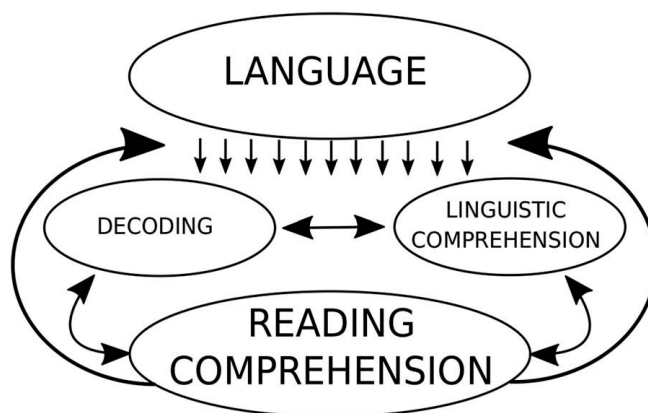


FIGURE 9. An expanded view of the simple view of reading (Nation 2019).



FIGURE 10. Becoming a cell after reading *Cells: An Owner’s Handbook* (Fisher 2019). Reading aloud with children can include reading the story and acting out key parts, in addition to text discussion, clarification, summarization and discussion of new vocabulary.

What Embodied Cognition Has Not Explained

Embodied cognition is a promising theory that has a number of implications for teaching, but it is important to note that it has not explained everything. For instance, a challenge for the embodied cognition framework is to explain how children learn abstract words. These are words that refer to concepts that we cannot see or touch. Abstract words include emotion words such as *anger* and *joy*, ideas like *friendship* and *freedom*, and descriptive qualities such as *brilliance* and *honesty*. Abstract words are important for education (Beck, McKeown and Kucan 2013; Biemiller 2012). They are necessary for communication and learning, because they are ubiquitous in scientific (for example, *hypothesize*, *evaluate*, *adaptation*), mathematical (for example, *subtraction*, *compare*, *prediction*) and cultural (for example, *identity*, *belief*, *values*) language (Fang 2005). Importantly, Ponari, Norbury and Vigliocco (2018) described a burst in children's abstract vocabulary that seems to occur around Grade 2. Embodied cognition assumes that sensorimotor processing is essential to learning concepts and language, so if children cannot see or touch abstract concepts, how do they learn abstract words? A recent study by Vigliocco, Ponari and Norbury (2017) provides a few clues. The results suggest that children rely on multiple strategies when they are first learning abstract words. Emotion words are some of the first abstract words that children learn, and it is possible that children's emotion systems allow them to grasp these meanings (for example, learning the meaning of *love* by associating it with the feeling of being hugged) (Vigliocco, Ponari and Norbury 2017).

Indeed, emotion information seems to be important to children's processing of abstract words (Lund, Sidhu and Pexman 2019; Ponari, Norbury and Vigliocco 2018), at least early in development (prior to age 9). Once some abstract words have been learned, children may be able to learn more of them by connecting new meanings to the other words they know, but we need more research in this area to determine the factors at play in later vocabulary development.

We know from recent research in cognitive psychology that vocabulary learning is crucial for later academic success. Multiple longitudinal studies involving randomized control trials have shown that children's oral language skills at age 4 can significantly impact their language skills and reading comprehension at age 7 (Hjetland et al 2019). At the same time, Fricke et al (2017) showed that

children's language and reading outcomes can be affected by language interventions, including the use of narratives, vocabulary and listening skills, and that these interventions can be effectively delivered by multiple providers, including teachers but also parents (Burgoyne et al 2018). The research we have reviewed here shows that vocabulary can and should be taught in multimodal ways. Recent research has shown that shared book reading and guided play can be equally effective at increasing vocabulary (Lawson-Adams et al 2019).



FIGURE 11. Emotion is one way a child learns the meaning of abstract words.

The shift we have seen in cognitive psychology, from describing the mind as an amodal system, like a computer, to an embodied system in which, at least to a certain extent, our sensorimotor experiences, emotions and body states can influence and support our learning, could be important to think about while teaching and when applying learning principles across the curriculum. As teachers can attest, teaching is not about turning on or off switches in the child's brain, but rather is about engagement of the child's body, mind and experiences. Recent developments in cognitive science support teaching strategies that engage the whole child through play, movement, acting, critical thinking, exploratory learning and systematic pretend play (Hopkins, Dore and Lillard 2015).

Take-Home Messages

- Children learn their first words through their bodily experiences (seeing, mouthing, touching, and holding objects).
- The theory of *embodied cognition* describes the notion that our knowledge and concepts are a direct result of our experience with our environment. This is important for learning.
- Children's early environmental experiences—the people in their life (mom, dad, auntie, nanny, early childhood educator), the food and drinks they enjoy (water, milk), and objects and materials in their day-to-day life (blanket, teddy, bottle, toys, mirrors, sand)—influence their early vocabulary, and vocabulary is a key predictor of academic success.
- As children continue to build vocabulary, play experiences are integral; motor experiences with objects help children learn vocabulary even beyond their immediate needs. The sensory and motor experiences that enable children to learn words will also influence the way they later think and remember these concepts.
- Fine motor experience (small muscle movements [using] hand-eye coordination) is also critical for academic development, and children's fine motor skills are related to their literacy skills, mathematical achievement and overall cognitive development.
- Children's sensorimotor experience has also been shown to have an impact on both letter decoding and reading comprehension. Gaining experience printing letters free form and manipulating toys and objects can facilitate better recall and memory for the letters they learn and the stories they read.
- Abstract words, which refer to concepts that we cannot see or touch (*friendship, brilliance, joy*), are harder to experience through the body but show a burst in development around age 8. Early learning of abstract words seems to be tied to the child's emotional experience and then later tied to other words they know.
- Vocabulary can and should be taught in multimodal ways.
- Overall, the view from *embodied cognition* is that the mind is multimodal and this multimodality (using our body, vision, hands) supports learning.

Such strategies support the child's learning of new material, and also support the fundamental nature of their cognition—the way they learn, not just their learning at that moment.

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Read with Me : Engaging Your Young Child in Active Reading

Samantha Cleaver and Munro Richardson

Reviewed by Christina Leung

Christina Leung has taught in the early years classroom with Edmonton Public Schools for 12 years. She is actively involved with the ATA's Early Childhood Education Council as a member of the provincial executive. Currently she is completing a master of education in early learning at the University of Alberta.

Samantha Cleaver and Munro Richardson, coauthors of the book *Read with Me: Engaging Your Young Children in Active Reading*, are both from the nonprofit organization Read Charlotte, in North Carolina. Read Charlotte is committed to improving children's literacy and reading proficiency by Grade 3. The authors wrote this book as a how-to guide for parents, caregivers and educators; it offers active reading strategies that can be used to build essential early reading skills and a lifelong love of reading in young children. *Active reading* is reading *with* children, rather than *to* them, and focuses on oral language as the foundation for learning to read. The authors describe active reading as a collection of read-aloud and shared reading strategies that supports preschool-aged children in developing language and early reading skills, and recommends that it be used both at home and in the early years classroom.

In the first part of this book, Cleaver and Richardson highlight the active roles required of both adults and children when reading picture books, an activity often perceived by some as a passive activity for children, according to the authors. They identify the ABCs of active reading:

- Asking questions
- Building vocabulary
- Connecting with the child's world

"Questions are one way that we engage with and experience books. As good readers, we constantly ask questions about what we are reading" (Cleaver and Richardson 2019, 45). Two types of questions are identified: story questions and open-ended questions. Story questions help children focus on elements of the story and engage the child in conversations about the book. Open-ended questions challenge children to think about what they have read and encourage them to be creative while making inferences and predictions, considering consequences and different points of view, and forming personal opinions about a story. The goal of questioning is to engage children in conversations about the book.

Building vocabulary is the second key aspect of active reading. Cleaver and Richardson believe that a child's vocabulary is important when learning to read and that early word knowledge is a predictor of future success in reading. Three different types of words that children must learn are identified:

- *Common words* are used most often in everyday language and are considered the most basic form of a word (yummy, blue, hat).
- *Complex rare words* are used more often in books and are often synonyms of common words (delicious, navy, beret). These are words that make books fun and interesting.
- *Knowledge words* are content specific (bear, claws, hibernation).

When engaging in active reading, the focus is on teaching rare and knowledge words that children may not learn in everyday conversations. Building vocabulary through active reading involves various strategies, including using pictures to make meaning of words, creating kid-friendly definitions, asking questions about words and making connections with words. The goal of building vocabulary through

active reading is to increase the number of words a child knows and uses.

The third key aspect of active reading, connecting to the child's world, focuses on meaning making while reading and involves making books and stories part of a broader learning experience. When engaging in active reading, children need to make connections to personal experiences, make connections between different books and stories, and make connections between books and the world they live in. The goal of connecting to the child's world is building background knowledge, because this knowledge is used when making connections and constructing meaning and helps children understand more accurately what they are reading.

Additional aspects of active reading include reading a book more than once (repeated readings), focusing on the same parts of the book while reading (joint attention), encouraging conversations about the book (talk more), and fill-in-the-blank prompts. The role of the adult during active reading is to be a guide who introduces the child to characters, words and ideas in a story. All of these active reading activities engage children in opportunities to use language and deepen their understanding of language, books and reading.

The next part of this book focuses on building phonemic awareness through active reading. The authors identify phonemic awareness as one of the core reading skills required for children to learn to read on their own. Strategies that build phonemic awareness by reading picture books with preschool and kindergarten-aged children include using the ABCs of active reading and engaging children in thinking and talking about patterns in books, rhyming words, word syllables and sounds in words. Advanced active reading strategies include syllable counting, sound counting, identifying beginning sounds, and segmenting and blending sounds in words.

The dominant discourse of active reading and early language and reading presented by Cleaver and Richardson is rooted in theories of child development. "All children progress through stages of language development, and while they may progress slower or faster than the child across the street, the sequence is consistent" (Cleaver and Richardson 2019, 30). This positivist perspective views learning language and learning to read as a linear progression that is universal and predictable. Young children, aged two to five years, progress through stages of language development that can be measured by developmental milestones. These milestones are used to identify what active reading strategies and activities are deemed appropriate and necessary. Active reading progresses from pointing

and labelling pictures to asking open-ended questions, retelling stories and making connections when reading. Cleaver and Richardson also identify four phases of young children's progress when learning how to read:

- Pre-alphabetic
- Partial alphabetic
- Full alphabetic
- Consolidated alphabetic

Children progress from memorizing and retelling familiar stories at the pre-alphabetic phase to reading that sounds more like an adult's reading in the consolidated alphabetic phase. "The process that children go through to learn how to read words is complex, and while the process is the same for each child, the age and speed of children's progress varies from child to child" (Cleaver and Richardson 2019, 96). Active reading is based on theories of child development derived from a positivist and modernist perspective of childhood and early childhood education. Language learning and learning to read are understood as a universal and predictable process that often results in a one-size-fits-all approach to teaching young children.

From a postmodern perspective, Dahlberg, Moss and Pence (2007) problematize child development theories as universal truths; "[m]aking pedagogical questions scientific, mainly with psychology, has meant ... that pedagogy has to a large extent become synonymous with psychology ... By drawing and relying on these abstract maps of children's lives, and thus decontextualizing the child, we lose sight of children and their lives: their concrete experiences, their actual capabilities, their theories, feelings and hopes" (Dahlberg, Moss and Pence 2007, 36). Cleaver and Richardson explain that the role of the adult in active reading is to "guide" children through a process of understanding a story and developing early reading skills. This means that during active reading, language knowledge and reading skills are transferred from the adult, who are the perceived experts, to the child. This creates an image of the child as passive, empty and primitive. In postmodern conditions, children are perceived as active, competent and knowledgeable. Children's knowledge of language and literacy is constructed within specific social and cultural contexts. When learning to read, children are the experts of their experiences, capabilities, theories and feelings that influence language learning and early reading skills (Dahlberg, Moss and Pence 2007).


Cleaver and Richardson's how-to guide to active reading explicitly outlines how parents and educators can engage in active reading with young children, specifically preschool and kindergarten-

aged children, in order for them to be able to demonstrate proficient reading skills when they reach Grade 3. As an educator who teaches in a diverse classroom that consists of bilingual, multilingual and monolingual children, it appears to me that the implementation of active reading was done without consideration of how families from diverse cultural backgrounds engage in storytelling and literacy with their own children. In chapter eight of *Making a Difference in the Lives of Bilingual/Bicultural Children* (Soto 2007), Espinosa-Dulanto (2002) highlights the controversial issues related to the recommendation of nightly reading and encouraging parents to act as reading models. Among the dominant discourses of early childhood education, time spent reading with children is deemed valuable and even necessary for children to become proficient readers. This may not be culturally and/or linguistically appropriate for parents or families whose home language is different from the school language, or for families who value oral storytelling traditions.

Even with these criticisms, Cleaver and Richardson have some excellent language and literacy strategies that can enhance read-aloud and shared reading activities in the early years classroom. With oral language as the foundation of

active reading, there are many opportunities for young children to be more engaged and connected with picture books while using language and constructing new meaning. Cleaver and Richardson end this book with recommendations for building an active reading library, including many picture book recommendations for specific active reading strategies. This book would be very useful for early childhood educators who are looking for strategies and picture books to support their early learners in building vocabulary, responding to and asking questions, deepening their understanding of books and stories, and building phonemic awareness.

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The Early Childhood Education Council of the Alberta Teachers' Association

A specialist council for ECS and Grades 1, 2 and 3 teachers

Joining the Early Childhood Education Council will permit you to

- belong to a professional organization that is interested in your work and area of specialization;
- participate in a provincial ATA organization concerned with educational issues relating to teachers of young children;
- contribute your opinion on matters concerning early childhood education;
- meet other professionals interested in and involved with early childhood education;
- participate in activities sponsored by the ECEC regional for your area;
- attend the annual Early Childhood Education Council conference to glean new and exciting ideas and to share your concerns with colleagues;
- receive *Issues, Events and Ideas*, a newsletter published several times a year, featuring council news and ideas for classroom use; and
- read *Early Childhood Education*, a journal published once a year, to keep informed of current early childhood research and writings.

Early Childhood Education Council, ATA Membership (ECS–3) Application Form

- A. Name _____
Address _____ Postal Code _____
Alberta Teacher Certificate No _____
Local Name and Number _____
- B. Category of membership in the Alberta Teachers' Association (check one)
☐ Active ☐ Associate ☐ Student ☐ Life ☐ Honorary
☐ I am not presently a member of the Alberta Teachers' Association
- C. Membership fee enclosed (check one)
☐ Regular \$25 (1 yr) ☐ \$45 (2 yr) ☐ \$65 (3 yr)
☐ Student \$11 ☐ Affiliate \$27 ☐ Subscription \$30

Please enclose cheque or money order payable to the **Alberta Teachers' Association** and mail to

The Alberta Teachers' Association, Barnett House
11010 142 Street NW, Edmonton, AB T5N 2R1

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The Alberta Teachers' Association (ATA) requires consent to publish personal information about an individual. Personal information is defined as anything that identifies an individual in the context of the collection: for example, a photograph and/or captions, an audio or video file, and artwork.

Some schools obtain blanket consent under *FOIP*, the *Freedom of Information and Protection of Privacy Act*. However, the *Personal Information Protection Act* (*PIPA*) and *FOIP* are not interchangeable. They fulfill different legislative goals. *PIPA* is the private sector act that governs the Association's collection, use and disclosure of personal information.

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Maggie Shane, the ATA's privacy officer, is your resource for privacy compliance support.

780-447-9429 (direct)

780-699-9311 (cell, available any time)

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☐ I am giving consent for myself.

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Name(s): _____ (Please print)

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Signed: _____

Print name: _____ Today's date: _____

For more information on the ATA's privacy policy, visit **www.teachers.ab.ca**.



Council Notes

Constitutional Objective

The objective of the Early Childhood Education Council of the Alberta Teachers' Association is to improve practice in early childhood education by increasing members' knowledge and understanding of this specialty.

Membership

Total membership of the council is currently 2,799.

Conference and Other Programs

The council organizes an annual conference for its members on early childhood education. Attendance at annual meetings over the last several years has averaged 600.

Several regional organizations of the council carry on programs for members in their areas. The council supports these regionals. It also occasionally offers workshops and other activities in areas where regionals have not been organized.

Publications

The Early Childhood Education Council publishes a newsletter (*Issues, Events and Ideas*) and a journal (*Early Childhood Education*). Members of the council receive these publications as part of their membership. Nonmembers wishing to receive copies of these publications may obtain them by paying the subscription rate of \$30 (Canadian funds) annually and writing to the Early Childhood Education Council, ATA, Barnett House, 11010 142 Street NW, Edmonton, AB T5N 2R1.

Website

The council maintains an Internet site at www.ecec-ata.com.

Personal information regarding any person named in this document is for the sole purpose of professional consultation between members of the Alberta Teachers' Association.

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ISSN 0012-8171
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