Early Childhood Education

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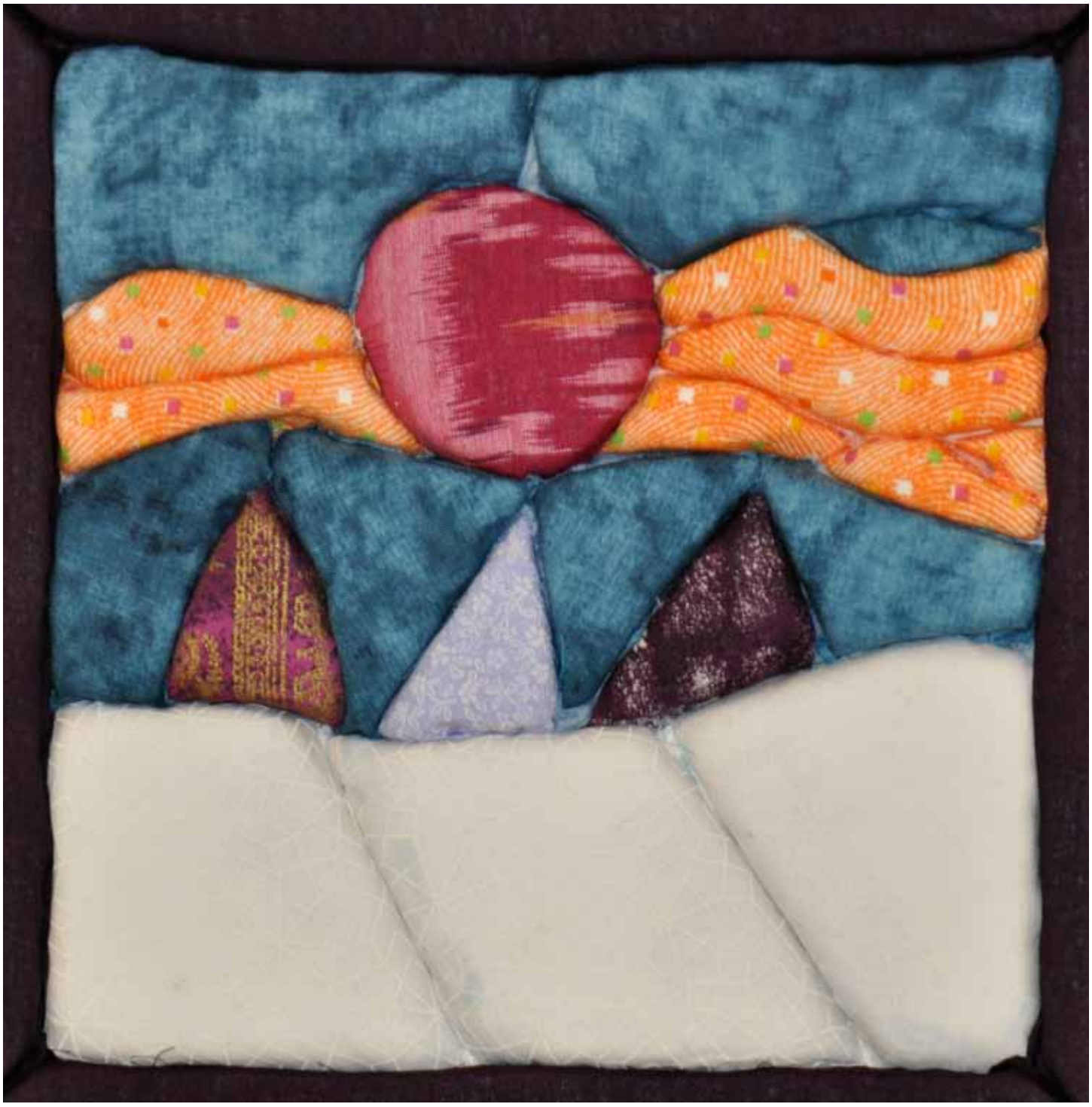

Early Childhood Education is the official journal of the Early Childhood Education Council (ECEC) of The Alberta Teachers' Association (ATA). The journal assists the ECEC to achieve its objective of improving practice in early childhood education by publishing articles that increase the professional knowledge and understanding of teachers, administrators and other educationists involved in early childhood education. The journal seeks to stimulate thinking, to explore new ideas and to offer various points of view. It serves to promote the convictions of the ECEC about early childhood education.

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Early Childhood Education is indexed in the Canadian Education Index.

On the Cover: Nellie McClung Elementary School, a public school in Calgary, has about 380 children, hosts a community program and one special education program. Students attending the GATE program are in Grades 4–6 and come from various communities in Area V. This program provides educational opportunities for gifted and talented students. The artwork is a collective work of the kindergarten children working with their teachers Hanne Kisling-Saundry, Michelle Bamford and Sonal Kavia.

From the Editor's Desk

Anna Kirova is an associate professor in the Faculty of Education, University of Alberta. She teaches courses in early childhood education in both the bachelor of education program and the master of elementary education (with specialization in early childhood) program. Her research interests include peer relationships and social inclusion of young children, particularly immigrant and refugee children; issues related to global migration and education; and collaborative arts-based research with children.

In this issue of *Early Childhood Education* the reader can find an interesting collection of highly informative articles that concern different aspects of early childhood curriculum, as well as parental involvement in young children's education. Particularly timely is Cara Linzmayer's article that encourages early childhood educators to "think outside the toy box" and consider environment-based approaches to early childhood practice. The author's practical, structural and political recommendations make the article appealing to a large audience concerned with meeting the developmental needs of preschool children.

Gail Jardine also advocates that young children must understand nature and develop strong relationships with the natural world. She presents compelling arguments in support of using children's books in this process. Her review of relevant children's books will help classroom teachers inform young children about the need to protect the environment and thus enhance the earth's natural beauty and their own lives.

Lynn McGarvey's article takes us in the area of algebra by addressing questions often asked by teachers of young children: Why subject children to algebra so early? Shouldn't algebra wait until after arithmetic concepts are mastered? Why is yet another topic added to an already unwieldy curriculum? The author argues that teachers must first understand the importance of encouraging algebraic reasoning in young children, as well as know the expectations and the ways of teaching children these higher-order thinking skills. Specific strategies for supporting children's algebraic reasoning make the article extremely valuable to teachers of young children.

Sukhdeep Kaur Chohan shares the development and implementation of an innovative newsletter program that she used as a practical tool to establish, maintain and evaluate home–school relations. The program offers family involvement and support, informs parents of classroom activities, systematically collects monthly feedback from participants and assesses the program every three months. The study built and strengthened collaborative learning communities with parents by making parental involvement an integral part of their children's classroom activities. The article includes the newsletter checklist and evaluation surveys that facilitate the adoption of the program by those who are looking for ways to build relationships with their students' families.

Yu Lei's article challenges us to re-examine some well-established "truths" in early childhood practice: the function of illustration in reading comprehension, especially in relation to using picture books with English as a second language readers. The article examines the complexity of the function of imagery as a stimulus with words to enhance reading comprehension from both theoretical and empirical perspectives. It encourages early childhood educators to recognize the differences in cognitive processes between monolingual and bilingual children in their classrooms. Teachers must consider the nature of the pictures and children's reading abilities when selecting picture books to enhance reading comprehension.

The issue also includes a review of a book entitled *The Moon Children,* by Saskatchewan-born special education teacher and acclaimed writer of children's books, Beverley Brenna. As stated by the reviewer, Rhonda Nixon, the book challenges the deficit model of disability through a sensitive, realistic portrait of a child who has FASD. By helping both the teachers and the children to reimagine the concept of disability, the book is an excellent foundation for classroom discussions about diversity, human potential and ability.

I would like to thank the authors for their submissions and the editorial review committee for their contribution to refining and expanding the ideas presented by the authors. I strongly encourage our readership to use the journal as a venue for sharing ideas, projects, experiences and concerns that we can all learn from.

—Anna Kirova

Algebraic Reasoning in the Early Grades

Lynn M McGarvey

Lynn M McGarvey is an associate professor in mathematics education, University of Alberta.

Abstract

Many teachers are shocked to learn that algebra has now suddenly appeared in elementary school curricula starting in kindergarten. For most adults, school algebra involves an abstract symbol system, solving endless equations for *x* or *y,* and memorizing rules for manipulating symbols. Understandably, teachers express questions and concerns about algebra for young children: Why subject children to algebra so early? Shouldn't algebra wait until after arithmetic concepts are mastered? Why is yet another topic added to an already unwieldy curriculum?

This paper provides insight into why algebraic thinking appears in the early grades by focusing on the misconceptions children have about symbols, numbers and equations, and how these misunderstandings interfere with their learning of algebra. Strategies for supporting children's algebraic reasoning are discussed and include explicitly addressing equality as a relationship; making explicit generalities and relationships in mathematics; providing experiences with horizontal equations in many formats where the unknown appears in different places in the equation; and early modelling of algebraic notation such as using blanks, boxes or letters as placeholders. Although algebraic reasoning is now receiving attention in elementary school curricula across North America, its successful implementation is unlikely unless teachers understand the expectations, believe it is important for children to learn and know how children learn the concepts involved. If primary teachers are able to prevent misconceptions from occurring and build a strong foundation of numbers in the early grades, students will see arithmetic and algebra as integrated rather than as disconnected topics.

Many teachers are shocked to learn that algebra has now suddenly appeared in elementary school curricula starting in kindergarten. For most adults, school algebra involves an abstract symbol system, solving endless equations for *x* or *y,* and memorizing rules for manipulating symbols. Understandably, teachers express questions and concerns about algebra for young children: Why subject children to algebra so early? Shouldn't algebra wait until after arithmetic concepts are mastered? Why is yet another topic added to an already unwieldy curriculum?

Sadly, underlying their concerns are also personal stories of fear and frustration. In my work with preservice and inservice teachers, I frequently ask them about their experiences learning mathematics in school. All too often their stories of enjoyment and success in elementary school mathematics turn to stories of confusion, self-doubt and resignation once in junior high and high school. What happened to these once eager and confident children? For many adults, the leap from arithmetic to algebra left many of them floundering for the remainder of their schooling in mathematics. The algebra they learned in secondary school appeared abstract and had little relationship to the arithmetic they were successful at in elementary.

Although algebraic reasoning is now receiving attention in elementary school curricula across North America, its successful implementation will be unlikely unless teachers understand the expectations, believe it is important for children to learn and know how children learn the concepts involved. This paper provides insight into why algebra appears in the early grades by focusing on the misconceptions children have about symbols, numbers and equations, and how these misunderstandings interfere with their learning of algebra. In general, the hope is that if teachers are able to prevent misconceptions from occurring and build a stronger foundation of number in the early grades, students will experience arithmetic and algebra as integrated rather than as disconnected topics.

Addressing Misconceptions

Arithmetic in the elementary school has been almost exclusively concerned with calculating answers. Algebraic reasoning, on the other hand,

emphasizes generalizations and the recognition of relationships within computation questions. Although algebra is often defined as generalized arithmetic, students typically experience and view them as separate domains.

The discontinuity between arithmetic in elementary school and algebra in secondary school has been a source of frustration for many students for decades. In the 1980s the transition from arithmetic to algebra received considerable attention in research, resource development and implementation of instructional strategies. The goal of this work was to identify obstacles for learning and provide teachers with guidance to ease the transition to algebra and help students succeed. Unfortunately, the efforts were largely unsuccessful, but the results revealed important information about student learning. In elementary school, most students become very capable at computing answers to arithmetic tasks, but they often do not know or understand the symbols or generalized properties they are using in these operations. In fact, many conceptual errors and misunderstandings in arithmetic have to be undone before students can succeed in algebra.

For the past decade, the focus on instructional strategies has shifted from trying to find ways to repair children's thinking once they reach junior high school to making explicit many of the taken-for-granted symbols and properties used with children from the very beginning of their education.

Taken-for-Granted Symbols

As a visitor in a Grade 1 classroom, I had an opportunity to pose the following question on the board:

1 + 3 = __ + 2

"What number goes in the blank?"

Several children put up their hand and called out their answer, "Four!"

"Does anyone have a different answer?"

Meagan quietly said, "I think it is two."

Meagan's voice was drowned out as the other children explained why three had to be the correct answer. They said, "The answer always goes after the equal sign."

For over 30 years, research has consistently shown that many, perhaps most, elementary school students have serious misconceptions about the meaning of the equal sign (Anenz-Ludlow and Walgamuth 1998; Behr, Erlwanger and Nichols 1980; Kieran 1981). Because arithmetic has focused almost exclusively on calculating answers, most children see the equal sign as an action symbol meaning "compute and put the answer here." Seeing equations as input-output operations distorts the real meaning of the symbol. Mathematically, the equal sign is not an action symbol; it is a symbol of balance and equality. An equal sign is a symbolic convention that signifies a relationship between two mathematical expressions that hold the same value. If children do not see the equal sign as a symbol for equality, understanding many simple equations such as $5 + a = 8$ or $N - 3 = 7$ will pose significant challenges to them.

Even before children begin school, they may be prompted to do simple arithmetic. A familiar scene is a parent placing three pennies on a table, adding two more and posing the question, "three and two makes what?" Similarly, when the child is exposed to equations such as 3 + 2 = __, it might be read out loud as "three plus two makes what?" The word "makes" in place of the equal sign inadvertently implies that this symbol is an operator. Seeing the equal sign as a signal to perform a computation presents difficulties when questions are written in different ways. For example, __ = 2 + 3 is a legitimate form of an expression, but children will either see it as incorrect because it is "written backwards" or may try to read it as, "What *makes* 2 plus 3?" This reversal makes little sense.

This oversight might be excused; after all, the children are only in Grade 1. However, research has shown that by Grade 6 children are even less likely to correctly answer questions similar to the one posed to the Grade 1 students above (Falkner, Levi and Carpenter 1999; Knuth et al 2006). That may mean that Meagan, who tentatively said "I think it is two," may be convinced after doing hundreds of equations that the answer does indeed go after the equal sign.

Suggestions for Practice

Misconceptions about the equal sign are relatively easy to address starting with the first time children encounter the equal sign. Explicitly using such words as "is equal to," "is the same as" and "has the same value as" rather than "makes" will help children see the equal sign as a symbol for balance and equality, rather than command to find an answer. However, we know that even by kindergarten, some children already have exposure to the equal sign. Determining whether they see the symbol as an operator is relatively simple to detect through whole-class discussions. True or false equations and open-number sentences, such as those in Table 1, provide a starting point for discussion (adapted from Carpenter, Franke and Levi 2003). In the true or false questions, each equation may be presented one at a time as students are asked to state whether it is true or false and why. Many teachers are surprised to find that their students are convinced that questions written in the form 5 = 2 + 3 or 5 = 5 are false and 2 + 3 = 5 + 1 is true. The same types of questions can be posed as open-number sentences to reveal the students' understanding as well.

True or false? How do you know?

i	2 + 3 = 5	True.
ii	5 = 2 + 3	True, but many children respond with false because it is written backward.
iii	5 = 5	True, but many children respond with false because no computation occurred.
iv	2 + 3 = 5 + 1	False, but many children who see the equal sign as an operator will say it is true.

Open number questions

i	2 + 4 = □	Answer is 6.
ii	2 + □ = 6	Answer is 4, but many children may be unsure of how to respond to the equation in this form.
iii	6 = □	Answer is 6, but it is also an unfamiliar form.
iv	2 + 4 = □ + 1	Answer is 5, but students may put 6 in the box and ignore the +1 or may even add = 7 at the end of the equation (that is, 2 + 4 = 5 + 1 = 7).

Table 1: Student Understanding of Equality

From the earliest grades, teachers need to purposefully pose questions in a variety of formats in which the unknown appears in different parts of the equation. If children understand the meaning of the equal sign starting in kindergarten, they will be much more successful with equations in which the unknown appears in different places in the equation. If not, their misconception must be unlearned in secondary school. At this point, it may be too ingrained, making it difficult for children to adjust.

Taken-for-Granted Properties of the Number System

In a Grade 2 class, the number of the day was 100. Children were to create equations that totalled 100. Here are two student examples:

Andrea's equation:

50 + 50 + 100 – 100 + 25 – 25 = 100

Jeremy's equation:

26 – 26 + 123 – 123 + 75 + 123456 – 123456 + 25 = 100

Both of these equations include numbers added and then immediately subtracted for a net result of zero. As I walked around the room I noticed that about half of the children included this feature at least once and sometimes many times in their equations. I learned from the teacher that one student earlier in the week had shown that strategy as a way to get really long equations.

When some of the children shared their equations at the end I said, "I notice that many of you do something interesting in your equations. Andrea wrote '25 – 25.' What does that equal?"

The students quickly responded, "Zero!"

"And Jeremy wrote '123 – 123'. What does that equal?"

"Zero!"

The students volunteered several other examples from their work.

"Wow! That's interesting. What if I had a million minus a million?"

"Zero!"

"Olivia, I want you to think of a number but don't tell us, okay?" Olivia nodded.

"Okay, what if we took Olivia's number and then subtracted the same number, what would we have?"

"Zero!"

"How do you know that? You don't even know what Olivia's number is?"

Owen said, "You don't have to know. Any number minus that number again is zero." The other children eagerly agreed.

"Do you know what? You just made a generalization. A generalization is a fancy math word for something that works for all numbers." I went to the whiteboard and we looked at the following equations:

"Suppose someone is thinking of a number and then subtracted that number, what would that equal?"

— The students answered, "Zero."

"What is a number minus itself?" I drew two boxes: □ – □.

Again, they quickly said, "Zero."

"Say, we have any number. We'll use 'A' to stand for any number. What if we had any number minus the same number …?" I wrote the expression: A – A. The use of a letter for 'any number' did not appear to cause any concern and they answered "zero" without hesitation.

"So here is the generalization that Owen suggested: 'Any number minus that number again is zero.' Is that always true?" The children tried a few numbers. One even suggested a fraction and said it worked for that, too. After a brief discussion the children agreed that it was true for any number.

A key component of algebraic reasoning is recognizing and generalizing the properties and regularities in the number system. There are many of them, but we often don't provide opportunities to make these generalizations explicit for children and assume that they are somehow obvious. But these properties are often not obvious to children, and even if they are, they provide a very important opportunity to use some of the tools of algebra, such as a letter as a placeholder.

Generalizations in mathematics push children beyond their comfort zone of tangible and easily computable numbers and focus attention on relationships, regularities and properties of numbers in general. The focus on arithmetic in elementary school is based on the outdated assumption that young children are not capable of handling anything abstract, particularly in mathematics; however, we know that children learn language by forming generalizations (for example, a cup can be used to describe a variety of containers). Children can also form mathematical generalizations even at an early age. The following is another example of prompting a generalization with a young child:

I asked Jackson, "What is one more than three?"
"Four!"
"Do you know what is one more than 52?"
He looked up into the air perhaps counting in his head and then said, "53."
"OK, what is the biggest number you know?"
"A googolplex."
"Wow," I said, a little stunned. I didn't know how he might respond to my next question. "What is one more than a googolplex?"
He thought for a moment and tentatively said, "What is one more than a googolplex? A googolplex and one?"

Jackson doesn't really know what a googolplex is (10^{googol}). He just knows it is a one followed by a whole bunch of zeros. Having children attempt to form generalizations and relationships based on numbers that are too big to compute is an important teaching strategy. Many children will confidently make conjectures about properties of numbers they can check, but their confidence dissipates when they are asked to test it on very large numbers that they can't "see" or test on a calculator. Surprisingly, in the example above, Jackson's understanding of the number pattern sequence allowed him to predict what the next number would be for a number he did not really know. He has formed a generalization of adding one to any number.

There are many opportunities to develop young children's algebraic reasoning. Making generalizations explicit in the classroom means exploring common properties and computation regularities through such questions as: Is that always true? Never true? Sometimes true? Under what constraints is that true (for example, if … then …)? Can you find a counter-example (that is, an example that doesn't work)? Table 2 provides examples of properties that primary school children can address.

1. **Adding and Subtracting Zero**: Adding or subtracting zero from a number equals the same number

Concrete example	Generalization
8 + 0 = 8	A + 0 = A
0 + 8 = 8	0 + A = A
8 – 0 = 8	A – 0 = A
0 – 8 … (less than 0)*	0 – A = -A*

* *Exposing children to "zero minus a number" equations is also important. Rather than avoiding it or saying it doesn't work, the generalization can be stated as "a number less than zero."*

2. **Commutative Property**: Numbers can be added or multiplied in any order

Concrete example	Generalization
2 + 3 = 3 + 2	A + B = B + A
3 × 4 = 4 × 3	A × B = B × A

It is also important to take up the commutative property in relation to subtraction and division as well. With these operations, the result does change and the numbers can't "commute."

3. **Computation Regularities**: Same result, but different numbers. For example,

5 + 5 = 10 and 4 + 6 = 10
10 + 10 = 20 and 9 + 11 = 20

Why do you get the same sum when you add doubles and when you add numbers that are one more and one less than the doubles? Will this always work? Why or why not?

Table 2: Generalizing Arithmetic Properties in the Early Grades

Supporting Algebraic Reasoning

Mathematics is not about computing answers. Mathematics provides a lens and tools through which to notice and express patterns, relationships, regularities and structures in number and space. Given what we know about children's misconceptions and difficulties with algebra in secondary school, primary teachers can play a very important role by providing opportunities for children to move beyond simply calculating answers to forming generalizations based on many of the taken-for-granted symbols and properties in arithmetic. This paper attempted to address a few strategies that teachers might use with children from kindergarten to Grade 2. Supporting children's algebraic reasoning means explicitly addressing equality as a relationship; making explicit generalities and relationships in mathematics; providing experiences with horizontal equations in many formats where the unknown appears in different places in the equation; and beginning to model and support algebraic notation by using blanks, boxes or even letters as unknowns.

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Thinking Outside the Toy Box: A Case for Environment-Based Preschool Education

Cara Linzmayer

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Abstract

Preschools are becoming increasingly responsible for meeting the developmental needs of young children and child care needs of working families. The need for high quality preschool education induces early childhood educators, administrators and policy makers to start thinking outside the toy box to more effectively deliver education that best meets the developmental needs of children. This paper argues that environment-based learning is an effective and appropriate approach to early childhood education. Suggestions for change at the practice and structural levels are offered.

Introduction

Preschool programs have traditionally been a means for improving outcomes for disadvantaged children and compensating for missed opportunities at home. Preschools are becoming increasingly responsible for meeting the developmental needs of young children and child care needs of working families. The major social risk facing Canadian families is the working society in which both parents are required and expected to work. This places more importance on child care and preschool programs to deliver educational and developmental opportunities to children (Jenson 2004). According to US statistics, over 65 per cent of four-year-olds and over 50 per cent of three-year-olds attend preschool, markedly higher than in previous generations (Barnett and Yarosz 2007). New brain research establishes the critical importance of the early years in terms of child development and learning, which highlights the need for high quality preschool programming (McCain and Mustard 2002).

Preschool Objectives

The need for high quality preschool education induces early childhood educators, administrators and policy makers to start thinking outside the toy box to find more effective ways to deliver education that best meets the developmental needs of children. This paper argues that environment-based learning is an effective and appropriate approach to early childhood education. Ernst (2007) defines environment-based education as learning in which the natural environment is used as a context for providing real-life and integrated learning experiences and is distinguished from other types of environmental education, such as field trips, that are not as integrated or continuous but more isolated. When practitioners and researchers discuss the importance of the environment for early childhood education, most refer to the social environment or the built environment. Kellert (2002, 118) critiques many fields for "almost exclusively employ[ing] the terms *ecology* and *environment* to consider family relationships, human social contexts, and the built rather than natural environment." For example, the licensing and best practices manual of Alberta Children's Services (2007, 43) acknowledges the importance of the physical environment and notes that "care facilities need to provide an age-appropriate environment … that encourages growth in children's individual stages of development." That document outlines the environment in detail but restricts discussion and regulation of the physical environment to floor space, furniture, equipment and other abiotic domains. Outdoor play area regulations focus on security and supervision but neglect any discussion of how to

promote opportunities for independent and modelled exploration. A false dichotomy is created between outdoor exploration and safety.

Why Is Nature Important?

Children and families have never been so estranged from the natural world. Wilson (1996) estimates that average Americans spend 95 per cent of their time indoors. Canadians are likely not much different. Families and children are becoming more and more overscheduled with less time available to just be in nature. Also, nature and children's access to it are rapidly diminishing (Faber-Taylor and Kuo 2006; Kellert 2002). For a whole generation of families, direct experiences in the backyard or park have been replaced by indirect learning through computers and television. As we get more connected electronically, we become more disconnected from each other and the world around us. A widening circle of researchers believes that the disconnection from nature has enormous implications for human health and child development (Louv 2006; Kellert 2002). Louv (2006) links this alienation from nature to such disturbing childhood trends as rises in obesity, attention deficit disorder and depression. Developing a healthy attachment to nature can serve both protective and restorative resiliency functions for children, which in turn have important implications for children who face increased stress with decreased resources (Besthorn 2005).

Nature and Preschool

Environmental education contributes to improved academic skills, higher levels of student engagement and enthusiasm for learning, and fewer behavioural problems than regular educational programs (State Education and Environment Roundtable 2005). While this approach remains relatively on the fringes of mainstream grade school education, it is even further distanced from mainstream early childhood education. Moore and Cosco (2000) argue that nature should be considered a key variable in the design of all childhood habitats including preschools. With more children spending more time at preschool, this variable becomes even more critical. Researchers argue the preschool years are a crucial period for children to develop a sense of respect and caring for the natural environment (Tilbury 1994; Wilson 1996). This paper will show that an environment-based approach to preschool education is an effective way to meet children's developmental needs and reconnect children to their natural environment, which can have lasting positive effects for both the children and the environment. The remainder of this paper will examine how preschools can and should use the environment to meet children's developmental needs, which are defined as physical, intellectual, creative and social-emotional (Alberta Children's Services 2007).

Developmental Needs of Preschoolers

Physical Needs

Physical needs are defined as the "development of appropriate physical skills in a safe and healthy manner" (Alberta Children's Services 2007). In a time when obesity rates are reaching epidemic levels in young children, preschools are seen as having both the opportunity and responsibility to meet the physical needs of children. Finn, Johannsen and Specker (2002) found that physical activity programs in preschools and other child care centres were the number one predictor of physical activity levels among young children. Alberta Children's Services (2007) encourages structured outdoor play—specifically, games and sports that require a variety of toys. Yet, unstructured, child-led outdoor exploration is not encouraged, and the opportunities that our natural environment affords for gross motor activity is not acknowledged. Preschool children have the highest physical activity levels while engaged in outdoor play (Burdette and Whitaker 2005). The best predictor of a preschool child's fitness level is how much time he or she spends outdoors (Louv 2006). The physical exercise that children enjoy when they play in nature is more varied and less time-bound than organized sports. Moore and Cosco (2000) found in a study of Swedish forest schools that daily interaction with nature improves physical development. The versatility afforded by the natural environment helps develop physical competence (Chawla 2006). Similarly, children who had regular access to natural areas performed better in such motor skills as balance and coordination, because the play in these areas was more active, versatile and creative (Fjortoft 2001). "The topography, like slopes and rocks, afford natural obstacles that children have to cope with" (2001, 111).

Intellectual Needs

Intellectual needs of children are defined as "exploring, observing, knowing and understanding objects and events in their daily environment" (Alberta Children's Services 2007, 44). Alberta Children's Services encourages environmental exploration; however, it is the indoor environment that is favoured. The outdoor environment is characterized as unsafe and too risky. Most of the research on the cognitive skills gained through preschool education focus on vocabulary, focused

attention and self-discipline, which are considered more important for school readiness than content knowledge (Belsky et al 2007; Diamond et al 2007; Peisner-Feinberg et al 2001). Natural environments contribute significantly to cognitive and social development by providing "opportunities for the child to manipulate elements in ways that are not possible or permissible in the home, such as construction with found objects and playing in dirt and puddles" (Wilson 1997; 192). Conning and Byrne (1984) and Hazen (1982) found that self-directed exploration led to higher degrees of spatial knowledge and understanding in young children. A study of Swedish forest schools showed that daily interaction with nature improves concentration (Moore and Cosco 2000). Faber-Taylor et al (1998) state that play allows for the acquisition and use of important cognitive skills, including language and problem solving. The problem solving that children engage in outdoors may promote executive function (Burdette and Whitaker 2005). Perhaps the most significant effect of nature on cognitive functioning is "attention restoration" (Kaplan and Kaplan 1989). This refers to how being in nature affects children's ability to restore focused attention, a regular challenge of preschool-aged children. Referring to these restorative effects of nature, Maxwell (2007, 232) states that children can become overwhelmed or cognitively fatigued by overstimulation of environments. She continues:

> When this occurs, further learning and the development of competency are both compromised. To combat cognitive fatigue, children need the opportunity to engage in activities that do not require focused attention, such as watching birds at a feeder or fish in a tank. Such experiences provide a child with time away from active play and interaction with other people. The child is still engaged, but little cognitive effort is required. Once restored, the child can again engage in more active play.

Faber-Taylor and Kuo (2006) and Faber-Taylor, Kuo and Sullivan (2002) found additional support for the attentional restoration of nature in findings that show that natural settings are effortlessly engaging and draw on involuntary attention in children. Wells (2000) found that access to nature improved children's ability to direct their attention.

Creative Needs

Creative needs are defined as the "use of experiences to produce new ideas, self-expression, creative problem solving, and discovery" (Alberta Children's Services 2007). Russ (1998) writes that creative problem solving, a crucial skill for coping and adjustment, is developed through play. Pretend play, she states, is an important link between cognitive and emotional development. Russ quotes studies in which make-believe play with objects was found to contribute to divergent thinking in preschoolers. When children were encouraged and invited to use their imagination in play, they discovered more affordances for play objects. Russ cites further evidence of a link between play and other skills, such as flexibility and improved problem solving. Russ concludes that creative problem solving leads to better adjustment and coping abilities in children in the long term. Children play more and play more creatively, dramatically and imaginatively in outdoor, natural places than in indoor, built spaces (Faber-Taylor et al 1998; Kirkby 1989; Moore 1989). It is the diversity of these environments that afford more creative play than built environments. Sebba (1991) found that shapes of the natural environment are infinitely varied and inspire creativity. Burdette and Whitaker (2005) found that outdoor play does not limit activity so it induces curiosity and use of the imagination. Olwig (1991) found that memories of being in nature contribute significantly to creativity and aesthetic appreciation later in life.

Social–Emotional Needs

Social needs are defined as developing social skills through interaction with peers and adults (Alberta Children's Services 2007). Emotional needs are defined as self-awareness and self-regulation that are developed through feelings of acceptance and a sense of belonging (ibid). Alberta Children's Services separates social needs from emotional needs, yet young children cannot master social skills until they have reached some mastery of self-regulation and managing their emotions (Boyd et al 2005; Denham et al 2004). "Self-regulation underlies the ability to undertake every task, so that it has implications for not just how children get along with one another but also how they can focus and learn in the classroom" (Boyd et al 2005, 3). New brain research confirms a physiological link between emotional and cognitive self-regulation (ibid). Social-emotional development not only assists in school readiness but also promotes cognitive development.

Social Skills

Play in nature promotes the development of social skills in young children. Outdoor play allows children to acquire prosocial skills by confronting and resolving emotional crises and managing conflict (Faber-Taylor et al 1998). Moore (1986) found that man-made play areas generated conflict and stress, whereas natural settings engendered a harmonious relationship between children of all types. Burdette and Whitaker (2005) concur that outdoor play develops more social skills than indoor play because playing outdoors involves other children. Faber-Taylor and Kuo (2006) found that interactions

between children and animals helped develop empathy in children, a key ingredient in positive social relationships. Through its opportunities for social interactions, the natural environment has a positive influence on the development of social competence.

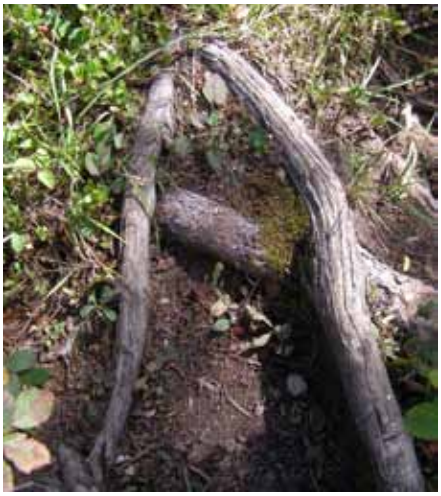
Self-Regulation

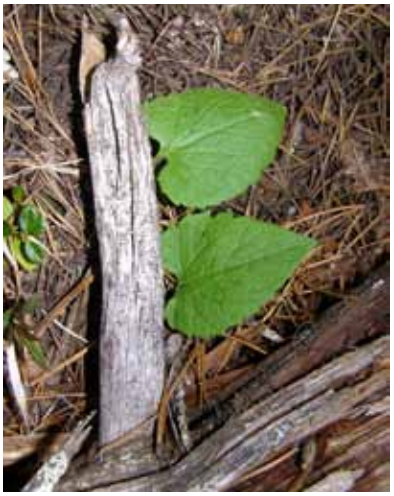
Outdoor play is linked to improved self-regulation and better mental health (Burdette and Whitaker 2005). Autonomy is a contributing factor to a child's development of emotional regulation skills (Denham et al 2004). Autonomy relates to the ability of the physical environment to maximize choice and minimize constraints by providing adequate variety, complexity and flexibility (Maxwell 2007). Maxwell identifies several prerequisites for autonomy, which includes "a variety of toys and play materials and variety in color, shape of the space, change in floor level and/or ceiling height, textures (all nonabrasive), floor covering, amount of light, and displays in the classroom space" (p 232). Variety is critical, but the sameness of many child care environments does not provide the sensory stimulation required for optimal, healthy child development (Wilson 1997). Cosco and Moore (1999, 4) argue that nature does provide the needed variety, "outdoors, we find vegetation, ground covers, places to gather, topographical changes, aquatic settings, all manner of loose parts, drinking fountains, storage, etc." Nature can offer a little or a lot, depending on the social–emotional needs of each individual child. Chawla (1992, 145) states: "Children can explore and manipulate the natural environment with a liberty denied them amid constructed places and possessions." Besthorn (2005) and Chawla (2007) argue that man-made environments cannot provide this diversity of affordances. Kellert (2002, 140) agrees, "nature is intrinsically and qualitatively different from anything the child confronts in the human built world, no matter how well stimulated, technologically sophisticated, or 'virtual' these manufactured representations may be." Sensory stimulation is another vital factor in the development of self-regulation. *The Early Years Study* reports that "the quality of early sensory stimulation influences the brain's ability to think and regulate bodily functions" (McCain and Mustard 1999, 31–32). Information received through the senses helps to stimulate and develop neural structures in critical areas of the brain. Sebba (1991) found that stimuli of the natural environment stimulate the senses in a way the abiotic environment is simply unable to do. "Playing with objects that provide sensory stimulation and allow the child to figure out something supports optimal early brain development (McCain and Mustard, 41). The man-made environment does not require adaptation and therefore does not engage awareness in the same, beneficial way (Sebba 1991). Chawla (2006) explains this by saying that in nature, nothing is the same twice. Nature seems ideally suited to supporting and facilitating the social and emotional development of preschool children.

Putting Theory into Practice

Practical Implications

As the literature illustrates, the natural environment provides better opportunities than the mostly plastic, manufactured environment to meet the developmental needs of preschool children. At the practical level, providing environment-based preschool education appears easily achievable. Providing time and opportunities for safe, self-directed exploration of natural areas can provide the most benefits developmentally. Skilled and educated preschool teachers should be able to facilitate this exploration. More structured activities are also beneficial and relatively easy to provide with some basic skills and training. Nature walks to seek out colours, shapes, even letters (see photos below) are easy to facilitate.





Conducting and recording regular year-round visits to a tree can engage children in discussions of continuity, change and adaptation. A gardening project invites conversations about self-care, nutrition, physiology and relationships. Interactions with animals can provide important lessons on expressing emotions and communication. To achieve this, teachers need to change their philosophy toward teaching. Stevenson (2007) argues that instituting a change of teaching methodology is often too demanding given the limited resources of teachers and the inherent complexity and rigidity inherent in the dominant educational system that often views environment-based educational models as conflicting with its goals. Critical theorists argue therefore that change to an environment-based educational philosophy must happen structurally (Gruenewald 2005). "The challenge lies in finding ways to alter the regularities that constrain the introduction of teaching and learning approaches that could contribute to the potentially revolutionary shifts in cultural beliefs and practices that may be required if the goals of social justice and ecological sustainability that inspired the early proponents of environmental education are to be realized" (Smith 2007, 190).

Structural Implications

Staff Training

Powers (2004) asserts that the quality of program staff is crucial in developing and sustaining sound environment or place-based education programs. Current child care regulations in Alberta have no minimum education or training requirements for preschool teachers (Canadian Legal Information Institute 2000). Foran (2005) argues that effective learning experiences in nature do not just happen by default; teachers require skills in modelling how to be in nature. A report by the National Institute for Early Education Research found that teachers with more education provide more effective preschool environments (Barnett 2004). Teachers with at least a bachelor's degree were found to have responded more sensitively, warmly and positively to students and were more actively engaged with the children (ibid). A redefinition of priorities by Alberta Children's Services needs to reflect that "children's development of intelligence depends on social interaction with human beings—not videos, toys or flash cards, but nurturing interaction with adults" (Hoffman 2007, 38).

Policy Change

A significant challenge in implementing environment-based preschool education lies at the policy level. It is uncertain how environment-based pedagogy fits in a government bureaucracy that places more importance on toys than on the instructor's training. Wilson (1997, 192) argues:

> Required building inspections, focusing primarily on safety issues, should be viewed as only one dimension of a school environmental survey. Other dimensions should focus on the aesthetic qualities of the school environment and ways in which a "sense of place" is fostered.

Place and nature must be returned to the preschool curriculum. Baker (2005) argues for the rediscovery of landfulness where education invites active exploration that encourages the development of a relationship, an emotional attachment, to the environment. The homogenization of our child care settings is clear—almost everyone has the same manufactured play equipment and the same toys from the recommended list. We have to embrace that nature is profoundly pedagogical (Kemp 2006). Natural places provide optimal opportunities for developing physical, intellectual, creative and social–emotional skills. Environment-based education's long-term benefits include making learning meaningful and engaging, and inviting children to see the relevance of what they are learning to their everyday life (Powers 2004). Do preschool children not deserve these opportunities?

Conclusion

We know now that the preschool years comprise a critical developmental window of opportunity for children. As Wilson writes, "A warm, nurturing, stimulating environment tells children that they are valued and that their way of learning is understood and respected" (1997, 191). Alberta needs to take a leading role in valuing our early childhood learners by providing them with the best possible learning environments. Through environment-based preschool education, children develop improved physical, intellectual, creative and social–emotional skills as well as motivation and excitement about learning. Governments need to redefine their best practices to reflect current research. Teachers need to look outside the toy box and integrate nature into their teaching. Mostly, children need to reconnect and build positive attachments to nature.

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Functions of Illustrations in Reading Comprehension: Theoretical and Empirical Validation

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Abstract

The role illustrations play in reading materials has been more and more emphasized, particularly in children's literature in the preschool and early school years.

However, what has rarely been questioned in teaching practice is whether illustrations can help readers understand information in texts. This article provides the rationale for using illustrations in reading instruction and clarifies the functions of illustrations in reading comprehension. From theoretical and empirical perspectives, this article presents a theory of the use of illustrations in texts, reviews studies on the effects of illustrations on reading comprehension across monolingual and bilingual contexts, and briefly discusses the implications for future teaching practice.

Illustrations in reading materials have been assumed to furnish clues to ideas printed on a page. A large variety of illustrated books have been used more and more in children's language and literacy, particularly in the preschool and early school years. Illustrated books have been assumed to be of value in bringing enjoyment to children's reading experiences, motivating children to learn to read and developing children's reading competency (Marriott 1991). In theories related to second language reading, visual materials have also been assumed to benefit readers' comprehension and provide clues about information in texts (Hadaway and Mundy 1999; Drucker 2003). However, the evidence is not all supportive of such assumptions.

Levin, Anglin and Carney (1987) have proposed that not all pictures are beneficial for understanding texts. They categorized five functions of text illustrations: (1) decoration: illustrations make reading materials look attractive but are irrelevant to the text; (2) organization: illustrations help readers understand organizational relations for a text; (3) interpretation: illustrations clarify concepts in a text that may be difficult to understand; (4) transformation: illustrations help readers remember information in the text and (5) representation: illustrations reinforce such information as major characters or events described in the text. Transformation and representation are often the focus of research into the role of text illustrations in reading comprehension. A general theory that examines the relationship between illustrations and readers' understanding of verbal meaning is necessary if researchers are to ask the right questions about the role of illustrations in reading comprehension, and if teachers are to use picture books to help students comprehend reading materials.

The purpose of this paper is threefold:

1. To set forth the theory of illustrations in picture books, which focuses on relating the comprehension of texts to visual representations
2. To examine the general assumptions concerning reading comprehension under the heading of the theory
3. To briefly review both supportive and contradictory empirical evidence with the assumptions and its implications for teaching practice

Illustrations and Dual-Coding Theory

The fundamental idea of Paivio's (1986, 56) dual-coding theory concerns "the nature of symbolic systems." The theory is based on the viewpoint that

two symbolic representational systems, verbal and nonverbal, are processed simultaneously to activate human cognition. In this theory, the nonverbal system is often referred to as the imagery system because of its vital functions of analyzing scenes and generating mental images, and the verbal system is referred to as the language-specialized system (Paivio 1986). According to Paivio, the two systems differ in the way they represent objects; they are independent of each other but also interconnected. One system can be activated independently of the other, or they can be activated at the same time. The activation of verbal and nonverbal representations can work together as a stimulus. If a concept is represented in both systems, it is dual coded. However, many factors contribute to the nature of the combination of the two representations. The effects of these factors on modifying how verbal and nonverbal representations are activated largely depend on the situational illustrations in which they are combined. One system can be an extra representation that is added to another system, or the two systems combine interactively as stimuli.

In the three basic functions of cognitive processes served by the two representational systems that were proposed by Paivio (1986), the mnemonic function appears to most directly account for the relationship between imagery representation and reading ability. This function claims that imagery and verbal systems are important in encoding information. The encoding consists of the two symbolic systems and may occur at either the representational level or referential level. Representational encoding in the theory shares the similar meaning with the representational function of text illustration claimed by Levin, Anglin and Carney (1987). That is, imagery representations exactly describe the objects, activities and people that the words represent in a text. If imagery representations referentially or indirectly relate to information verbally presented, it is said to be at the referential level. Referential encoding requires appropriate cues to increase its probability of an efficient dual coding. No matter what levels the mnemonic function is at, the verbal and nonverbal systems work together as two memory traces that reinforce the remembering of information. Therefore, dual coding helps to recognize and recall information. In the mnemonic value of dual coding, Paivio (1986) also argues that imagery codes should outweigh verbal codes by two to one to ensure the occurrence of dual coding.

In dealing with the cognitive representation of people who are proficient in two or more languages, Paivio (1986) proposes that there are two verbal systems for bilinguals. The two verbal systems can function independently but are also interconnected. The degree to which the two languages interrelate depends on the different types of bilingualism (Lambert 1969). The compound bilinguals are those who learn two languages simultaneously from infancy, while the coordinate bilinguals are those who learn a second language a long time after the first. The coordinate bilinguals were more capable of using two languages independently than the compound bilinguals (Lambert 1969). The two kinds of bilingualism indicate that bilingualism may have either positive or negative influences on bilingual people's cognition. In the bilingual dual-coding theory, the two verbal systems and the nonverbal system are also assumed to be independent of each other. Paivio (1986) claims that the imagery system is related to the verbal activities in either language. Memory traces can be coded in different linguistic codes and be represented by nonverbal codes. Information represented by the two systems has also been assumed to increase second language acquisition, particularly the learning of unfamiliar vocabulary in the second language.

As theories of cognition, both dual coding and bilingual dual coding can account for comprehension of printed input and other cognitive representations. However, they don't clearly explain how inferences are made from information represented in the two symbolic systems. The modified version of the dual-coding theory by Mayer and Sims (1994) more explicitly explains how cognitive processes occur when verbal and imagery representations are presented in an integrated manner. They propose that when readers are given external information in verbal representations, they construct verbal connections, and when they are presented with visual representations, they build visual connections. The referential connection is constructed when relationships have been made between the two mental representations. In order to understand the information, readers must build referential connections between the verbal and corresponding visual representations.

In summary, the dual-coding theory focuses on cognition involved in information processing in verbal and imagery representations. Human cognition is viewed as being capable of spontaneously dealing with two symbolic systems that specifically and differentially represent information. The verbal and nonverbal representations are independent as well as interconnected. Either of them can individually represent information, and they can also work together as stimuli for cognitive processing. Memory is facilitated and enforced when information is dual coded. Moreover, bilingual people's cognition is

considered as different according to different types of bilingualism. The independence assumption and the mnemonic function of dual-coding theory have been extended to the bilingual dual-coding theory. Mayer and Sims (1994) claim that a connection has to be built on the integration of verbal and imagery representations for inferences to occur from the information.

General Assumptions

Dual-coding theory claims that human cognition consists of two essential symbolic systems: verbal and nonverbal. This claim presupposes that as one type of mental representation, the imagery system is as important as verbal inputs. The "pictorial superiority effect" (Levie 1987) explained by dual-coding theory assumes that memory traces represented by the two systems are better than one. Dual-coding theory typically assumes that imagery representation as a mental symbol is of value to elaborate verbal representation. The manner of imagery representation depends on the degree of elaboration.

When the dual-coding theory has been extended to reading comprehension (Sadoski and Paivio 2008), meaning has often been viewed as a combining activation of verbal and nonverbal representations. The basis of comprehension is built on the interconnected network between the two systems. Comprehension is the relative equilibrium in the combination (Sadoski and Paivio 2008). Imagery representations complement words in reading comprehension. Thus, comprehension becomes easier and is enhanced when information is dual coded.

Major Findings of the Empirical Studies and Implications for Teaching

The relationship between visual representations and individual reading ability is that pictures function as compensatory aids for extracting information from a text (Cooney and Swanson 1987; Mastropieri, Scruggs and Levin 1986). However, the positive effects of illustrations in reading comprehension have been questioned. For example, Chall (1996) questioned the widespread use of pictures in the basal series. She points out that pictures can distract readers' attention from reading words and confuse them as to what reading is about. Filippatou and Pumfray (1996) argue that imagery representations give readers more stimuli; therefore, their attention is more likely to be distracted from printed words and result in incorrect comprehension. Because of the controversial function illustration plays in reading comprehension, this topic has been extensively studied in both monolingual and bilingual contexts.

Monolingual Readers

Studies examining the role of visuals in reading comprehension in monolingual context, visual representations (for example, illustrations, maps, graphics and so on) are either beneficial or detrimental to readers' comprehension (for example, Purnell and Solman 1991).

In a study examining whether different kinds of pictures would have different effects on readers' recall of information in the text, Waddill and McDaniel (1992) found that undergraduate students recalled more information from a story with pictures than they did from a story without pictures. However, students at different language-proficiency levels use pictures to help recall information in various ways. The skilled readers recalled more information in the relational-picture condition than they did in the detail-picture and nonpicture conditions. The less and moderately skilled readers benefited more from the detail-picture condition than the highly skilled readers. The findings indicated that the pictures enhanced students' recall of information contained in the text. The less-skilled readers use pictures selectively to enhance their comprehension (relational pictures did not increase their recall, but detail pictures did). In many instances, the positive effects of illustrations on adult reading comprehension received further support (for example, Waddill, McDaniel and Einstein 1988).

There is also support for the view that illustrations can enhance children's reading comprehension. The Grades 5 and 6 children recalled significantly more information when pictures were present than when they weren't (Peeck 1980; Holmes 1987).

Koenke and Otto (2006) examined the effect of content-relevant pictures on children's comprehension of main ideas in texts. Pictures enhanced comprehension of easy texts only. Three passages from Grades 5 and 6 textbooks were put under three pictorial conditions. Ninety Grade 3 and 90 Grade 6 children read the passages. The Grade 6 students who read with pictures scored higher than their peers who read without pictures. However, the pictures did not show a significant effect on the oral responses of the Grade 3 students who read difficult passages from Grades 5 and 6 textbooks. This suggests that the presence of pictures enhanced the readers' comprehension only when they read easy texts.

While pictures have been empirically demonstrated to enhance reading comprehension, criticisms of the use of illustrations with texts have

also received supporting evidence. As early as 1938, in a study to test the assumption that pictures enhance reading comprehension, Miller found that the children who were at the same language-proficiency level performed similarly on the comprehension test when reading the story with and without pictures. His study indicates that pictures do not enhance children's reading comprehension.

Almost 30 years later, Samuels (1967) examined whether pictures presented with text would distract readers' attention and therefore interfere with comprehension. Samuels found that the children in the no-picture condition scored significantly higher than the children in the picture conditions on the comprehension test. In addition, like the findings of Waddill's and McDaniel's (1992) study, children's language proficiency was also found to relate to the effects of pictures on their understanding of the text. Children who had high reading ability did not perform significantly differently under the picture and no-picture conditions. However, the performance difference was significant for the lower reading ability children—they performed better in the no-picture condition. The results indicated that pictures distracted the poor readers more easily than the capable readers. In a follow-up study, Samuels (1968) found that pictures distract readers' attention because some readers fail to shift their attention between picture stimulus and the printed words.

Vernon (1953) found that pictures do not help readers retain information or comprehend texts. Even though pictures raised readers' attention and interests in certain parts of the text, the increased interest did not enhance readers' understanding of the text. In another study on pictures and comprehension (Vernon 1954), children recalled a similar amount of information in the texts under three types of pictorial conditions. The findings further supported the position that pictures have no effects on readers' comprehension no matter how they are presented.

Willows's two studies (1974, 1978) examined how pictures affect children's reading speed and comprehension. Unlike Vernon's (1953, 1954) findings that pictures have little or no effect on reading comprehension, Willows's studies indicated that children read considerably more slowly and made more errors when reading with pictures than without pictures. Her studies also suggested that visual representations more negatively affected the comprehension of poor readers than that of good readers.

Research supporting the positive role of illustrations in monolingual readers' comprehension has reached several general conclusions. Pictures accompanying texts help to enhance readers' recall of information, which supports the assumption of the mnemonic function of dual-coded inputs. Furthermore, many mediating factors, such as the nature of pictures, influence how pictures can function as facilitators, although pictures have been shown to positively affect readers' comprehension. On the other hand, research supporting the detrimental effects of illustrations on reading comprehension has demonstrated exactly the opposite findings; that is, pictures have been found to distract readers' attention from reading words. Presentation of pictures cannot enhance readers' comprehension. Pictures interfere more easily and negatively with less-skilled readers' attention and comprehension of texts.

ESL Readers

Although only a few studies show how pictures affect reading in the second language area, evidence supports the use of pictures with texts. In a study that examined whether pictures help English-speaking university students to understand texts in French, Omaggio (1979) divided pictures into six conditions (for example, no picture and prethematic context, in which pictures depict the scene from the beginning of the story). He found that students performed better under the prethematic context condition than under the no picture condition.

Liu (2004) studied the effects of comic strips on comprehension of adult ESL students who were at different English proficiency levels. Analyses of students' recalls revealed that the intermediate proficiency students who read difficult texts with comic strips scored higher than those who read the same text without comic strips. However, the comic strips did not benefit the advanced proficiency students' reading comprehension. Liu's study contradicts the findings of picture effects on monolingual reading comprehension. Pictures have no or little effect on less-skilled readers' understanding of a text in a monolingual context (for example, Waddil and McDaniel 1992). Another study that examined the effects of schemata of ESL students on English reading comprehension further supports Liu's conclusion. Hudson (1982) used three types of treatment to study the students' reading process (with picture cues, with a glossary, rereading the text). He found that beginning and intermediate students performed better on the comprehension test under the pictorial condition than the other two conditions. However, advanced students performed better under the rereading treatment. The finding of the study again indicated that ESL students at a low English proficiency level rely more on the visual input than those at an advanced level.

Further support for the positive use of pictures on second language reading comprehension can also

be found in Tang's (1992) study. He found that using a graphic representation of the information in a text and helping students to pay attention to the graphic positively affected students' recall. The graphs helped ESL students identify the key information in the text and thus improved their comprehension.

Interestingly, little contradictory evidence can be found in the small amount of research on the role of illustrations in second language reading comprehension. However, possible problems with the use of pictures can be predicted based on the contradictory findings found in the monolingual research. For people who are learning two languages, pictures could interfere more with their reading comprehension than monolinguals because they have one more symbol in their verbal system that could make their cognition more complicated than monolinguals (Paivio 1986). This additional variable could also contribute to difficulties in studying how illustrations affect reading comprehension in a second language.

Implications for Future Teaching Practice

The empirical findings suggest that picture books that are commonly assumed to enhance students' reading comprehension, particularly that of young children, must be used with caution in teaching practice. Omaggio (1979) suggested that pictures must be used carefully so that they enhance rather than hinder reading comprehension. When using picture books to teach reading, teachers must clearly identify the purpose of using visual aids. Evidence shows that children prefer to have pictures in reading materials, because they bring enjoyment to the reading process (Miller 1936). However, if the purpose is to help children understand texts, other mediating factors that relate to how pictures could facilitate reading must be considered, such as students' reading ability, the nature of the pictures and whether students are monolingual or learning two languages.

Summary

The current version of Paivio's (1986) dual-coding theory has been developed and extended from his originally proposed theory of imagery and verbal processes (Paivio 1971). The general view of this theory is that cognition consists of "the activity of symbolic representational systems" (Paivio 1986, 53). Semantic or meaning-making processes involved in language comprehension are assumed to be built on the relations of the two systems, in which the proportion of either representational system can be varied. Therefore, the degree of comprehension can be varied according to the different specified proportions of the two systems. Sometimes understanding could be obtained based only on the activation of verbal representations. However, the major implication of the dual-coding theory is that comprehension of materials, particularly abstract materials, is determined dominantly or partly by the interconnected network of the two systems.

The underlying assumptions of dual-coding theory on the role illustrations play in reading comprehension have been extensively studied across different contexts but not without different results. Illustrations have been shown to have positive, negative or no effect on reading comprehension for monolingual learners. Although research is limited in second language reading, evidence shows that illustrations do enhance readers' comprehension when reading materials in a second language. Many mediating factors have also been identified to relate to how pictures could facilitate reading.

In summary, despite the controversial findings on the assumed beneficial influences of illustrations on readers' understanding of texts, the dual-coding theory recognizes the differences in cognitive processes between monolinguals and bilinguals. It also acknowledges the complexity of how imagery representations can function as compensatory or equal stimulus with words to enhance comprehension by specifically describing different relations between the two symbolic systems.

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Can Picture Books Help Children Reimagine Their Relationship with Earth?

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Abstract

When the books we read as children capture our imaginations, they have the power to create specific images of the world in our understanding. It is important to reflect upon the philosophical underpinnings of the stories and images embodied in children's literature. This article explores characteristics of picture books that do and do not build children's understanding of their close and interdependent relationships with earth and all life on it.

> It was a beautiful morning. Everybody said so, and what everybody says is usually so. Peter Rabbit wore the broadest kind of smile. He hopped and skipped all the way down the Lone Little Path on to the Green Meadows and was waiting there when Old Mother West Wind came down from the Purple Hills and, turning her big bag upside down, tumbled out all her children, the Merry Little Breezes, to play. Peter stopped them before they had a chance to run away. He whispered to each, and each in turn started to dance across the Green Meadows to carry the news that this was the day of Peter Rabbit's surprise party for Unc' Billy Possum, whose family would arrive that very morning from way down in "Ol' Virginny." (Burgess 1924, 34–35)

I grew up in the 1950s in a city in southern Ontario. When I was four years old, my Uncle Harry read to me from his copy of Thornton W Burgess's (1924) *The Adventures of Unc' Billy Possum*. I loved this story of the many little animals that populated the paths, ponds, fields and forests of the countryside. In the illustrations, Unc' Billy Possum typically wore patched checkered pants and suspenders, Bobby Coon wore a vest, and Mrs Possum wore an apron and cap. But despite this and their having first names, it never seemed as though I was reading a story in which animals acted like people. Instead, I learned how these animals live; for example, the kinds of homes that they build, the behaviour of possums when predators threaten them (they play dead), and the fact that raccoons, skunks and possums steal eggs from henhouses. Names and clothing combined with opportunities to learn about animals' lives in nature increased my feelings of kinship with animals that would not have occurred if my uncle had read a nonfiction natural history book or one about animals that dressed up and acted like humans, such as the *Berenstain Bears Trim the Tree* (2007). In *The Adventures of Unc' Billy Possum*, for example, when Bobby Coon got confused and fell asleep in Unc' Billy Possum's home, and when Unc' Billy came home and landed on him, an enormous "rumpus" ensued (Burgess 1924, 22–23). I learned that possums and raccoons both prefer to live by themselves in hollow trees and that animals will fight to protect their homes and themselves.

As a child, I identified with the animals in these stories. They captured my imagination. Even now, 55 years later, nearly every time I shovel snow off my front porch, I remember an illustration of Mrs Possum sweeping snow off her doorstep (Burgess 1924, opposite p 114). These stories of "animals at home in their places" sensitized me to the presence of other living things all around us, raised my

empathy for animals, and created the desire to safeguard their countryside. These stories helped me understand that people are not the only important forms of life. When I went to my cousin's farms in Prince Edward County, Ontario, I was constantly on the lookout in the fields, lanes and woodlots to catch a glimpse of a rabbit, fox, raccoon or blue jay. The Burgess storybooks played a major role in helping me to appreciate all life on earth. Over the past 60 years I have been mindful of how much environmental degradation has occurred and how all forms of life as well as the air, water and soil of earth itself have been and are being harmed (Homer-Dixon 2008; Rischard 2002).

What Needs to Change?

In 2008, an increasing number of news stories and books were published detailing the following serious environmental degradation and events that are caused by, or at least exacerbated by, human activities: (1) 500[1] ducks die within moments of one another during spring migration when they landed on a toxic waste tailings pond created by oil sands development in Fort McMurray, Alberta (CTV News 2008; National Post 2008); (2) air, water and soil pollution; biodiversity loss; desertification; and loss of fertility in soils around the world (Myers and Kent 2005); and (3) global warming and climate change accompanied by increasing numbers of floods, droughts, calving glaciers in Antarctica and rising sea levels (Flannery 2005; Monbiot 2007). Because of these things, many educators, parents and children agree that it is time to work together to stop and even reverse this environmental degradation, though it is unclear exactly what we can do. However, just what we can do is less than clear.

Two ideas that have had a central place in modernized, industrialized, western societies are important root causes of the degradation. First, that we exist separate and above mere nature and that we can live in isolation from nature and all other life on earth—and life in the cities or in the International Space Station proves it (Roszak 1993, 215–21). Second, because we are separate (not related or interdependent upon other life), we are entitled to use our human ingenuity—our sciences and technologies—to control all other life on earth for our own human benefit. These ideas convey the notion that it does not matter if we destroy our natural environments; human beings will be all right. We increasingly see that this is not so.

1. 500 was the initial reported figure. In a later news release, Syncrude admitted that the actual number was 1,606.

What Can Change?

As a teacher, I continually ask myself: What do I believe about my relationship with all other life on earth and all that supports life? What am I teaching children about their relationship with life on earth and all that supports this? What can I teach children that will help them to learn to live with respect and harmony with life, act to preserve the health and integrity of earth's ecosystems, and refuse to act in ways that cause harm to earth and its life?

Together we must re-examine our understanding of our relationship with all other life on earth. Evernden (1993, 134–35) challenges us all to reflect critically and creatively when he argues:

> The situation in which we find ourselves is a consequence of our own choice of context, for we have adopted one which defines relationship to nature out of existence. We have denuded the world of subjects and thus foreclosed any possibility of reciprocity or relationship. And yet, although we strive to reduce the bonds of kinship, we cannot succeed. However much we try to constitute a neutral world, we are drawn back by the primacy of relationship.

We are beginning to understand that we are not separate from all other life on earth and therefore we do not have the right to control nature for our own purposes without also taking the needs of all other life into account (Suzuki and McConnell 2004). Even a simple analysis of such a constant phenomenon as breathing can lead us to recognize our reciprocal interdependence with all other life. Breathing is a prime example of how our very existence is supported by and in turn supports other life on earth. The oxygen we breathe is created only by plants that possess chlorophyll. To create oxygen, plants must have carbon dioxide. We and other members of the animal kingdom are a constant source of carbon dioxide. Together, we flourish. We are connected in an interdependent relationship.

What Can We Change?

Is moving our understanding of our relationship with earth away from the idea that we are separate from nature and entitled to control it for our own benefit toward the idea that we are interdependent with all life and all aspects of earth's water, air and soil the first important step to averting environmental disaster? I believe it is. Understanding our intricate, interdependent, reciprocally affected relationships with all life on earth will make environmentally sound practices appealing and practices destructive to life unthinkable.

This is what we must stand up for and teach young children. And it is what we must allow children

to teach us. Children's sense of wonder, appreciation, fascination and reverence for the life we see, hear, feel and sense around us is so strong. Also, stories and images in books that early childhood educators, parents, grandparents and others read to children have enormous power to help them form a respectful understanding of our relationship with earth and all life on it—or not. To stop practices that harm earth and all life on it, we must read books to children that embody understanding of reciprocal interdependence and connectedness, love and respect for earth and all life on it. However, not all children's stories and picture books contain this kind of philosophical underpinning. Instead, many have the dual messages of human separation from nature and the right to control nature as their subtext. They are tales of human domination of nature.

So far, the contrast between the modernist and the ecological understandings of our relationship with nature and all other life on earth—of praising separation and control rather than the need to acknowledge and accommodate our reciprocal interdependence with nature and nature's with humanity—has been described abstractly. Now it is time to examine how these ideas appear more concretely as subtexts—a form of hidden curriculum—in children's picture books.

Tales of Human Domination: *The Tale of Peter Rabbit, Who Gets the Sun Out of Bed?* and *The Giving Tree*

I grew up on Beatrix Potter's tales. I loved Peter Rabbit and felt so sorry for him that I would cry when Mr McGregor chased him. Beatrix Potter was herself an activist who loved nature and who helped preserve the English Lake District so dear to her (Hargan 2008). However, now I am seeing a meaning in this children's story that I have not seen before. Peter ran to Mr McGregor's garden just to get food to eat and was chased off by Mr McGregor who ran "waving a rake and calling out, 'Stop thief!'" (p 26). The moral of this story? When animals interfere with humans' plans, the animals are the enemy. "Mr. McGregor hung up the little jacket and the shoes [that Peter had lost in his struggle to get safely away] for a scare-crow to frighten the blackbirds [also villains]" (p 53). And Mr McGregor is not called "naughty" for taking them and using them. He is not called a thief.

Who Gets the Sun Out of Bed? (Carlson 1992) has a funny, light and fanciful tone, but its subliminal messages of "man in control of all things natural" make me uncomfortable.

The Giving Tree is another sad story, readable as a parable of industrialized societies. A young child and a tree live in a kind of reciprocal regard and care that many of us can remember from our own childhood. They are treasured companions and spend much time together just being a tree and a little boy. The boy would climb the tree, eat her apples or pretend to be a king with a crown of her leaves. But the little boy becomes a man. He only returns to the tree if he wants something. And each time, the tree, now acting like a natural resource, obliges freely by giving him apples to sell to get money, branches to build a house, even her trunk to carve into a boat that the man uses to go far away for a long time. The man finally returns when he is old and tired, and needs nothing but a place to rest. The tree offers her stump. The man sits down and we read, "And the tree was glad." The story acts as a parable of the constant support earth gives to living things, including human beings—and also of how industrialized societies exploit the gifts of the earth. Will we too keep taking from earth until all that remains are a few stumps? Will we too be stunned into inaction and despair, and have nothing left to do but sit if we exhaust life on earth? This story bothers me because it doesn't suggest that it is wrong to exploit other forms of life on earth, take no care of them and give nothing back in return for all that we have received. The boy is still taking at the end of the story. As A Rokne, a colleague of mine who has shared this story with young children, says, the awareness that we should give back, as well as take, comes from children themselves: "They are terribly upset because they know the boy is so wrong!" Educators and parents must examine children's literature to see what kind of relationship with other life is being portrayed. Are human beings independent of nature? Are the gifts we receive from earth that sustain life unacknowledged and ignored? Are humans all powerful over nature? Is this dominance presented as the way the world should be? Is it praised? If so, then such a story reinforces the ideas about our relationship with nature that have led us into serious environmental degradation.

Stories of Sound Environmental Practices

Recently, an increasing number of stories tell of environmental problems and portray human beings doing positive things to help. *Behold the Trees* (Alexander 2001), *Home* (Baker 2004), *A River Ran Wild* (Cherry 1992), *The Princess Who Danced with Cranes* (LeBox 1997), *Just a Dream* (Van Allsburg 1990) and *Varmints* (Ward 2007) are

examples of wonderful children's picture books that embody a strong respect for life on earth and have environmentally sound actions by human beings at the forefront of the story. This is important. We human beings need to do a great deal of repair work, and environmental organizations (such as World Wildlife Fund) that lead such efforts play crucial roles in helping to build a healthier future for all life on earth. But in these stories, it is still human beings who are in control. Are there picture books that actively help children to rework their relationship with nature?

Tales of Our Interdependence Within Nature

Children's picture books are beginning to reflect an appreciation of the reciprocal relationships between all life on earth that sustain all life on it, including human beings, and the importance of considering all life as equally deserving of respect and reciprocal accommodation and support. In *Matthew's Meadow*, Bliss (1992) tells the story of Matthew and his relationship with a hawk, who is often found in a black walnut tree in a meadow up a hillside from his house. The hawk and Matthew commune, and over the years Matthew learns to open his senses and use them with care to hear what few others can hear. The hawk teaches Matthew to use his imagination to see what is usually invisible and finally shows him he can "think beyond his thoughts." His grandmother had also known what the hawk taught Matthew and, in time, Matthew brings his own child to the meadow. This is a powerful story to use to talk with children about our relation to earth and all other life. It also portrays nature through beautiful watercolour illustrations.

Bunting's (1996) *The Secret Place* tells of a spot deep under the roads and skyscrapers of a city, where a forgotten river offers birds, a coyote and an opossum a respite—water and a resting place from the noise and confusion of the city. A little boy, his father and neighbours visit this place and receive respite, too. A neighbour explains what life used to be like on the riverbank before the city was built. He speaks of this small quiet place being all that is left of the wilderness. The book helps build understanding of the importance of wildness, quiet places and nourishment that we need, as do all other forms of life.

Sky Dancer (Bushnell and Ormerod 1996) has a Peter Rabbit type theme but with an important difference. A red-tailed hawk buzzes a young girl, Jenny, who lives on a farm with her dad. Every morning the hawk appears and the two bond. A neighbour thinks he is losing his chickens to the hawk and hunts for it. He comes to Jenny's farm with a gun. Jenny screams, her dad appears and offers to make it up to his neighbour if the hawk is the culprit. Ben shoots a hawk on his own farm, but it isn't the one Jenny is friends with. That hawk appears the next morning and flies along as Jenny runs through the spring snow. Then it flies higher and higher and disappears. This tale is ambiguous. Not everyone wanted to kill the hawk. Was it scared off, or was it just passing through all along?

Some of the most important understandings that follow from acknowledging our interdependence with all life on earth are expressed in *Brother Eagle, Sister Sky* (1991).

Although each First Nation has its own culture, all lived in reciprocal and grateful relationships with the life on earth around them. This book shares the words of Chief Seattle as transcribed by H Smith and beautifully expresses a profound relationship of connectedness to all life on earth, rather than separation and control. Chief Seattle spoke these words to the Europeans present: "This we know: All things are connected like the blood that unites us. We did not weave the web of life; we are merely a strand in it. Whatever we do to the web, we do to ourselves." Taking this one book to heart could profoundly change our understanding of our relationships with earth and life.

Published in cooperation with the California Native Plant Society and illustrated beautifully with black and white pencil sketches, Dagit's (1996) *Grandmother Oak* traces our changing understandings over time of our relationship with earth. Dagit tells the story of a large, ancient oak tree on a ridge in the Santa Monica Mountains. We are shown how centuries ago, animals and birds made the tree their home, which bore the brunt of storms and continued to thrive and grow. We see the Tongva indigenous people living near the tree and learn the important roles it played in their lives. We see the Tongva gratefully praising the oak's strength and spirit. We see the tree surviving a forest fire. We see the arrival of the Spaniards, who cleared the land for ranching, thereby causing the wildlife to leave. The large oak remained, getting older and older. Recently the ranches have disappeared, and the oak grows in the Topanga State Park. Once again children come to be with the tree and to learn respect and appreciation. The oak is an equal partner in relationship with human beings.

In *The Raft*, LaMarche (2000) writes about what happens when a young boy, Nicky, who finds out that he has to spend the summer at his grandmother's home. He is very upset, but he soon

discovers that his father was right—this is no ordinary grandma. She understands his loneliness and unhappiness, and when he discovers a raft at the river's edge, she brings him a life jacket and long pole, and teaches him how to navigate the river. Soon, in every spare moment, Nicky travels along the river making discoveries. In this story, we see Nicky gradually building connections, relationships and bonds with the river and all life along it. By the story's end, Nicky is, like his grandma, seamlessly connected to the river.

There Is a Flower at the Tip of My Nose Smelling Me (Walker 2006) portrays the experience of being an equal, reciprocal element of life on earth, rather than the separated focus of control for all that happens. This story, a thank-you note to earth, fully captures the transformation in our outlook that will help us build a respectful, reciprocal understanding of our relationship with all other life on earth because the human being's perspective is no longer the one spoken of in this storybook. Not the human subject, but rather, the commonly overlooked perspective of what is usually conceived of as the inert object in each interaction is acknowledged. For example, one illustration is described: "There is an ocean at the top of my head, swimming me." Earth and human beings are equals here.

In *A Winter's Tale* (Wallace 1997) a young girl is finally old enough to camp with her father and brother in the bush in the winter. The three of them drive three hours away from the city and begin to snowshoe along frozen riverbeds with snow-draped rocks and trees towering above them. Wallace's illustrations capture the beauty of mountain rock, tree trunks in the snow and the pale pinks, yellows and blue of winter light. The family builds a shelter with a pine bough floor and then set out to explore again. They see a young deer in trouble and when they approach it, they see that it has become entangled in a length of fishing line. They manage to cut the line, free the deer and are at peace that night in the woods. There are strong feelings of companionship in this story—between the family members and between the people and life in the winter forest. It is very similar in mood to *Owl Moon*, by Jane Yolen (1987).

Meaningful and beautiful stories and images are central to early childhood education. As Gadamer (1994, 21) argues, "The young need images for their imaginations and for the formation of their memories." It is crucial for us to reflect upon the philosophical underpinnings of the stories and images embodied in children's literature to ensure that the stories we tell help build understandings in children of our close and interdependent relationship with earth and all life on it.

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Relationships Between the Use of Newsletters and Parental Feelings of Involvement in Their Child's Education

Sukhdeep Kaur Chohan

Sukhdeep Kaur Chohan, an elementary school teacher in Ontario since September 2001, has a special research interest in studying, integrating, assessing and refining practical strategies that strengthen collaborative home–school relationship programs at the elementary school level. Her research focuses on exploring practices that intertwine open and reciprocal learning communities among families and schools, promote inclusive programs, and empower family–teacher relations to enrich children's learning.

Abstract

This study involved the development and implementation of an innovative newsletter program as a practical tool to establish, maintain and evaluate home–school relations. The author played the dual role of teacher–researcher and worked with 23 parents from a Grade 1 classroom during a one-year span. The objective of the study was to explore and understand the relationship between the use of structured monthly newsletters and parental feelings of involvement in their children's education. Using action research, the author encouraged family involvement and support, informed parents of classroom activities, systematically collected feedback from participants on a monthly basis and assessed the program every three months. It was anticipated that effective two-way communication through newsletters would empower parents to feel well informed and engaged in their child's education. Data interpretation reveals that parents feel involved in their child's educational experience when engaged in a monthly newsletter program. The results support the importance of effective communication between parents and teachers in establishing strong home–school relations.

Introduction

Teachers and parents play a mutually supportive role in the lives of children and are brought together through a shared objective: What is best for the child? The reciprocal relationship between parents and educators is embedded in a collaborative exchange of information and support for the contribution of the other. Both stakeholders possess mutual responsibility in co-constructing family involvement practices and are accountable for establishing meaningful relationships. Much educational research has examined whether and how parents become involved in their children's education and how parental involvement can be increased (for example, Eccles and Harold 1996; Epstein and Sanders 2000; Sanders and Epstein 2000). However, despite this attention, "educators continue to struggle to understand why some parents become involved in their children's schooling and others do not" (Sheldon 2002, 301). Although parent involvement may provide some students with an advantage at school, not all parents are active in their children's education. Some parents may not get involved at the school if they do not feel welcome (Hoover-Dempsey and Sandler 1997; Crew and Dyja 2007). Epstein (1986, as cited in Sheldon 2002, 302) found that "as many as 12% of elementary school students' parents reported that they were never asked to become involved in the classroom."

All families have unique situations and demands placed on them. The decision to reach out to them rests in the hands of individual teachers, who must take steps to understand the obstacles they face, provide supportive guidance and seek innovative ways to involve parents in their children's education. Flexibility, diversity and commitment are key ingredients in fostering strong family–school relationships. These relationships can be strengthened by children as they "are often the best ambassadors for new initiatives" (Feiler and Logan 2007, 166). While parents can be provided with developmental and leadership opportunities, they themselves can provide a wealth of knowledge that

gives teachers a better understanding of their lives. A strong partnership between the home and school spheres reveals "recognition that both parents and teachers are experts related to children, and families, each bringing different types of expertise" (Gestwicki 2004, 127). This relationship must be characterized by mutual respect, trust, attention to each partner's need and ongoing bidirectional communication (Lopez, Kreider and Caspe 2004/05). Family involvement in schools is a central component of complementary learning, "the idea that integrating school and nonschool supports in an aligned and systemic way can better ensure learning and positive development for all children and youth" (Weiss 2008, 1).

Schools, as learning organizations, must learn to "fit" with their "complex, changing environments" (Mirvis 1996, 25). To do this, they must encourage the emergence of a collaborative culture and learning community between parents and teachers, and break the boundary between the home and school spheres. Learning takes place in a multitude of ways in both the home and school; each sphere contributes multiple levels of expertise and skills to enhance student learning. To address the needs of all students effectively requires dialogue and the collective expertise and talents of all partners in the education process. In recent years, "teachers' relationships with parents in our more permeable schools have become more extensive, and developed more edge" (Hargreaves 2000, 172). However, teachers extend great emotional and intellectual demands as they extend their work beyond the classroom.

Trends in contemporary life, including changes in role behaviour, decreasing family size, rising numbers of unmarried mothers and the development of a child-centred society, have influenced the nature, structure and appearance of families (Gestwicki 2004). The diversity of family structures and lifestyles that have evolved include "single parents, two working parents, blended families, parents sharing custody, parents who work at night" (Barclay and Boone 1995, 28). One problem area in parent–teacher relations is that "teachers are often inclined to have assumptions and expectations about parental interest and support that are socially or ethnoculturally biased" (Hargreaves 2000, 173). Educators' misjudgments about parental involvement include "misconstruing failure to attend meetings as failure to support their children or school" (p 173). Teachers need to be sympathetic to the financial pressures on parents and remember that while trying to balance work with family, "a significant gift that parents can give their children is a stable home and the model of caring relationships (Gestwicki 2004, 64).

In North America, "home visiting has frequently been used as a means for providing support for families with young children" (Feiler and Logan 2007, 162). The National Literacy Trust (2005) (as cited in Feiler and Logan 2007, 162), reports that "home visiting can be a very effective mechanism for offering support to parents and children in the familiar surroundings of their home as it can encompass modeling ways of communicating with children." However, frequent home visits by teachers can place additional demands on their time outside of the classroom. By redefining teacher–parent relationships in their classrooms, educators can take a stance of openness "where parents become partners at the core of teachers' work" (Hargreaves 2001, 1075). The challenge for educators is how to build strong collaborative communities with parents that are "authentic, well supported, and include fundamental purposes" (Hargreaves 2000, 166) and benefit teachers, parents and students alike. The device formed to build this community must not, however, overload teachers. Effective family involvement programs "open the lines of communication between home and school, support parents in their attempts to help their children in home-learning activities, and recognize the importance of building strong partnerships" (Barclay and Boone 1995, 16).

An important goal for all educators is to strive for an active, involved and supportive parent community. However, in order for parents to view public education as a shared responsibility, they must be empowered as contributors to decision-making processes and must have their voices included in home–school program designs. When there is consistency in the home and in the school, children have a much greater chance of developing the necessary skills to perform well in school. Thus, it seems only natural to extend consistency between the home and the school. Research reveals that the type of communication between the spheres is not relevant; what matters is that the communication occurs on a regular basis and is understood by those receiving it (Barclay and Boone 1995). In their case study, Feiler and Logan (2007) found that the school principal ensured two-way communication between families and the school regularly in an attempt to extend efforts to build strong links with the community of parents in the school. Regular questionnaires were conducted with parents about their perceptions of the school and what their children were doing. She states: "Through that feedback we then plan a programme of how we can deliver the information that they need" (p 167).

To consider the potentially "bright future" of family involvement in schools requires a deeper understanding of how to foster effective family

involvement and how to assess it. According to Bouffard and Weiss (2008, as cited in Weiss 2008), it requires a commitment to include those "who have historically been excluded from the conversation about family involvement" (p 2). Family involvement must have a strong voice in the international conversations regarding educational reform. Much research demonstrates the instrumental role that families play in learning for children of all ages (Kreider et al 2007). Practical and effective two-way communication models that address home–school relationships at the elementary school level are presently underdeveloped in the educational community. New understandings must be implemented from literature in practical and authentic ways within educational settings. Newsletters are a form of authentic intervention that invites parents into the school arena for the purpose of increasing student success. An effective newsletter program intentionally focuses on parental desire to be involved in their child's education. A class newsletter can help to fortify home-school communication and serve a variety of purposes, "including keeping parents up-to-date about school events and programs, sharing strategies for home-learning, and reporting classroom news" (Barclay and Boone 1995, 67). Even though newsletters are primarily one way of communicating with families, the advantages of sending them home "on at least a monthly basis are far-reaching" (p 67).

This study focused on contributing to existing knowledge accessible to educators with the intent to improve the teaching practice. New insights were to be gained into the use of newsletters as a tool to communicate educational goals and classroom programs to parents. Understanding the importance of effective home-school communication, and believing that parents play an instrumental role in their children's education, I devised, administered and assessed an innovative monthly newsletter program as a practical tool to establish and strengthen authentic home–school communication between me, the Grade 1 classroom teacher and the parents of the students in my class. Because I referred to my students as special smarties, I labelled the program with the same name. The program provided a basis upon which a commitment was made to nurture an inviting relationship between the home and school spheres throughout the course of one school year. The purpose of this study was to explore the relationships between the use of monthly newsletters and parental feelings of involvement in their child's education. It was anticipated that the monthly newsletter program would empower parents to feel informed and involved in their child's education.

Method

The sole objective of research is to contribute to the development of systematic, verifiable knowledge that can be used to inform educational practices and improve the current educational system. Action research can provide a wellspring of ideas for teaching in the immediate future. It utilizes both quantitative and qualitative data and focuses on procedures useful in addressing practical problems to best understand and explain educational problems teachers face in their educational settings. Creswell (2005, 53) states that "the combination of both forms of data provides a better understanding of a research problem than one type of data alone." In this study, quantitative data was collected by having participants respond to specific questions with predetermined response categories on evaluation surveys and qualitative data was collected from monthly feedback forms and written portions on the evaluation surveys. Clear, concise and unambiguous questions and response options were provided on the surveys to reduce misinterpretations of feedback. Closed-ended questions with preset suitable response options allowed for the comparison of responses. Open-ended questions allowed participants to provide written responses. Multiple levels of approval from the board of education, school principal and parents were attained prior to the initiation of the study.

Organization and Layout of Newsletters

Each newsletter was carefully constructed and consisted of specific sections (Table 1). Bullets, graphics and photographs were used to emphasize important points and enhance understanding of content. Each newsletter was discussed with the students before being sent home. A specific checklist ensured that an effective newsletter was created each month (Appendix 1).

Table 1. Specific Sections Included in Each Newsletter

Section	Description
Newsletter Title and Date	The title *Grade One Smarties* remained consistent throughout the year with appropriate modifications made each month. The date was written below the title.
A Note from the Teacher	Each newsletter began with a brief note from the classroom teacher that included special reminders, thank-you notes, invitations for parents to visit the classroom and importance of mutually supportive family–teacher relationships.

Academic Program	This section outlined specific curriculum expectations and terminology being addressed for each subject. It specified topics that the teacher would lead into the following month and made suggestions on how parents could assist their child with school work.
Smartie Authors	Students routinely contributed to the newsletter by writing news articles or by sharing short stories written in class. According to Barclay and Boone (1995), students are often motivated to produce better products when parents are used as audiences.
Special Smarties	This section included student birthdays, changes in classroom dynamics and a class list of student names.
Student Awards	This section included names of students who had received certificates and awards during the previous month and the reasons for receiving them.
Celebrations and Special Events	This section outlined special days, trips and concerts that were going to be celebrated in the month and what the students were going to do.
Inspiring Reading in Our Grade 1 Smarties	This section was dedicated to parental involvement with reading at home. Practical ideas, suggestions and reading strategies were provided for parents to help their children with their reading. A monthly book order with suggestions was included.
Home–Learning Program	This section discussed homework folders, spelling words and sight words that were going to be taught throughout the month. It informed parents of upcoming home-learning activities and outlined specific deadlines for projects.
Smarties Smile!	This section included photographs of the students during the previous month's activities and special events that had taken place.
Smarties Volunteers	This section acknowledged and thanked parent volunteers for special donations and assistance with trips and classroom activities. In her research, Holliday (2004, 11) found that "children place greater value on learning and achievement when they see their parents and teachers working together."
Reaching Out	This section outlined upcoming events in the community.
Ask Me About	This idea, formulated by Baskwill (1992, as cited in Barclay and Boone 1995), was featured at the end of each newsletter and provided suggestions for questions parents could ask their children to engage them in conversations about classroom learning.
Acknowledge-ment Feedback Form	Parents were to acknowledge that they had received the newsletter by check marking an acknowledgment box and providing written comments and concerns. They were asked to sign and return the form and were reminded of the importance of their feedback.

Participants

During 10 school months (September to June), parents of 23 children from a Grade 1 classroom in a public elementary school in southern Ontario participated in the study. The study was divided into three terms. The first two terms of the study consisted of parents of 10 male and 11 female students, and the last term of parents of 11 male and 11 female students. Three participants did not complete the full study. One participant moved abroad at the end of the second term, another joined the study after the second term and another at the beginning of the third term. The suburban outer-city school situated in a primarily South Asian community served a middle-income population of approximately 1,000 children from kindergarten to Grade 5. Participants conformed fairly closely to the school's ethnic profile. Nineteen families were South Asian, two Jamaican, one Cantonese and one Polish. The majority of families in the study were nuclear families in which the mother and father lived

together. In two of the families, there was no male adult in the home, one due to a divorce, the other due to death. Two of the families included an adult male that was the mother's boyfriend.

Procedure

To assess the newsletter program, voluntary involvement alongside permission to collect data through feedback forms and evaluation surveys was attained. Prior to the establishment of the program, it was discussed with the children in the classroom. Their parents were provided with a detailed description of the program through an introductory letter and were invited to participate. Full disclosure of the research study was made to attain voluntary and informed consent. Participants were informed of the objectives and benefits of the research, data collection procedures, importance of their feedback throughout the year as a means to assess and improve the effectiveness of the newsletters, confidentiality and anonymity with their participation in the study. All parents returned the permission slips and responded positively to the administration of the program.

Each newsletter included a feedback form with two sections. The first section asked parents to acknowledge that they had received the newsletter by check marking the acknowledgement box. The second section provided parents with a space where they could write comments and concerns, and make suggestions for improvements. After reading each newsletter, participants were asked to complete the form and return it to school with their child. Whenever concerns were raised, they were addressed through a written note sent home with the specific students the next day. If the student was picked up by a parent, the parent was spoken to directly. The next newsletter then addressed any concerns raised by parents. This also addressed the issue of some parents being reluctant to express concerns.

A periodic evaluation survey was conducted every three months and was attached to every third newsletter (Appendix 2). Each survey asked participants to respond to five questions. There were three possible responses: yes, no and sometimes. They were also asked to indicate their response by check marking the appropriate box. Space was provided after each question for participants to make additional comments. The last question asked respondents to provide suggestions for possible improvements to the newsletters.

Feedback forms and evaluation surveys were given to all of the parents of the students in the class, because all had expressed an interest in fortifying home–school communication. To evaluate the overall effectiveness of the year-long program in the intended context, an additional section regarding parental involvement attitudes was added to the final evaluation survey before it was administered. Participants were asked to consider clarity, practicality and level of usefulness in their assessments. The newsletters with feedback forms and evaluation surveys were sent home with the students as it served to be a financially viable option. Because all participants showed an interest in the program, the returned response rate of the surveys was high.

Data Analysis

A systematic procedure was used to record the data collected throughout the year. Responses were analyzed, interpreted, organized and summarized concisely. Specific techniques consisted of checklists and the recording of written feedback in simple tables to allow for a systematic and accurate recording of responses to questions and to highlight written feedback. For accurate assessment of the program, the school year was divided into three terms: September to November, December to February and March to May. Data collected from the feedback forms were interpreted monthly and from the evaluation surveys every third month to appropriately modify and revise the newsletters throughout the course of the study. Information elicited from the feedback forms and evaluation surveys was used to draw conclusions about key findings. Responses to questions in the surveys were taken at face value. Although an objective method was used to collect and record data, I was aware that being the classroom teacher and the prime agent in data collection and interpretation, parents may have been influenced to some extent in their responses.

Limitations

The findings from this study are applicable to one Grade 1 classroom in a suburban school in Ontario. With a larger, more representative sample, more changes may have been recommended for the program to be more effective for Grade 1 teachers across the board of education. Longitudinal studies are needed to examine the effects of classroom newsletters as a means to enhance home–school communication during the elementary school years. The classroom newsletters were written in English, although, a majority of the parents in this study spoke Punjabi. However, consideration was made for parent literacy and comfort in reading in English through the use of simple sentences with nontechnical language in the newsletters. This was done to make the newsletters more readable for parents with varied reading levels. Parents were also provided with an opportunity to have the newsletters translated to them verbally by me if needed. Further research studies may focus on the

effectiveness of newsletter programs when provisions are made for the translation of newsletters into languages used by parents. In this study, consideration must be made of possible cultural gaps between the home and school that might not be entirely bridgeable by a classroom newsletter.

Findings

This study has contributed to the existing knowledge base pertaining to home–school communication by devising a unique program as a tool to enhance the transmission of information between classroom teachers and parents of children in Grade 1. It connects with researchers who have suggested various strategies for enhancing family–teacher ties, stresses the importance of clearly conveying classroom programming to parents at home, and attains parental feedback to modify newsletters to accommodate their needs. Table 2 shows the data collected throughout the study. Pseudonyms have been used to protect the identity of the participants.

Table 2. Feedback Forms and Evaluation Surveys Returned Throughout the Newsletter Program

Student	Girl/ Boy	Sept	Oct	Nov	EV (1)	Dec	Jan	Feb	EV (2)	Mar	Apr	May	EV (3)
Joginder	G	M	M						M		M		M
Kamaldeep	B	M		M	M		M	M	M	M		M	M
Gian	G	M	M	M	D	M			D		M	M	M
Sheridan	G												M
Parshotam	B	M	M		M	M	M	M	M		M	M	M
Gurdaas	B	M	M	M	M	M	M	M	M	M			M
Kirpa	B								M				M
Daya	B	M		M	M				M				M
Gurpreet	B	M		M	M		M					M	M
Keerat	G	D	D	M	M	M		M	M	M	M	M	M
Sundeep	G	M		M	M	M	M	M	M	M	M	M	M
Manpreet	G		M (S)	M	M	M	M		M	M			M
Sukhi	G							(S)					
Rajinder	B	M	M	M	M			M	M			M	M
Rob	B	M	M	M	M	M	M						M
Pashpinder	G	D	D	M	D	D					D		M
Dharam	B	D			D		M		D			D	D
Balvinder	G	M					M				M	M	M
Sehaj	G	D		D	D	D	D	D	D	D		M	D
Shangara	B	D	D	D	D	D			D		D		D
Sarah	G		M	M	M	M			M				M
Simran	G	M	D	D	M	D	M		(L)				
Seva	B									M (S)	M	M	M
# of feedback forms and evaluation surveys returned		17/20 M=12 D=5	12/21 M=8 D=4	15/21 M=12 D=3	17/21 M=12 D=5	12/21 M=8 D=4	11/21 M=10 D=1	7/22 M=6 D=1	15/21 M=11 D=4	7/22 M=6 D=1	9/22 M=7 D=2	11/22 M=10 D=1	21/22 M=18 D=3

Note

EV—Evaluation Survey (S)—Student joined class (L)—Student left class

When a feedback form or evaluation survey has been returned, an M or D has been recorded to symbolize whether the mom or the dad of the student completed and returned the form. When a form or evaluation survey has not been returned, the space has been left blank.

Data from Monthly Feedback Forms

Throughout the school year, 192 newsletters with feedback forms were sent home with the children, out of which 101 were returned to the classroom teacher. Fifty-four of these forms were from female students and 46 were from male students. Overall data analysis reveals that the students' mothers took a more active role in reading and returning the feedback portions of the newsletters, with 79 forms being signed by mothers and 22 by fathers. As the year progressed, the number of feedback forms returned decreased: there were 44 in the first term, 30 in the second term and only 27 in the last term. September had the highest number of feedback forms returned (17) and March had the lowest (7).

Data analyses revealed that through the use of a newsletter program, parents felt informed and involved in their child's education. Their feedback was positive and showed that they were responsive to the idea of having a structured classroom newsletter every month. Representative quotes have been presented in Table 3 to illustrate the written feedback received on the monthly feedback forms throughout the study.

Table 3. Written Feedback Provided by Parents on Feedback Forms

Month	Representative Quotes
September	"With the newsletter we will know what's going on in the school and in the class, and we know how we can help our kids and what we need to do for them" (mom). "I like your idea of monthly newsletter. I highly appreciate your effort. I am very positive that Avneet's learning experience this year will be great! Thanks" (dad). One parent expressed a concern and stated, "Grade 1 seems to be quite challenging (especially for Keerat as she has started to read recently). She is trying her best" (mom).
October	"I have never met a teacher that loves her job and students. You work with them on their individual level. Thank you so much. I trust in what you do, and I hope Rob will have more teachers like you. Thank you" (mom). "I really like this newsletter idea. You have done a great job to send this newsletter home. This way parents are getting in touch with the teacher. Parents know what their children are really doing at school" (dad). One parent expressed a concern and wrote, "So far, Sarah read very well, but I'm worried if she has understood all or not much. I really want to get some advice from you. Thanks for your help" (mom).
November	"It's great work, and please continue it. It summarizes the whole month of child's activities in school. Thanks" (mom). One parent requested clarification on classroom programming and wrote, "I would be more interested if you had a small note telling me about my child; that is, what she is doing well and what she needs to practice more. Then I can know exactly how she is doing in class. I am very happy to get a newsletter every month" (mom).
December	"Newsletter was very helpful for Avneet to study at home" (mom). "Rob loves you as a teacher, and you are the best thing that happened to him. We would like to thank you." There were no concerns expressed this month.
January	"It's a very good way to know about various activities" (mom). One parent indirectly expressed a concern and wrote, "All students are trying their best to achieve reward" (mom). She was referring to an award where each week one student was selected from every class in the school to receive a certificate for showing the school values.
February	"I like the idea of sending pictures of pancake day" (mom). "It was wonderful. Thanks for providing us all the information about our kids" (mom). One parent indirectly expressed a concern about her child not having received a certificate and wrote, "He wants to show the core values" (mom).
March	"It was a wonderful introduction to the class. We are looking forward to the next issue. Thanks" (mom). This comment was made by a mom whose child joined the class in this month.
April	"Thank you for informing us about your schedules" (mom). "Very informative" (mom).
May	"I saw a big change in Avneet in Grade 1. Thank you" (mom). "Very exciting news" (mom). No concerns were voiced by the parents in this term.

Summary

Month	Number of Forms with Written Feedback
September	9 out of the 17 forms returned
October	8 out of the 12 forms returned
November	9 out of the 15 forms returned
December	7 out of the 12 forms returned
January	6 out of the 11 forms returned
February	5 out of the 7 forms returned
March	2 out of the 7 forms returned
April	3 out of the 9 forms returned
May	4 out of the 11 forms returned

Data from Newsletter Evaluation Surveys

In total, 64 evaluation surveys were sent home, out of which 53 were returned. Analysis of the evaluation surveys revealed that mothers played a more active role in completing the surveys, with 41 being completed by mothers and 12 being completed by fathers. All written feedback was provided by the mothers. Data analysis revealed that 12 students brought back all three evaluation surveys. However, due to late admission during the school year, two students in the class were unable to participate in the full study. The final evaluation survey had the highest response rate, with 21 out of 22 evaluation surveys returned. It is important to note that although some parents may not have returned some of the feedback forms or evaluation surveys, it did not necessarily mean that they did not read the newsletters.

Evaluation Survey Conducted at the End of the First Term (September–November)

Seventeen out of 21 evaluation surveys were returned in the first term. Even though some students did not return all their monthly feedback forms in this term, data from the surveys revealed that their parents had received each newsletter. Only three parents gave written feedback on the evaluation forms. When asked, "Is my newsletter easy to read and understand?" one parent responded with "Yes. That is not hard but need the time." To the same question, another parent responded with, "Sometimes—make easy with pictures." All parents indicated that they felt the newsletter kept them informed about class events and activities and that it provided them with helpful tips on how to help their child at home. Only two parents gave suggestions on how the newsletter could be made more useful. One parent wrote, "If students themselves can read it" and another wrote, "Please add more pictures of students." One parent stated, "Miss Chohan, you know better than us because you are the best. You are doing an excellent job. Thank you." Another parent wrote, "I would like you to tell me more about the work Sarah is doing at school. Then I will know how my child is doing, what she has learned, what she needs to work on and what she's doing well. Your newsletter is a great. It tells about what's happened in class and school. Then I know more and learn about these things. Also, I am very pleased to see this happen each month."

Evaluation Survey Conducted at the End of the Second Term (December–February)

Fifteen out of 21 evaluation surveys were returned in the second term. Two students did not return any of the feedback forms during the term, but the evaluation survey showed that all the newsletters had been received. Two out of the six students who did not return their final evaluation surveys for this term had a newborn baby in the home and one was in the process of moving home. Three parents, different from the first term, gave written responses on the surveys. Thirteen parents indicated that they felt that the newsletters kept them informed about class events and activities. All 15 parents indicated that they felt the newsletter provided helpful tips on how to help their child at home. One wrote, "It's easy to study with them with this newsletter," and another wrote "Helps a lot." When asked how the newsletter could be made more helpful, no suggestions were made by any of the parents. One wrote, "It is really helpful for us" and another wrote, "It is complete. No suggestions. We really appreciate Chohan's efforts. Thank you."

Part 1 of the Evaluation Survey Conducted at the End of the Third Term (March–May)

Twenty-one out of 22 students returned the final evaluation survey. This survey had two parts. The first part focused on the evaluation of the newsletters for March through to May and was consistent with the previous evaluation surveys conducted at the end of each of the first two terms. However, the last question in the survey was omitted because it no longer applied to the study. The second part of the evaluation survey focused on parents' attitudes about the newsletter program and home-school relationships throughout the school year (Appendix 3).

The student who had not returned the final evaluation survey this term had also not returned any of the feedback forms during the term. His parents had a newborn baby in the house. Even though all the feedback forms had not been received throughout the term, 19 out of the 21 parents stated that they had received all of the newsletters. Eighteen parents thought that the newsletters were easy to read and understand. One parent suggested that the newsletter "should be little tough." Eighteen parents indicated that they were kept informed

about the class events and activities. Eighteen parents indicated that they received helpful tips on how to help their child at home. Only two parents provided written feedback. When asked if the newsletters provided helpful tips on how to help their child at home, one parent suggested that "This should be done at any grade. Helped me a lot" and the other wrote, "Sometimes—good sharing."

Part 2 of the Evaluation Survey Conducted at the End of the Third Term (March–May)

The second part of the final evaluation survey consisted of five specific questions to gain feedback on the overall effectiveness of the newsletter program. Seventeen parents thought that the newsletters allowed for them to be more informed about their child's education, and three parents thought that the newsletters only sometimes kept them informed. One parent wrote that "It is not a complete picture about his activities in education." This parent had returned four feedback forms throughout the year and completed two of the evaluation surveys but had not voiced any concerns or made any suggestions for improvements.

Sixteen parents indicated that they felt that they were a part of their child's learning experience throughout the year. One parent stated, "The newsletters made her feel a part of her child's life." Five parents felt that they were only sometimes a part of their child's learning. However, one of these parents had returned seven feedback forms, completed all evaluation surveys, and indicated on each that he had been informed about his child's class events and activities. Similarly, another parent also indicated that she had been informed but felt that she was only sometimes a part of her child's learning. This suggests that even though parents are informed of their child's activities, it does not necessarily mean that they will feel a part of their child's learning.

Seventeen parents indicated that they felt their child had had a successful year because of being kept informed, and that the newsletters helped to strengthen the relationship between their child's home and school. One parent wrote, "If not, my son would have C in all his work because of the way he is," and another wrote, "I have come to know current topics, so I try to prepare him at home." One parent stated, "Yes, like a chain." Eighteen parents indicated that they were very pleased with the way the newsletters had been constructed and no changes were needed to make them more helpful for future Grade 1 parents. One parent suggested to "try to make the newsletter simple and short" and another wrote that "overall the newsletter is a great idea. I think it would be nice if the children got a chance to include their thoughts." One parent suggested that "For the future, every grade should do it, not just Grade "1."

Discussion

Prior research on parent involvement has highlighted parents as being important contributors when becoming actively involved in their children's learning experiences. This study furthers international conversations regarding the critical role of families and the importance of their feedback when developing and implementing family–school programs. Fostering and sustaining meaningful home–school relationships can be challenging. Educators have an ongoing responsibility in building relationships with parents and assisting them in becoming knowledgeable and informed through effective, consistent and nonthreatening communication. Because parents vary in their sophistication, the "challenge for teachers is to be sensitive to how to communicate meaningfully with different parents" (Robinson and Fine 1994, 5). In the present study, two-way communication between parents and teachers through monthly newsletters and the resulting effects on home–school relationships were assessed. The effectiveness of the newsletters in keeping parents involved and engaged in their child's educational experience at the Grade 1 classroom level was explored. Findings were consistent with much research emphasizing the importance of home–school communication at the elementary school level. Prior research was extended by highlighting newsletters as a tool to enhance authentic home–school communication. Parents found that the newsletters were easy to read and understand, kept them informed about their child's classroom activities and topics being taught in class, and helped to strengthen the home–school relationship. A majority of the participants felt that they had been a part of their child's learning experience in Grade 1 and that their child had had a successful year in school because the parents had been kept informed consistently. Data analysis revealed that the mothers of the children in the class played a more active role in reading the newsletters and returning the feedback forms.

Parents, students and I played a collaborative role in the development of each classroom newsletter. While parent feedback was used to modify the newsletters each month to incorporate their needs and desire for more information, students' enthusiasm in contributing to the newsletters heightened. Students were eager to take home the newsletters each month. They looked forward to having their work intertwined in the classroom newsletters and having their parents look at pictures of them in the classroom.

Seeley (1985) argued that the critical contribution to successful learning is derived from the dynamic relationship between the home and school spheres. Parents, regardless of their socioeconomic backgrounds, can have "a positive effect on school achievement if they become active participants in their child's education" (Robinson and Fine 1994, 3). The quality of home–learning environments that parents provide and what they do with their children are found to be more important on influencing children's learning outcomes than parental social backgrounds (Sylva et al 2004). When schools work toward "improving the quality of school-to-home communication, there is often a reciprocal response" (p 4). Overall, written feedback in this study revealed that parents wanted to be informed about classroom programming and welcomed suggestions on how to help their child at home. Asking about the ease of readability and helpfulness of content allowed for me to receive direction for future changes in the newsletters. According to Barclay and Boone (1995), asking parents if the newsletter is meeting their needs "not only conveys respect for parents' opinions but also lets them know that the teacher is willing to make adjustments that will result in better communication" (p 67). Analyses revealed that parents did not provide much critical feedback or suggestions on how to improve the newsletters, supporting the argument that parents may not want to come across as opposing or questioning authority. In his study, Hargreaves (2001) found that "teachers most experienced negative emotion in their interactions with parents when their expertise, instructional knowledge, and judgments for which they felt uniquely qualified were questioned" (p 1069). Parents who provided written feedback may have found the feedback forms and surveys to be a nonthreatening avenue to express their concerns to the classroom teacher. More parents expressed personal concerns as the year progressed, which might have indicated that a positive rapport was being fostered between the teacher and the parents.

Many possible reasons can be suggested behind why some parents did not always return their feedback forms or surveys. While some parents may have thought that there was no need to return the forms if they had no comments or concerns, others may have felt that their feedback was not going to be considered valuable enough to make changes to the program. Only when parents are forthcoming with feedback can appropriate changes in home–school partnership programs be made. Analyses in this study suggest that more research is warranted on the role of culture and parental self-efficacy as influences on parental feedback on teacher home–school communication programs.

Conclusion

For decades, research has consistently revealed that families play a crucial and significant role in the success of their children in school. However, educators possess the golden key to open the doorway for parents to get involved in their children's education. Within an educational institution, the nature of teaching and learning is influenced by a complex web of factors, which includes the practices of teachers, the characteristics of students, the level of involvement of parents, and the vision and atmosphere of the institution. Addressing the needs of all students effectively requires the collective dialogue, expertise and talents of all partners in the education process. Neither schools, nor families, can independently ensure educational achievements of children in schools. To build family involvement programs in a meaningful and effective way, opportunities must be provided for open and ongoing communication. Classroom newsletters innovatively and constructively bridge home–school communication and provide educators with a practical tool to build and strengthen collaborative learning communities with parents that are authentic and well supported. By discussing and adopting new ideas, educators can consider extending their practice in new directions. The newsletter program allows for educators to make parental involvement an integral part of their teaching practice by attaining their feedback regularly, incorporating their suggestions in the newsletters and informing them of their child's classroom activities. This study clearly showed that parents welcome and appreciate teacher efforts in informing them of classroom programming and suggestions on how to help their child at home. By connecting parents to the classroom, successful steps are taken in eliciting parent support for their children's education. By showing the positive outcomes, this study is most encouraging to those educators who desire greater connections with families and seek to strengthen the relationship between the home and school spheres. Family involvement is an ongoing process. Together, parents and teachers can create strong relationships by enhancing parental understanding of the inner workings of the classroom and teacher understanding of parental needs. A collective vision embraced by both stakeholders can lead to collective action on behalf of all schools, families and their children.

Recommendations

This study extends previous research by exploring the effects of classroom newsletters as a tool to

enhance home–school communication. Further research on the extent of communication will be strengthened by measures of parental educational beliefs, occupations and cultural backgrounds. Researchers must examine key factors that motivate parents to initially get involved in their child's education and to continue to be involved. Insights must be gained into factors that deter, hinder or increase their involvement by addressing concepts of parent occupations, home responsibilities, and language and cultural barriers in schools.

It would be optimal to compare classrooms that use a newsletter program with those that do not to identify the degree to which the newsletter contributes to families feeling more involved and informed.

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Appendix 1: Newsletter Checklist

Format	Simple, attractive heading with date Print size is easy to read Good choice of colour and graphics
Content	Includes: A note from the teacher Calendar of upcoming events Sufficient news about classroom programs and activities Helpful home-learning strategies Samples of student work Sections on volunteers, birthdays, student awards, celebrations and reaching out to parents Photographs from previous month's activities Questions parents can ask their children about topics taught in class
Style	Simple sentence structures are used with nontechnical language Newsletter conveys a warm and personal tone
Dissemination	A feedback form is included at the end of the newsletter
Evaluation	Evaluation of the newsletter is done every three months Data analysis of surveys and feedback forms is used to make revisions to increase the quality of the newsletter

(Barclay and Boone 1995)

Appendix 2: Newsletter Evaluation Survey

Dear Parent(s)/Guardian(s),

Our newsletter is a tool we use to keep you informed about classroom events and programs, and involved in your child's education. Your feedback can help to make this tool as effective as possible. Please take a few moments to share your opinions with me. The purpose of the evaluation is to determine parental perceptions of the newsletters. There are no right or wrong answers to the questions.

Directions: Please read each question carefully. Identify the response that best represents your feelings about the classroom newsletters. Check the box that corresponds to your response. Each question provides a space for additional comments that you may like to make.

Do you receive each monthly issue of the newsletter?
Yes ☐ No ☐ Sometimes ☐
Comment: _____

Do you read each newsletter?
Yes ☐ No ☐ Sometimes ☐
Comment: _____

Is the newsletter easy to read and understand?
Yes ☐ No ☐ Sometimes ☐
Comment: _____

Does our newsletter keep you informed about class events and activities?
Yes ☐ No ☐ Sometimes ☐
Comment: _____

Does our newsletter provide you with helpful tips on how to help your child at home?
Yes ☐ No ☐ Sometimes ☐
Comment: _____

How can our newsletter be made more helpful for you?
Comment: _____

Thank you for taking the time to complete this newsletter evaluation survey.

Appendix 3: Newsletter Program Evaluation Survey

Did you feel that the newsletters allowed for you to be more informed about your child's education?
Yes ☐ No ☐ Sometimes ☐
Comment: _____

Did you feel that the newsletters were effective in making you feel that you were a part of your child's learning throughout the school year?
Yes ☐ No ☐ Sometimes ☐
Comment: _____

Do you feel that your child has had a successful year because you have been kept informed about the topics and skills being taught to your child in class?
Yes ☐ No ☐ Sometimes ☐
Comment: _____

Do you feel that the newsletters helped to strengthen the relationship between your child's home and school?
Yes ☐ No ☐ Sometimes ☐
Comment: _____

What changes should be made to the newsletter to make it more helpful for future Grade 1 parents?
Yes ☐ No ☐ Sometimes ☐
Comment: _____

Thank you for taking the time to complete this newsletter program evaluation survey.

From the Bookshelf

The Moon Children
by Beverley Brenna
Red Deer Press, 2007

Reviewed by Rhonda Nixon

Rhonda Nixon is currently a doctoral student in language and literacy in elementary education at the University of Alberta. Her interests include children's literature, writing pedagogy, multiliteracies and teacher learning. She has been a consultant, literacy coach and teacher for over 12 years.

Texts teach us who we are.

—Margaret Meek,
How Texts Teach What Readers Learn

Over the last 20 years, characters with disabilities were absent, and were depicted as having "freakish" physical problems, or played largely secondary roles in children's literature (Garland Thomson 1997; Keith 2001). Recently, a pilot study of Canadian children's literature revealed more hopeful trends (Brenna 2009). That study found that 19 children's or young adults' realistic or historical fiction novels published after 1995 had characters with disabilities in primary positions. A variety of disabilities (intellectual, visual, hearing, orthopaedic and learning) were realistically presented as both blessings and burdens in characters' everyday lives. In contrast, many 19th century classic British novels (for example, *The Secret Garden*) portray characters with disabilities as destined to lead miserable lives unless miraculously saved by some mysterious intervention (Keith 2001). Given the many opportunities for rich classroom discussions about children's literature, classroom teachers are well positioned to raise critical questions about how characters are treated and ought to be treated by others. Thus, Brenna's (2007) *The Moon Children* is a window to a new world for children who wonder what it is like to live with a learning disability and attentional challenges caused by fetal alcohol spectrum disorder (FASD).

Billy Ray is an 11-year-old boy who initially appears to be overburdened with challenges related to his condition, FASD, and to his family life, which has been splintered by alcoholism. Billy's hardworking pregnant mom spends long hours cleaning at a nearby hotel; therefore, Billy spends a lot of time alone in a three-storey apartment complex, periodically visiting his well-intentioned neighbour, Mrs Schmidt, who cooks and bakes for him and cares for Pork Chop, her husband, who has terminal cancer. Billy has mostly distant and negative memories of his alcoholic, absentee father, so he distracts himself from his loneliness by endlessly practising yo-yo tricks. Billy hopes that if he learns how to do all 21 tricks in the yo-yo manual, his father will attend an upcoming talent show and be so proud of him that Billy's condition, and all of the manifestations of it, will magically disappear. In other words, Billy mistakenly believes that it is his condition, not his father's alcoholism, that has splintered his family.

About midway through the novel, Billy overhears his drunken father begging Billy's mother for money and exhorting her to drink with him. His father says, "This baby won't be like Billy, don't worry" (p 60). Billy is initially confused by this comment, but his mother later explains that her drinking is probably the reason for Billy's excessive hyperactivity and impulsivity, and for his learning frustrations, especially his difficulties with reading and his memory lapses.

Brenna's rich portrayal of Billy's everyday life lures her reader into his psyche, one that survives his struggles with a body that "is like a natural disaster inside" (p 16). The reader realizes that Billy's obsession with practising yo-yo tricks is his escape mechanism; his yo-yo is the only part of his life that he successfully and consistently controls. While practising his yo-yo tricks and singing "Blue Suede Shoes" (a song that his dad commonly sang), Billy lures his reader into his dream world.

Natasha, a Romanian girl who lives across the street from Billy, is central to his dream world. Natasha longs for her birth mother even though she is well taken care of by her adoptive parents, Mr and Mrs Arnold. After Billy meets Natasha in the first chapter, they develop a close, mutual understanding; Billy's frustration with his condition mirrors Natasha's difficulty coping with the trauma of her mother's abandonment. Natasha continuously draws the moon in her notebook to escape reality as she imagines being reconnected with her birth mother. She rarely speaks because she is so consumed by her profound sense of loss; thus, Natasha is imprisoned by a grief that prevents her from enjoying the real world around her. Likewise,

Billy endlessly practises his yo-yo tricks to tune out the real world and to make his talent-show dream materialize. A turning point in the novel occurs when Billy is unable to find a willing sponsor for the talent show. Natasha's determination to make Billy's dream come true causes her to speak for the first time in months as she tries to convince Mr Arnold to support Billy. Naturally, Mr Arnold complies, and the novel concludes; the children serve as each other's lifeline to their respective dreams—Billy through his new-found self-appreciation and self-acceptance at the talent show, and, Natasha, through a new-found relationship with her adoptive parents.

The Moon Children is a window into the world of critical literacy for teachers and upper elementary or junior high students. One principle of critical literacy is to "challenge students to expand their thinking and discover diverse beliefs, positions and understandings [about a topic such as characters with dis/abilities]" (McLaughlin and DeVoogd 2004, 16). Consider a classroom activity in which you create a chart that lists all of the characters in *The Moon Children* in one column, all of Billy's behaviours and physical characteristics in a second column, and the assumptions that each character draws about Billy in light of his behaviours and physical characteristics in a third column. Conclude the activity with a classroom discussion and/or reflective writing exercise that addresses the following questions: Which character's viewpoint is most like your own? What does such a viewpoint show about your attitude toward people with disabilities? Finally, a debriefing session could centre upon these questions: What assumptions has the author made about people who have FASD? Does her portrayal of Billy match what research literature shares about FASD?

The Moon Children is Canadian author Bev Brenna's most recently published children's novel, and it is currently nominated for a 2009 Silver Birch Award by the Ontario Library Association. Brenna's six other children's novels are listed on Readers' Choice shortlists, including the New York Public Library's Recommended Books for Adolescents. Billy's mother eloquently stated the theme of *The Moon Children*: "You can be who you want to be, as long as you put your mind to it" (p 70), a theme intended for preadolescent and adult readers alike. Thus, Brenna successfully undermines the Western cultural myth that children who have disabilities are destined to live lives replete with challenges. *The Moon Children* reimagines such a deficit model of disability by repositioning Billy and Natasha as children who have abilities that emerge from their disabilities. These two children walk their readers down a more enlightened path and prompts them to look at disabilities in a new light. Brenna's *The Moon Children* requests that readers read the word, read the world (Freire 1970, 87) and reimagine the myth of disabilities through her sensitive, realistic portrayal of a child who has FASD.

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