Contributing to Children's Early Comprehension of Emotions: A Picture Book Approach

Christian LaForge
Laurentian University

Mélanie Perron
Laurentian University

Annie Roy-Charland
Université de Moncton

Emilie Myriam Roy
Commission scolaire des grandes seigneuries

Isabelle Carignan
Téluq University

Canadian Journal of Education / Revue canadienne de l'éducation 41:1 (2018)

www.cje-rce.ca

Abstract

Previous studies have suggested that children's emotion comprehension begins to develop in the early stages of childhood and has been linked to prosocial behaviours, displays of empathy, and better interpersonal relationships, to name a few. However, children's levels of emotion comprehension do not develop at the same rhythm, due to both environmental and biological factors. There are a few interventions that can help children in their development of emotion understanding, but these interventions are not readily accessible (e.g., due to cost, availability, duration). For example, the School Matters in Lifeskills Education Program (SMILE) is a theoretically based program aimed at improving children's emotion comprehension. Unfortunately, since, for instance, it requires rigorous training to be administered, it is not accessible to all. To address some of the issues with previous programs, the current study examined the use of shared book reading and the effectiveness of picture books created on current theories and models of children's emotion comprehension. Eighteen preschoolers were divided into an experimental and a control group. Over the course of multiple exposures to the experimental treatment, results revealed a significant gain for the experimental group compared to the control group. These results are promising by showing that a simple shared book reading approach can contribute to the development of emotion comprehension without requiring special training or expertise.

Keywords: preschoolers, emotion comprehension, shared book reading, picture books

Résumé

Les travaux de recherche ont mis en évidence que la compréhension que les enfants ont des émotions commence à se développer tôt durant l'enfance. Ce type de compréhension est en retour associé à davantage de comportements prosociaux, une plus grand empathie et de meilleures relations interpersonnelles en général. Cependant, en raison de facteurs biologiques et environnementaux, la compréhension des différentes composantes de l'émotion émerge graduellement au cours de l'enfance; certaines composantes n'étant maîtrisées que plus tardivement. Plusieurs interventions sont actuellement

disponibles afin de promouvoir la compréhension des émotions, mais celles-ci ne sont souvent pas facilement accessibles (en raison des coûts, de la formation nécessaire ou de la durée de l'intervention). Par exemple, le « School Matters in Lifeskills Education Program (SMILE) » est un programme destiné à favoriser le développement de la compréhension des émotions chez les enfants, mais celui-ci nécessite une formation importante et implique une intervention qui s'étend sur plusieurs mois. Il est donc difficilement accessible à une grande partie de la population. Afin de pallier à ces limites, l'objectif de la présente étude est d'utiliser l'approche de la lecture conjointe afin de promouvoir la compréhension des émotions chez les enfants et tester l'efficacité de livres créés spécifiquement sur la base de théories et données scientifiques sur la compréhension des émotions. Dix-huit enfants d'âge préscolaire ont été divisés en deux groupes (expérimental et contrôle). Après avoir été exposés à de multiples reprises aux livres spécialisés qui ont été créés, seuls les enfants du groupe expérimental ont montré des gains significatifs dans leur compréhension des émotions. Les résultats de cette études suggèrent qu'il est possible d'utiliser la lecture conjointe comme moyen d'améliorer la compréhension des émotions chez les enfants sans que cela n'implique une formation spéciale ou une expertise spécifique.

Mots-clés : enfants d'âge préscolaire, compréhension des émotions, lecture conjointe, livres d'histoire

Introduction

The role of emotions in our daily interactions is nothing less than essential, ranging from ensuring the survival of our species to having better interpersonal relationships (Lench, Bench, Darbor, & Moore, 2015; Cassidy, Parke, Butkovsky, & Braungart, 1992). From an evolutionary standpoint, emotions are modes of operation, shaped by natural selection, that impact psychological, physiological, and behavioural responses in ways that increase our capacity to respond effectively and adapt to threats, as well as encourage us to act on enjoyment and urges (Izard, 1977; Gould, 1982; Gould & Vbra, 1982; Nesse, 1990). Apart from their survival contribution, emotions influence our decision-making, they impact our behaviour, and they affect our well-being (Ellsworth & Scherer, 2003; Moors, Ellsworth, Scherer, & Frijda, 2013).

Several studies indicate a relationship between the understanding that a child has of his or her emotions, as well as those of others, and the quality of his or her prosocial behaviours with peers and teachers, in terms of social adjustment and academic achievement (Harrison & Paulin, 2000; Harris & Pons, 2003; Pons, Harris, & Doudin, 2002; Pons, Doudin, & Harris, 2004). From three to four years of age, the better the emotional understanding of the children, the fewer their behavioural problems (antisocial behaviour, aggression, limited empathy, etc.) (Hughes, Dunn, & White, 1998). In addition, the higher the quality of social games in four-year-old children (e.g., good cooperation and effective communication), the better their understanding of emotions (Dunn & Cutting, 1999; Hughes et al., 1998). Children with a good understanding of emotions during their first year of compulsory schooling have higher levels of popularity among their classmates (Cassidy et al., 1992). Children from the ages of four to five who can recognize emotions in facial expressions are also the ones who are most popular with their classmates one or two years later (Edwards, Manstead, & MacDonald, 1984). Because of the role of children's comprehension of emotions, it is important to understand how to promote such skills, as well as to explore ways to contribute to their better development. The goal of the current study was to test the effectiveness of a picture book approach, based on current theories of emotion comprehension, in teaching these skills to children.

Emotion Comprehension

The theoretical background for this article is based on Pons and Harris's model of emotion comprehension. Emotion comprehension has been proposed as one of the three components of emotional competencies (alongside the expression and regulation of emotion) (see, e.g., Saarni, 1999). The past few decades of research have led to the proposal of three stages of development with at least nine different components of children's emotion comprehension (three components per stage), with most of these components developing between early childhood and preadolescence (Harris & Pons, 2003; Pons & Harris, 2005; Pons, Harris, & de Rosnay, 2000, 2004; Saarni, Mumme, & Campos, 1998) (see Table 1).

Table 1. Stages and competencies of emotion comprehension

Stage 1 External Dimension of Emotions	Stage 2 Internal Dimension of Emotions	Stage 3 Complex Dimension of Emotions
Component I (Recognition)	*Component IV* (Desire)	*Component VII* (Control of the felt emotion)
Component II (External causes)	*Component V* (Belief)	*Component VIII* (Mixed)
Component III (Memories)	*Component VI* (Real and apparent emotions)	*Component IX* (Morality)

Note. This model is composed of three stages of development with nine different components (competencies) of children's emotion comprehension—three components per stage.

During the first stage (from two to four or five years of age), which can be identified as the understanding of "external" dimensions of emotions, three components of emotional comprehension emerge (*Components I*, *II*, *III*). *Component I (Recognition)* refers to children's ability to identify and label different emotions by observing facial expressions, such as the expressions associated with the basic emotions (Bullock & Russell, 1985; Cutting & Dunn, 1999; Denham, 1986; Dunn, Brown, & Beardsall, 1991; Hughes & Dunn, 1998; Pons, Harris, & de Rosnay, 2004; Rothenberg, 1970). *Component II (External causes)* refers to children's understanding of how external causes influence the emotions of others (e.g., a child could anticipate the sadness another experienced at the loss of an animal) (Barden, Zelco, Duncan, & Masters, 1980; Cutting & Dunn, 1999; Denham, 1986; Harris, Olthof, Terwogt, & Hardman, 1987; Hughes & Dunn, 1998; see Pons, Harris, & de Rosnay, 2004, for more details). Finally, during *Component III*

(Memories), young children begin to comprehend the relationship between emotion and memory (Harris, 1983; Harris, Guz, Lipian, & Man-Shu, 1985; Lagattuta & Wellman, 2001; Lagattuta, Wellman, & Flavell, 1997; see Pons, Harris, & de Rosnay, 2004, for more details). For instance, a child can feel sadness in reminiscence of losing a prized object or person.

During the second stage (four or five years to eight or nine years of age), three new components emerge (*Components IV*, *V*, *VI*). This stage can be described as that of understanding the "internal" dimensions of emotions, such as understanding the role of the cognitive processes (e.g., knowledge). *Component IV (Desire)* refers to children's ability to appreciate that others' emotional reactions depend on their desires, and comprehend that people can feel differently regarding a situation because of a difference in desire (Harris, Johnson, Hutton, Andrews, & Cooke, 1989; Pons, Harris, & de Rosnay, 2004; Yuill, 1984). For example, two people in the same situation (both are craving a snack and discover a bowl of peas), but who do not have the same desires (one person likes peas, while the other hates them), can feel different emotions (happiness and sadness, respectively). During *Component V (Belief)*, children begin understanding that someone's beliefs, false or true, will play a role in determining their emotional reaction to a given situation (Bradmetz & Schneider, 1999; Fonagy, Redfern, & Charman, 1997; Hadwin & Perner, 1991; Harris et al., 1989; see Pons, Harris, & de Rosnay, 2004, for more information). For instance, a child can understand that a protagonist might feel happy in an activity while his or her bicycle is being stolen without their knowledge. During *Component VI (Real and apparent emotion)*, children start to understand that what an individual is feeling might be different than what he or she expresses (Perron & Gosselin, 2007, 2009). For instance, a child can understand that someone can be sad about receiving an unwanted gift but express happiness.

During the third stage of development of the understanding of emotions, which can be described as a "complex dimension of emotions," three new components emerge (*Components VII*, *VIII*, *IX*): understanding the nature of mixed emotions, the impact of moral rules on certain emotions, and the possibility of controlling the emotional feeling. *Component VII (Control of the felt emotion)* refers to children's understanding that individuals are able to control an emotion that they feel (see Pons, Harris, & de Rosnay, 2004, for more details). An example of this component is the ability to understand that if we think of a happy situation, it would help reduce the feeling of sadness. For *Component*

VIII (Mixed), children are able to understand the concept of ambivalent or contradictory emotions that one might experience in a given situation (Lemerise & Arsenio, 2000; Brown & Dunn, 1996; Donaldson & Westerman, 1986; Fischer, Shaver, & Carnochan, 1990; Harris, 1983; Harris, Olthof, & Terwogt, 1981; Harter & Buddin, 1987; Hughes & Dunn, 1998; Kestenbaum & Gelman, 1995; see Pons, Harris, & de Rosnay, 2004, for more details). An example is the understanding that we can be happy when finding our lost pet, but sad that it is hurt. Finally, during *Component IX (Morality)*, children are in the early stages of comprehending that negative feelings can be the result of morally questionable actions, for example, lying to one's parent. The opposite is true as well: they can also understand that a positive feeling can be the result of praised action (Harter & Whitesell, 1989; Harter, Wright, & Bresnick, 1987; Nunner-Winkler & Sodian, 1988; Lake, Lane, & Harris, 1995; Pons, Harris, & de Rosnay, 2004).

Teaching Emotion Understanding

The School Matters in Lifeskills Education Program (SMILE) has been developed in hopes of assisting children in developing their emotion comprehension (Pons, Harris, & Doudin, 2002). To summarize the procedure of the SMILE program, it is composed of four sections (me, my family, my friends, and others), including 13 themes centred on, for instance, discussing present and past emotions, distinctions between apparent and real emotions, distinguishing the origins of negative emotions, and so on. These activities are conducted individually and in groups using a variety of readings, discussions, and games. Furthermore, this program aims at developing the understanding of emotions not only through cognition but also through induced emotions. Finally, before the program can be delivered, the administrator has to attend at least a two-week training session on how to properly use the SMILE program.

The SMILE program was shown to be successful, with an 82% improvement in the level of emotion understanding in children. However, some restrictions prevent it from being available to all. First, being trained in the SMILE program is a long and time-demanding process. Teachers and educators must follow a two-week training prior to being able to administer the program to children in the classroom (see Pons, Harris, & Doudin, 2002, for more details). Second, the program itself is long as it extends over

several months. Third, because of the previous limitations, the SMILE program is only available to a select few children, and thus is not easily accessible to a mass population of children. Fourth, and most importantly, because of the numerous components of the program and the variety of the activities involved, it remains unclear what parts of the program are indeed successful in improving children's emotion understanding.

Shared Book Reading

Shared book reading can be defined as any reading activity where a skilled-reader reads aloud to a child, whether it is a parent to his or her children, the teacher in a class, or another skilled child to a friend (see, e.g., Levy, Gong, Hessels, Evans, & Jared, 2006). Of all educational activities, shared book reading has been identified as the preferred activity by children and the most frequently practised activity across households (Bus, van Ijzendoorn, & Pellegrini, 1995; Scarborough & Dobrich, 1994). Shared book reading has been empirically supported with regards to its contributions to children's learning outcomes such as familiarizing children with grammar and syntax, developing print awareness, enriching the child's vocabulary and knowledge of literate discourse rules, as well as social learning and relational skills (Brett, Rothlein, & Hurley, 1996; Bus et al., 1995; Elley, 1989; Evans & Saint-Aubin, 2013; Mol, Bus, & de Jong, 2009; Pick, Unze, Brownell, Drozdal, & Hopmann, 1978; Scarborough & Dobrich, 1994; Sénéchal, 1997). A relatively unique characteristic of shared book reading is that the child does not have to play an active role or even know that he or she is learning, but can benefit simply from listening (Roy-Charland, Perron, Boulard, Chamberland, & Hoffman, 2015).

To the best of our knowledge, there has been no empirical research examining the potential of shared book reading as a strategy to help children in the development of their understanding of emotions. However, a recent study by Evans and Saint-Aubin (2013) examined whether preschoolers' vocabulary could be stimulated by shared book reading. More precisely, they presented picture books containing novel words seven times, without other explicit explanations of the words, to see if children could learn them by simply listening to the storyline and following the narration through the illustrations. Results revealed that children made significant vocabulary gains on the words in the books, and those gains were related to their general receptive vocabulary. An important conclusion

by Evans and Saint-Aubin (2013) is that children were actively matching the pictures with the narration during shared book reading, and that this link might have contributed to the gains in vocabulary. The current study will borrow the procedure used by Evans and Saint-Aubin (2013) to stimulate emotion comprehension skills.

Current Study

The current study aims to explore the effectiveness of a single strategy that overcomes the above-mentioned limitations of the SMILE program. More precisely, we will examine the effectiveness of a shared book reading strategy using picture books, created based on Pons and Harris's model for teaching the first two stages of emotional understanding (first six components) to preschool-age children (Pons, Harris, & de Rosnay, 2004). The six picture books were created solely for the purpose of this study. Educational products represent one of the largest markets for the child demographic, and there is a growing variety of paper-based and electronic products designed with the objective of teaching emotion comprehension skills. However, from a scientific perspective, the majority of these products suffer from two main pitfalls. First, they are not based on supported theories. In some circumstances, even for a trained professional in emotional research, it is unclear to what emotional concepts the content is referring, and even what emotion is portrayed. Furthermore, in the majority of these books, the level of complexity and abstract nature of the emotional content is too advanced for young children to understand. These materials are produced without constraints based on the scientific literature about children's level of understanding of emotions. Second, the effectiveness of these products in teaching emotion competencies has not been explored. While they may be entertaining, whether children learn emotion concepts from these books is unknown. Thus, one of the goals of the current study is to create books based on scientific theories and validate their use in teaching emotional concepts.

Based on the vocabulary gains observed in Evans and Saint-Aubin's (2013) shared book reading study, it is hypothesized that children exposed to the created picture books (experimental condition) would demonstrate significant gains in their levels of emotion comprehension in comparison to the children who were not exposed to the picture books based on current emotion comprehension literature.

Method

Participants

Eighteen francophone preschoolers (four boys, 14 girls, M_{age} = 40.89 months, age range: 34–54 months) recruited in bilingual (English, French) communities took part in the study. The 18 preschoolers were separated into two different groups: an experimental group (two boys, seven girls, M_{age} = 41.78 months, age range: 34–54 months) and a control group (two boys, seven girls, M_{age} = 40 months, age range: 34–47 months) group. The children's families were composed of 15 two-parent families, two single-mother families, and one shared-custody family. Most of the parents (100% of mothers and 94.4% of fathers) who participated in the study reported having obtained their high school diploma, with the majority (100% of mothers and 88.8% of fathers) having completed some post-secondary education. The majority of families (66.7%) reported an annual income higher than $100,000, whereas 11% of families reported earnings between $85,000 and $100,000; 5.6% of families reported earning between $70,000 and $85,000, and between $40,000 and $55,000; and finally 11.1% of families reported that they earned less than $16,000 annually. All 18 families reported owning at least 35–75 children's books, and most parents (55.6%) reported owing at least 75–200+ children's books. Finally, many parents (72.2%) reported reading to their children seven times (sessions) a week, with many (72.2%) reportedly reading between 10 and 20 minutes per session.

Materials

Home Literacy Experiences Questionnaire. A French translation of the Home Literacy Experiences Questionnaire (see Roy-Charland, Saint-Aubin, & Evans, 2007) was sent to the parents and completed before the experimental sessions. This questionnaire was used to gather general information about the household and about reading activities and materials with which the children were engaged in their homes. The parent the most familiar with the reading activities was asked to answer the questionnaire. The majority (88.9%) of the Home Literacy Experiences Questionnaires were reportedly completed by the mother.

Picture books. For the experimentation sessions, six picture books were created by the authors, one book per component of emotion tested. These books were created to serve as tutorials for different emotional components, *components I* through *VI*. For each of the books, the illustrations and text were found on different pages: the text was displayed on the odd-numbered pages and the illustrations on the even-numbered pages.

The first book, entitled *Les émotions* (Emotions), has a Flesch reading score of 70.78, is composed of 13 pages, including the title page, with a mean of one sentence, 19.83 words, and 99.67 characters per page. This book was created to reflect *Component I (Recognition)*, in Stage 1. The storyline and illustrations emphasize and describe the individual facial characteristics found with each corresponding emotion. For example, "*Lorsque Lana est heureuse, ses joues remontent en tirant sur les coins de sa bouche pour former un beau sourire*" (When Lana is happy, her cheeks raise in order to pull the corners of her mouth to form a beautiful smile) (see Figure 1).

Figure 1. Sample page from the first book *Les émotions* (Emotions)

The second book, entitled *La crème glacée* (Ice cream), Flesch reading score of 88.75, is composed of 13 pages, including the title page, with a mean of six sentences, 68.83 words, and 370.50 characters per page. This book was created to reflect *Component II (External cause)*, in Stage 1. The storyline and illustrations describe a young girl, Abby, who lost her ice cream cone and stole a friend's ice cream, only to have him be upset with her actions. However, with the arrival of a new friend willing to share some of his dessert with both Abby and Christian, the three youngsters are very happy with their friendships.

The third book, entitled *Le cadeau surprise* (The surprise gift), Flesch reading score of 83.24, is composed of 13 pages, including the title page, with a mean of 5.83 sentences, 68.67 words, and 365.59 characters per page. This book was created to reflect *Component III (Memories)*, in Stage 1. The storyline and illustrations describe children receiving unexpected gifts and their expectations of the gifts; some are disappointed with the unimagined outcome, while others seem to be satisfied with the surprise.

The fourth book, entitled *Annie a peur du chien* (Annie's afraid of the dog), Flesch reading score of 87.1, is composed of 13 pages, including the title page, with a mean of 5.50 sentences, 50.50 words, and 269.67 characters per page. This book was created to reflect *Component IV (Desire)*, in Stage 2. The storyline and illustrations describe Annie's love for a dog while he is in his cage, but the dog's unplanned escape scares the young girl, as she didn't see him escape while she was playing near the cage.

The fifth book, entitled *Les souvenirs* (Memories), Flesch reading score of 85.46, is composed of nine pages, including the title page, with a mean of 5.50 sentences, 69.75 words, and 353 characters per page. This book was created to reflect *Component V (Belief)*, in Stage 2. The storyline and illustrations emphasize and describe whose memories can affect our current emotions, how thinking about happy memories when sad can change our sadness into happiness, and how the opposite is true as well.

The sixth book, entitled *Le livre brisé* (The broken book), Flesch reading score of 83.6, is composed of nine pages, including the title page, with a mean of 5.75 sentences, 69.25 words, and 377.50 characters per page. This book was created to reflect *Component VI (Real and apparent emotion)*, in Stage 2. The storyline and illustrations emphasize and describe a young boy's sadness over his favourite book being broken (or damaged); no matter what other books he decides to look at, they can't make him feel any better. Eli tries different activities until he can find something that makes him happy again—playing outdoors with friends.

Letter naming measure. The letter naming scale from the Échelle de compétences en lecture (Desrochers, 2008) was administered to assess alphabetic knowledge. Children were asked to name the 26 uppercase letters of the alphabet presented in a random order, three or four letters per page. The experimenter pointed to the letters from the top of the page. For kindergarteners, the alpha coefficient is .93. Concurrent validity coefficients

with oral reading of simple words, grapheme sounding, and upper-lower case letter matching vary between .47 and .76.

Vocabulary measure. The vocabulary measure was the ÉVIP, form B (Dunn, Theriault-Whalen, & Dunn,1993), the French version of the Peabody Picture Vocabulary Test (PPVT). This scale assesses children's receptive vocabulary by asking them to point to the correct pictorial representation of a word out of four possible choices. Split-half reliability for the age groups tested in the current study varies between .66 and .80, and test–retest reliability varies between .65 and .68. The median of the concurrent validity coefficients with other vocabulary measures is .71.

Test of Emotion Comprehension. The Test of Emotion Comprehension (TEC) was administered to evaluate children's understanding of emotions (Pons & Harris, 2000). The children were only assessed on *Components I* through *VI*. The test materials consisted of two A4 picture books, one version for boys and one for girls. The items in the books were identical; only the protagonists' names were changed. The upper section of each page had a cartoon scenario in a 16 cm x 11 cm frame. Under each scenario were indicated four emotional outcomes, usually illustrated as facial expressions (each in frames of 7.5 cm x 5.5cm) (Figure 2).

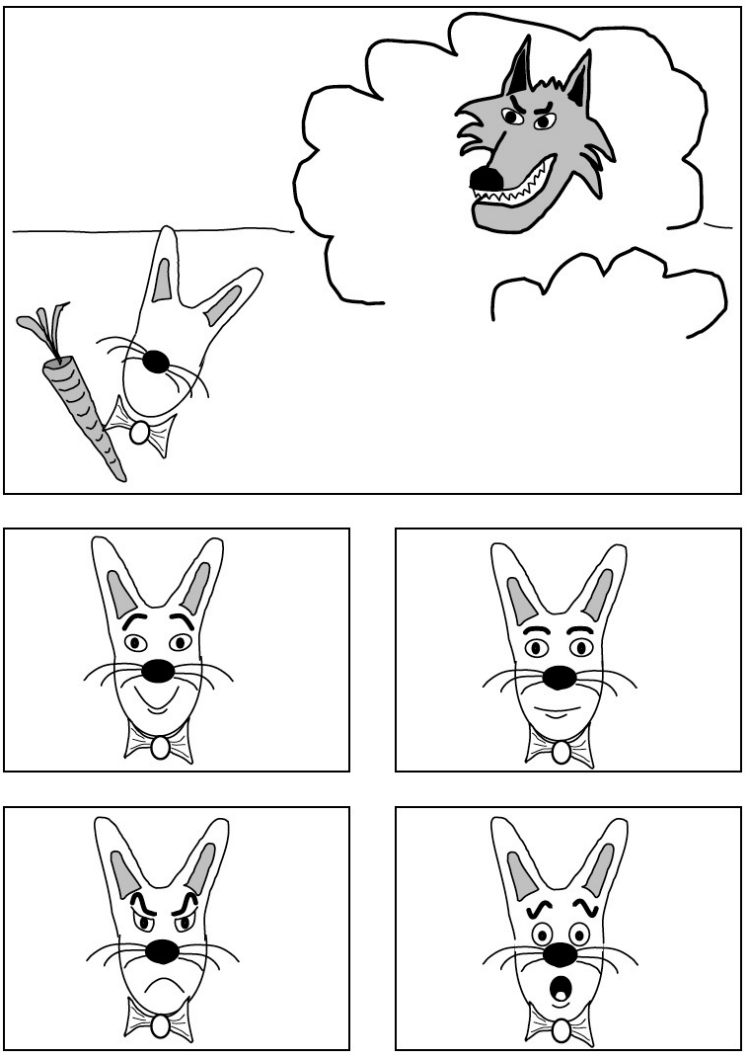
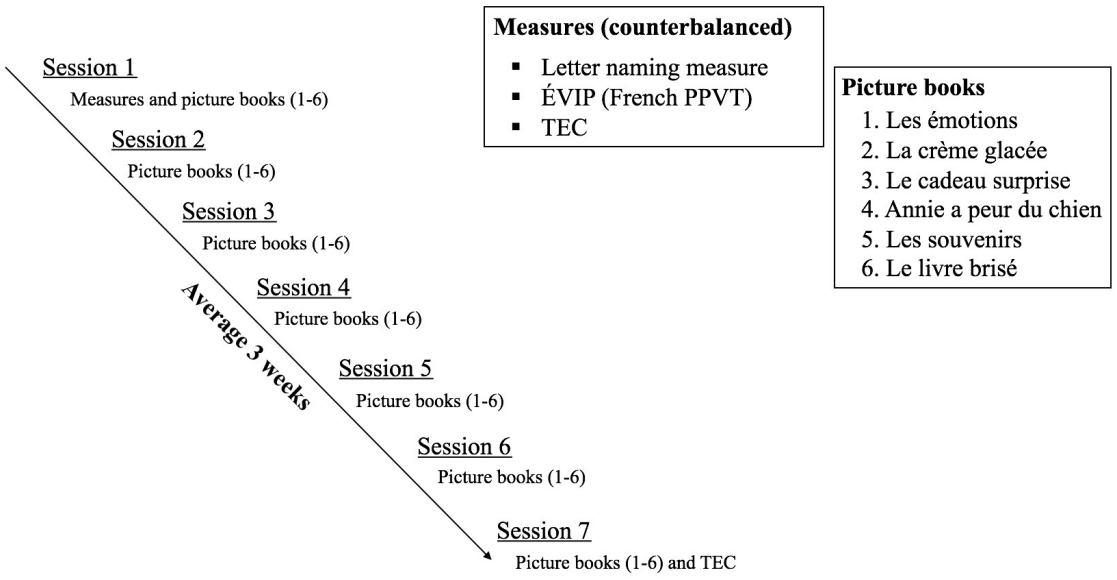


Figure 2. Example of cartoon scenarios and emotional outcomes from *Component V (Belief)* (as seen in Pons, Harris, & de Rosnay, 2004)

Procedure

An overview of the procedure is given in Figure 3. Children were seen seven times over an interval averaging three weeks. Children were seen, for all seven sessions, at their respective daycare centres. Participants were divided into two equal groups, an experimental group and a control group. During the first session (approximately 45 minutes), children completed the ÉVIP test, the TEC (pre-measure; a more detailed procedure is

given below), and the letter-naming task. The order of all three measures was counterbalanced. Finally, the children in the experimental group were individually read the six picture books created for this study. The children in the control group were read storybooks that were readily available at the daycare centre. The research assistant was instructed to read the storybooks in a straightforward manner without pointing to elements found on the pages, commenting, elaborating, defining words, or emphasizing aspects of the text with their voice.



Note: ÉVIP = Échelle de Vocabulaire en Images du Peabody; PPVT = Peabody Picture Vocabulary Test; TEC = Test of Emotion Comprehension

Figure 3. Overview of the procedure

For both groups, sessions two to six (approximately 20 minutes each) were comprised of readings only, either individually or in small groups, and the last session, session seven (approximately 30 minutes), consisted of a final individual reading, from their respective books, followed by the TEC (post-measure). The research assistant was also told not to ask questions of the child, nor to answer questions from the child related to the story. Only the pictures from the books were presented to the children, while the textual pages were read by the assistant.

The general procedure, for the TEC, can be divided into two steps and described as followed:

> (1) While showing a given cartoon scenario, the experimenter read the accompanying story about the depicted character(s). The face(s) of the characters in the cartoon were left blank. The situations were described in an emotionally neutral fashion with a deliberate attempt to remove verbal and nonverbal emotional cues; (2) after hearing the story, the child was asked to make an emotion attribution to the main character by pointing to the most appropriate of the four possible emotional outcomes (depicted below the scenario). (Pons & Harris, 2005, p. 1163)

The following procedures are as outlined in Pons, Harris, and Rosnay (2004) and in Pons and Harris (2005): The four possible outcomes were two negative emotions (sad/scared, sad/angry, or scared/angry), and two non-negative emotions (happy/just all right). The position of the correct response was varied systematically among each of the four positions across test items. Control questions were sometimes introduced to check children's comprehension of the situation. The test is divided into nine blocks presented in a fixed order. However, only the first six blocks were presented. Each block assesses a component of the understanding of emotion: (I) *Recognition* of emotions based on facial expression (e.g., recognition of the face of a sad person); (II) Understanding of external *causes* of emotions (e.g., attribution of an emotion to a character being chased by a monster); (III) Understanding of *desire*-based emotions (e.g., attribution of an emotion to two characters in the same situation but having opposite desires); (IV) Understanding of *belief*-based emotions (e.g., attribution of an emotion to a rabbit who is enjoying a carrot without knowing that a fox is hiding behind the bushes); (V) Understanding the influence of a *reminder* on a present emotional state (e.g., attribution of an emotion to a character who is reminded of the loss of a pet); (VI) Understanding of the *regulation* of an experienced emotion (e.g., attribution of a psychological strategy, such as "think happy thoughts," to a character who wants to stop feeling sad).

A description of *Component II* (i.e., understanding of the impact of situational causes on emotions) is given below for illustrative purposes (as reported in Pons & Harris, 2005). The experimenter started by presenting the first item as follows: *Ce garçon est en train de regarder sa tortue qui vient juste de mourir* (This boy is looking at his little turtle, which has just died). Then, the experimenter asked: *Comment ce garçon se sent-il? Se sent-il heureux, triste, effrayé, ou juste bien?* (How is this boy feeling? Is he happy, sad, angry, or just all right?) The experimenter pointed to each of the four possible

emotional outcomes. The procedure was the same for the subsequent four items. Only the situation depicted in the scenario and the four possible outcomes were changed. These were as follows: *Ce garçon vient juste de recevoir un cadeau pour son anniversaire. Se sent-il heureux, triste, juste bien, ou effrayé?* (This boy is getting a birthday present. How is this boy feeling? Happy, sad, just all right, or scared?); *Ce garçon essaye de faire un dessin mais son petit frère est en train de l'embêter. Se sent-il heureux, juste bien, fâché, ou effrayé?* (This boy is trying to do a drawing but his little brother is stopping him. How is this boy feeling? Happy, just all right, angry, or scared?); *Ce garcon est en train d'attendre le bus. Se sent-il heureux, triste, fâché, ou juste bien?* (This boy is standing at the bus stop. How is this boy feeling? Happy, sad, angry, or just all right ?); and finally, *Ce garçon est en train d'être poursuivi par un monstre. Se sent-il heureux, juste bien, fâché, ou effrayé?* (This boy is being chased by a monster. How is this boy feeling? Happy, just all right, angry, or scared?) The experimenter pointed to each possible emotion as it was articulated. The children were only assessed with *Components I* through *VI* (see Pons, Harris, & de Rosnay, 2004 for a complete description of materials and procedure for the TEC). The scalogram analysis suggested that at a general level the nine components are scalable and that the scale is valid; it produced an *I* of 0.676 and an *R* of 0.904 (Pons & Harris, 2005).

Results

The focus of the analyses was to determine the impact the created picture books had on children's emotion comprehension and to establish any relations between vocabulary and emotion comprehension.

Emotion Comprehension

An analysis of variance (ANOVA) revealed no significant difference between both the experimental ($M = 1.11$, $SD = 0.93$) and control group ($M = 0.67$, $SD = 0.71$) at pre-test, $F(1,17) = 1.31$, $p = .27$, $\eta^2 = .08$.

Two paired-samples t-tests were conducted to compare the scores from the Test of Emotion Comprehension, one for each group, before and after the seven readings. There was a significant difference in the scores from the experimental group before the

beginning of the experiment and after, $t(8) = -3.36$, $p = .01$, $d = 1.12$. More precisely, these results show a higher score at post-test than pre-test for the experimental group. As for the control group, there was no significant difference between the scores obtained at the beginning of the experiment and after, $t(8) = -1.17$, $p = .28$, $d = 0.39$.

Table 2. Means (M) and standard deviations (SD) from Test of Emotion Comprehension Scores at pre-test and post-test as a function of the groups

	Pre-test		Post-test	
Groups	*M*	*SD*	*M*	*SD*
Experimental ($n = 9$)	1.11	0.93	2.33	1.50
Control ($n = 9$)	0.67	0.71	1.22	1.39

Receptive Vocabulary

An analysis of variance (ANOVA) revealed no significant difference between the experimental group ($M = 17.33$, $SD = 9.34$) and the control group ($M = 21.63$, $SD = 9.26$) from the ÉVIP raw scores, $F(1,16) = 0.90$, $p = .36$, $\eta^2 = .06$. These results suggest that both groups did not differ in their receptive vocabulary skills.

Letter Identification

On average, children were only able to identify a few of the alphabet letters ($M = 5.44$, $SD = 8.33$). An analysis of variance (ANOVA) revealed no significant difference between the experimental group ($M = 3.33$, $SD = 8.23$) and the control group ($M = 7.56$, $SD = 8.34$) from the letter-naming task scores, $F(1,17) = 1.17$, $p = .30$, $\eta^2 = .07$. These results suggest that both groups were at par in their alphabetical knowledge.

Correlations

A Pearson's r was computed to access the relationship between raw ÉVIP scores and TEC (pre-test) scores. There was no significant correlation between the two variables, $r = -.28$, $p = .47$. Results suggest no apparent relationship between children's receptive vocabulary skills and their level of emotion comprehension. A second Pearson's r was computed

to access the relationship between letter identification scores and TEC (pre-test) scores. There was no significant correlation between the two variables, $r = .34$, $p = .37$. These results suggest that there is no relationship between children's ability to identify letters and their level of emotion comprehension.

Discussion

The goal of the current study was to test the effectiveness of a picture book approach based on current theories in emotional comprehension in teaching these skills to children. It was hypothesized that the children who have multiple exposures to picture books based on a current model of emotion comprehension (Pons, Harris, & de Rosnay, 2004) would demonstrate a higher gain of emotion comprehension than children who were exposed to picture books not created or based on emotion comprehension literature. A first analysis was computed comparing the level of emotion comprehension, at pre-test, as an important step in verifying whether both groups were at an identical point in their understanding of emotions before being exposed to the storybooks. As no significant differences were observed when comparing the experimental and control groups, children's levels of emotion comprehension did not differ between the two groups, suggesting that the children were at similar stages in their development of emotion comprehension.

When comparing pre-test and post-test TEC scores within each group, children in the experimental group demonstrated significantly higher scores at the post-test level. However, when comparing TEC scores for the control group, no significant differences were found between pre-test and post-test scores. In line with the hypothesis, significant gains in emotion comprehension were observed when children were exposed to multiple readings of the created picture books, thus lending support to the idea that shared book reading and evidence-based picture books are an effective, easily accessible, low cost, and easy-to-use tool in assisting preschool-aged children in their emotion comprehension development. Ultimately, this allows the development of emotion comprehension in many children who otherwise would not have had the opportunity to benefit from the multitude of advantages related to having a good level of emotional understanding.

Prior receptive vocabulary skills and letter knowledge do not seem to be factors that contribute to gains in emotional comprehension. In effect, there was no correlation

between scores on the measures of vocabulary or letter naming, demonstrating no apparent relationship between one's receptive vocabulary skills and level of emotion comprehension, and suggesting that the variables might not be important contributors to emotional comprehension skills. Although the literature reveals little evidence of an existing relationship between emotion comprehension and receptive vocabulary at the preschool age level, our results are contradictive to those found by Beck, Kumschick, Eid, and Klann-Delius (2012). These authors found evidence supporting a relationship between language competence and emotional competence, more precisely receptive vocabulary and literacy with emotion knowledge, in school-age children between the ages of seven and nine. It is possible that this relationship only becomes apparent later in children's language and emotional development.

Although children's emotional understanding develops with time (see Pons, Harris, & de Rosnay, 2004), with no evidence of statistical difference observed within the control group, the passing of time between the pre-and post-tests seems to have made no significant contribution to the children's level of emotion comprehension. Thus suggesting that children's development of emotion comprehension unfolds with some larger lapse of time, several months or perhaps years, as supported by Pons and Harris (2005).

Implications

It is easy to be misled when we rely on our intuition or reasoning, hence the importance of research. One of the reasons we conduct research is usually to provide evidence or lack thereof for current beliefs and practices. Reading picture books depicting cartoon characters enacting emotional understanding and highlighting external emotional causes that can influence their behaviour can be used to help children's ability to comprehend emotions, and even further their emotion comprehension development.

Many studies in psychology and education have suggested that children's understanding of their own emotions and those of others plays a key role not only in their social adjustment but also in their academic achievement (Harrison & Paulin, 2000; Harris & Pons, 2003). While the SMILE program is an effective intervention able to assist children in their development of emotion comprehension (Pons, Harris, & Doudin, 2002), it remains a time-consuming, expensive, and limited-access program. Picture books created on current theories and models of emotion comprehension can be incorporated in

the preferred educational activity of children and the most frequently practiced activity across households: shared book reading (Bus et al., 1995; Scarborough & Dobrich, 1994). In addition, the results of this paper also illustrate the uniqueness of shared book reading as a vehicle able to transmit information effectively, with multiple exposures, and without deviation from the storyline or explicit detailing.

Today, our government as well as individual households invest extensive social and economic resources yearly in the preparation of children for school. The Ministry of Education has focused important resources, in trying to ensure quality curriculum in preschool programs, to facilitate the transition from preschool to school (e.g., Ministry of Education of Ontario, 2005). Thus, having widely accessible resources for assisting children will not only help in their emotional development but also help them be better decision-makers, demonstrate more positive prosocial behaviours, and have better interpersonal relationships with friends, peers, and teachers. That is, help them become better socially adapted and achieve higher success in school.

Limitations

Although the experimental treatment revealed a significant gain in emotion comprehension at the post-test level, like the SMILE intervention, it remains unclear what specific part is responsible for the gain in children's emotion comprehension. Since all the children in the experimental group were exposed to the picture books in an identical order and for the same number of exposures, it is not possible to isolate which (if not all) books were responsible for the gain and for which specific components. In addition to the low number of participants in the experimental group, coupled with the low variability in component scores, this makes it more difficult to detect significant differences in post-treatment scores within each component. Nevertheless, this simple procedure produced significant gains, which is quite promising.

Future Research

Future research is necessary to obtain a broader and more complete understanding of how shared book reading can be used as an accessible tool to contribute to children's emotional understanding at a variety of ages and cultural backgrounds. Future research incorporating *Components VI–IX* would also allow for a better understanding of the

effectiveness of such a tool and its viable contributions to a wider population. While this study investigated the effectiveness of picture books created on modern theories in emotional competencies in comparison to picture books neither created nor based on emotion comprehension research, a future step would be to compare the created picture books to other storybooks of similar nature that discuss emotion content but are not necessarily created on current theories and models in the field.

Conclusion

To date, there has been little to no empirical research examining the potential of shared book reading as a tool to help children in their emotion comprehension development. The goal of the current study was to test the effectiveness of picture books based on current theories in emotional competencies in teaching these skills to children while using a shared book reading strategy. This study has shown the effectiveness of this approach. This study provides support for two major findings: the first being the use of shared book reading as a method for the transmission of emotion-related information to preschool aged children, and the second being the effectiveness of evidence-based picture books as a tool for assisting children in their emotion comprehension development.

References

Barden, R. C., Zelko, F. A., Duncan, S. W., & Masters, J. C. (1980). Children's consensual knowledge about the experiential determinants of emotion. *Journal of Personality and Social Psychology*, *39*(5), 968–976.

Beck, L., Kumschick, I. R., Eid, M., & Klann-Delius, G. (2012). Relationship between language competence and emotional competence in middle childhood. *Emotion*, *12*(3), 503–514.

Bradmetz, J., & Schneider, R. (1999). Is little red riding hood afraid of her grandmother? Cognitive vs. emotional response to a false belief. *British Journal of Developmental Psychology*, *17*(4), 501–514.

Brett, A., Rothlein, L., & Hurley, M. (1996). Vocabulary acquisition from listening to stories and explanations of target words. *The Elementary School Journal*, *96*(4), 415–422.

Brown, J. R., & Dunn, J. (1996). Continuities in emotion understanding from three to six years. *Child Development*, *67*(3), 789–802.

Bullock, M., & Russell, J. A. (1985). Further evidence on preschoolers' interpretation of facial expressions. *International Journal of Behavioral Development*, *8*(1), 15–38.

Bus, A. G., Van Ijzendoorn, M. H., & Pellegrini, A. D. (1995). Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Review of Educational Research*, *65*(1), 1–21.

Cassidy, J., Parke, R. D., Butkovsky, L., & Braungart, J. M. (1992). Family-peer connections: The roles of emotional expressiveness within the family and children's understanding of emotions. *Child Development*, *63*(3), 603–618.

Cutting, A. L., & Dunn, J. (1999). Theory of mind, emotion understanding, language, and family background: Individual differences and interrelations. *Child Development*, *70*(4), 853–865.

Denham, S. A. (1986). Social cognition, prosocial behavior, and emotion in preschoolers: Contextual validation. *Child Development*, *57*(1), 194–201.

Desrochers, A. (2008). *ECOLE: Échelles de compétences en lecture* (Unpublished test battery). University of Ottawa, Cognitive Psychology of Language Laboratory, School of Psychology, Ottawa, Ontario.

Donaldson, S. K., & Westerman, M. A. (1986). Development of children's understanding of ambivalence and causal theories of emotions. *Developmental Psychology*, *22*(5), 655–662.

Dunn, J., Brown, J., & Beardsall, L. (1991). Family talk about feeling states and children's later understanding of others' emotions. *Developmental Psychology*, *27*(3), 448–455.

Dunn, J., & Cutting, A. L. (1999). Understanding others, and individual differences in friendship interactions in young children. *Social Development*, *8*(2), 201–219.

Dunn, L. M., Theriault-Whalen, C. M, & Dunn, L. M. (1993). *Échelle de vocabulaire en images Peabody*. Toronto, ON: Psycan.

Edwards, R., Manstead, A., & Macdonald, C. J. (1984). The relationship between children's sociometric status and ability to recognize facial expressions of emotion. *European Journal of Social Psychology*, *14*(2), 235–238.

Elley, W. B. (1989). Vocabulary acquisition from listening to stories. *Reading Research Quarterly*, *24*(2),174–187.

Ellsworth, P. C., & Scherer, K. R. (2003). Appraisal processes in emotion. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 572–595). Oxford, England: Oxford University Press.

Evans, M. A., & Saint-Aubin, J. (2013). Vocabulary acquisition without adult explanations in repeated shared book reading: An eye movement study. *Journal of Educational Psychology*, *105*(3), 596–608.

Fischer, K. W., Shaver, P. R., & Carnochan, P. (1990). How emotions develop and how they organise development. *Cognition and Emotion*, *4*(2), 81–127.

Fonagy, P., Redfern, S., & Charman, T. (1997). The relationship between belief-desire reasoning and a projective measure of attachment security (SAT). *British Journal of Developmental Psychology*, *15*(1), 51–61.

Gould, S. J. (1982). Darwinism and the expansion of evolutionary theory. *Science*, *216*(4544), 380–387.

Gould, S. J., & Vrba, E. S. (1982). Exaptation—a missing term in the science of form. *Paleobiology*, *8*(1), 4–15.

Hadwin, J., & Perner, J. (1991). Pleased and surprised: Children's cognitive theory of emotion. *British Journal of Developmental Psychology*, *9*(2), 215–234.

Harris, P. L. (1983). Children's understanding of the link between situation and emotion. *Journal of Experimental Child Psychology*, *36*(3), 490–509.

Harris, P. L., Guz, G. R., Lipian, M. S., & Man-Shu, Z. (1985). Insight into the time course of emotion among western and Chinese children. *Child Development*, *56*(4), 972–988.

Harris, P. L., Johnson, C. N., Hutton, D., Andrews, G., & Cooke, T. (1989). Young children's theory of mind and emotion. *Cognition & Emotion*, *3*(4), 379–400.

Harris, P. L., Olthof, T., & Terwogt, M. M. (1981). Children's knowledge of emotion. *Journal of Child Psychology and Psychiatry*, *22*(3), 247–261.

Harris, P. L., Olthof, T., Terwogt, M. M., & Hardman, C. E. (1987). Children's knowledge of the situations that provoke emotion. *International Journal of Behavioral Development*, *10*(3), 319–343.

Harris, P. L., & Pons, F. (2003). Perspectives actuelles sur la compréhension des émotions chez l'enfant. In J. M. Colletta & A. Tcherkasof (Eds.), *Les émotions. Cognition, langage et développement*. Sprimont, Belgium: Mardaga.

Harrison, P., & Paulin, G. (2000). *School matters in lifeskills education: A framework for PSHE and citizenship in primary schools*. Oxford, England: Oxford County Council, Education Service.

Harter, S., & Buddin, B. J. (1987). Children's understanding of the simultaneity of two emotions: A five-stage developmental acquisition sequence. *Developmental Psychology*, *23*(3), 388–399.

Harter, S., & Whitesell, N. R. (1989). Developmental changes in children's understanding of single, multiple, and blended emotion concepts. In C. Saarni & P. L. Harris

(Eds.), *Children's understanding of emotion* (pp. 81–116). New York, NY: Cambridge University Press.

Harter, S., Wright, K., & Bresnick, S. (1987, April). A developmental sequence of the understanding of pride and shame. Paper presented at the Society for Research in Child Development Biennial Meeting, Baltimore, Maryland.

Hughes, C., & Dunn, J. (1998). Understanding mind and emotion: Longitudinal associations with mental-state talk between young friends. *Developmental Psychology*, *34*(5), 1026–1037.

Hughes, C., Dunn, J., & White, A. (1998). Trick or treat? Uneven understanding of mind and emotion and executive dysfunction in "hard-to-manage" preschoolers. *Journal of Child Psychology and Psychiatry*, *39*(7), 981–994.

Izard, C. E. (1977). *Human emotions*. New York, NY: Plenum Press.

Kestenbaum, R., & Gelman, S. A. (1995). Preschool children's identification and understanding of mixed emotions. *Cognitive Development*, *10*(3), 443–458.

Lagattuta, K. H., & Wellman, H. M. (2001). Thinking about the past: Early knowledge about links between prior experience, thinking, and emotion. *Child Development*, *72*(1), 82–102.

Lagattuta, K. H., Wellman, H. M., & Flavell, J. H. (1997). Preschoolers' understanding of the link between thinking and feeling: Cognitive cuing and emotional change. *Child Development*, *68*(6), 1081–1104.

Lake, N., Lane, S., & Harris, P. L. (1995). The expectation of guilt and resistance to temptation. *Infant and Child Development*, *4*(2), 63–73.

Lemerise, E. A., & Arsenio, W. F. (2000). An integrated model of emotion processes and cognition in social information processing. *Child Development*, *71*(1), 107–118.

Lench, H. C., Bench, S. W., Darbor, K. E., & Moore, M. (2015). A functionalist manifesto: Goal-related emotions from an evolutionary perspective. *Emotion Review*, *7*(1), 90–98.

Levy, B. A., Gong, Z., Hessels, S., Evans, M. A., & Jared, D. (2006). Understanding print: Early reading development and the contributions of home literacy experiences. *Journal of Experimental Child Psychology*, *93*(1), 63–93.

Ministry of Education of Ontario. (2005). *Planning entry to school: A resource guide*. Retrieved from www.edu.gov.on.ca/eng/parents/planningentry.html

Mol, S. E., Bus, A. G., & de Jong, M. T. (2009). Interactive book reading in early education: A tool stimulate print knowledge as well as oral language. *Review of Educational Research*, *79*(2), 979–1007. doi:10.1016/j.compedu.2006.04.002

Moors, A., Ellsworth, P. C., Scherer, K. R., & Frijda, N. H. (2013). Appraisal theories of emotion: State of the art and future development. *Emotion Review*, *5*(2), 119–124.

Nesse, R. M. (1990). Evolutionary explanations of emotions. *Human Nature*, *1*(3), 261–289.

Nunner-Winkler, G., & Sodian, B. (1988). Children's understanding of moral emotions. *Child Development*, *59*(5), 1323–1338.

Perron, M., & Gosselin, P. (2007). Évolution de la compréhension de la distinction entre les émotions réelles et apparentes chez les enfants d'âge scolaire. *Enfance*, *2*, 109–126.

Perron, M., & Gosselin, P. (2009). Difficulté des jeunes enfants à comprendre la dissimulation des émotions. *Revue Canadienne de Psychologie expérimentale*, *63*, 276–286.

Pick, A. D., Unze, M. G., Brownell, C. A., Drozdal Jr, J. G., & Hopmann, M. R. (1978). Young children's knowledge of word structure. *Child Development*, *49*(3), 669–680.

Pons, F., Doudin, P., & Harris, P. (2004). La compréhension des émotions: Développement, différences individuelles, causes et interventions. In L. Lafortune, P.-A. Doudin, F. Pons, & D.-R. Hancock (Eds.), *Les émotions à l'école* (pp. 6–31). Sainte-Foy, QC: Presses de l'Université du Québec.

Pons, F., & Harris, P. (2000). *Test of Emotion Comprehension—TEC*. Oxford, England: Oxford University Press.

Pons, F., & Harris, P. (2005). Longitudinal change and longitudinal stability of individual differences in children's emotion understanding. *Cognition & Emotion*, *19*(8), 1158–1174.

Pons, F., Harris, P. L., & Doudin, P. (2002). Teaching emotion understanding. *European Journal of Psychology of Education*, *17*(3), 293–304.

Pons, F., Harris, P., & de Rosnay, M. (2000). La compréhension des émotions chez l'enfant. *Psychoscope*, *21*(9), 29–32.

Pons, F., Harris, P. L., & de Rosnay, M. (2004). Emotion comprehension between 3 and 11 years: Developmental periods and hierarchical organization. *European Journal of Developmental Psychology*, *1*(2), 127–152.

Rothenberg, B. B. (1970). Children's social sensitivity and the relationship to interpersonal competence, intrapersonal comfort, and intellectual level. *Developmental Psychology*, *2*(3), 335–350.

Roy-Charland, A., Perron, M., Boulard, J., Chamberland, J., & Hoffman, N. (2015). "If I point, do they look?" The impact of attention-orientation strategies on text exploration during shared book reading. *Reading and Writing*, *28*(9), 1285–1305.

Roy-Charland, A., Saint-Aubin, J., & Evans, M. A. (2007). Eye movements in shared book reading with children from kindergarten to grade 4. *Reading and Writing*, *20*(9), 909–931.

Saarni, C. (1999). *The development of emotional competence*. New York, NY: Guilford Press.

Saarni, C., Mumme, D. L., & Campos, J. J. (1998). Emotional development: Action, communication, and understanding. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology: Social, emotional, and personality development* (5th ed., Vol. 3, pp. 237–309). Hoboken, NJ: John Wiley & Sons.

Scarborough, H. S., & Dobrich, W. (1994). On the efficacy of reading to preschoolers. *Developmental Review*, *14*(3), 245–302.

Sénéchal, M. (1997). The differential effect of storybook reading on preschoolers' acquisition of expressive and receptive vocabulary. *Journal of Child Language*, *24*(1), 123–138.

Yuill, N. (1984). Young children's coordination of motive and outcome in judgements of satisfaction and morality. *British Journal of Developmental Psychology*, *2*(1), 73–81.