

Wilfrid Laurier University

Scholars Commons @ Laurier

Theses and Dissertations (Comprehensive)

2021

MOTHER-CHILD SHARED STORY TELLING OF WORDLESS AND WORDED PICTURE BOOKS: A WITHIN-SUBJECT DESIGN STUDY OF PRESCHOOL CHILDREN

Katherine Reid
reid4150@mylaurier.ca

Alexandra Gottardo
Wilfrid Laurier University

Follow this and additional works at: <https://scholars.wlu.ca/etd>

Digital Part of the [Developmental Psychology Commons](#)
Commons

Network Recommended Citation

Reid, Katherine and Gottardo, Alexandra, "MOTHER-CHILD SHARED STORY TELLING OF WORDLESS AND
WORDED PICTURE BOOKS: A WITHIN-SUBJECT DESIGN STUDY OF PRESCHOOL CHILDREN" (2021).
Theses and Dissertations (Comprehensive). 2420.
<https://scholars.wlu.ca/etd/2420>

This Thesis is brought to you for free and open access by Scholars Commons @ Laurier. It has been accepted for inclusion in Theses and Dissertations (Comprehensive) by an authorized administrator of Scholars Commons @ Laurier. For more information, please contact scholarscommons@wlu.ca.

MOTHER-CHILD SHARED STORY TELLING OF WORDLESS AND WORDED PICTURE
BOOKS: A WITHIN-SUBJECT DESIGN STUDY OF PRESCHOOL CHILDREN

by

Katherine Reid

Bachelor of Science Honors, Carleton University, 2018

THESIS

Submitted to the Department of Psychology

in partial fulfillment of the requirements for

Master of Arts

Wilfrid Laurier University

© Katherine Reid

Abstract

Issues pertinent to developmental psychology and education often intersect. For example, both literatures can inform the assessment of differences in early literacy and school readiness, as well as how to bridge the literacy gap for children coming from different backgrounds. In times of COVID-19, it is especially important that we research the impact of strategies that are accessible to all, and can be utilized both in the home, and in more formal learning environments. This study assessed how the use of wordless picture books impacted the quality and quantity of language output, and engagement in dialogue between mother and child. This behaviour was examined on an individual level and on an interaction level. Mothers received a questionnaire prior to the study session to measure for demographic variables, literacy levels, education, and first-languages/languages spoken in the home. Mother-child dyads were instructed to engage in two shared book reading tasks, one using a worded picture book and one using a wordless picture book, while being observed remotely. The child was also asked to tell their own story using the wordless picture book. The key findings of the study were that in the wordless condition, mother's morpheme production significantly contributed to both the child's word type production and utterances. None of the mother's language production variables were significantly related to the child's word type in the worded condition, but the mother's production of utterances in addition to the words in the text was significantly related to the child's utterances in the worded condition. This study informs the field of developmental psychology and education, specifically child language and literacy development, by providing insight on potential strategies that may encourage dialogic teaching and learning.

Keywords: dialogic teaching and learning, wordless picture book, language and literacy

Acknowledgements

Thank you to my supervisor, Dr. Alexandra Gottardo, for your wisdom, guidance, and support throughout my thesis project. I would not have been able to accomplish this project without your expertise and leadership.

Thank you to my research assistants, Carly Bregman, Gracy Patel, Esther Li, and Yas Farokhnejad for their hard work throughout the project. I appreciate that they made this project possible.

Thank you to my committee members, Dr. Kim Roberts, Dr. Eileen Wood, and Dr. Penelope Collins, who helped me throughout this process and facilitated my thesis defence. Thank you as well to Dr. Anne Wilson for chairing my defence.

Table of Contents

Abstract.....II

Acknowledgements.....III

Introduction.....1

 Parents As The First Teacher.....1

 Shared Book Reading.....3

 The Home Literacy Environment.....5

 Dialogic Reading and Scaffolding.....6

 Wordless Picture Books.....8

 Early Literacy and School Readiness.....9

 Meaning Making.....15

 The Current Study.....15

Method.....17

 Design.....17

 Participants.....17

 Procedure.....18

 Materials.....20

 Home Literacy Questionnaire.....20

 Title Recognition Task.....21

 Worded and Wordless Picture Books.....21

 Vocabulary.....22

 Transcription and Coding.....23

 Optional Feedback Questionnaire.....24

Analysis.....	24
Results.....	25
Mothers Demographic and Home Literacy Environment.....	25
Optional Feedback Questionnaire.....	28
Comparisons Across Book Type.....	28
Relations Among Variables.....	30
Multiple Regressions: Language Production.....	30
Multiple Regressions: Mother’s Prompts.....	32
Discussion.....	34
Language Production.....	34
Mother’s Prompts.....	37
Implications.....	39
Limitations.....	39
Future Directions.....	40
Conclusion.....	41
Tables.....	42
Appendices.....	58
Appendix A.....	58
Appendix B.....	66
Appendix C.....	72
Appendix D.....	75
Appendix E.....	77
References.....	78

Introduction

Vygotsky (1978) describes development as something that occurs over time, and in a reciprocal manner. Children experience development both on a social level and on an individual level, which Vygotsky has suggested occurs disproportionately for different aspects of development. For example, in the aspect of cultural development, children show development first on a social level (i.e., between people), and then on an individual level (i.e., within the child). Individuals internalize the experience of the social interactions and activities they engage in, and over time these experiences can impose meaning on various environments, situations, and social groups. In his theory of social development, Vygotsky noted that language is the most important function and determinant in development, as language allows us to understand the world around us. Vygotsky emphasizes the social contexts of learning, which starts within the home learning environment. Therefore, the child's first teacher is usually their parent or guardian.

Parents As the First Teacher

A child first begins communicating non-verbally to express important messages such as hunger, fear, or a need for affection (Reunamo & Nurmilaakso, 2007). This communication becomes more sophisticated as the child observes and engages in social interactions between those present in the home. For example, a child learning about their religious community may initiate that understanding at their families place of worship. The parent might first get the child ready for the religious service by washing and dressing in their nicest clothing. Parents might instruct the child to be quiet and respectful during the service, and tell the child the importance of listening to the sermon. Over time and experience, these social interactions and experiences are internalized within the child, and processed on the individual level. For example, the child might

learn that the religious leader is an authority figure and is to be shown respect and reverence. They might also learn that dressing nicely can be a sign of respect. This trajectory of development means that a child's past experiences may guide their actions in the present and future. However, while these experiences may guide their actions, they do not determine them. Throughout life, children experience a plethora of new experiences and social interactions that also inform behaviour and is thus a reciprocal process. To expand on the previous example, if a child attends religious services with their family but finds the leader to be uninteresting, or has negative experiences with others at the service, they may internalize this experience as negative, and may be less likely to connect with this community later in life. In contrast, if the child finds these services to be engaging and positive, they might internalize the experience of engagement in their religious community as an important part of their life. Vygotsky (1978) asserts that the social and cultural nature of these interactions allow for the development of higher-level functioning in a reciprocal manner. As an example, through experience a child will learn that they can benefit from the instruction of and cooperation with adults.

Children's development of language and literacy skills also occur in a reciprocal manner. Specifically, these skills are highly influenced by the home literacy environment as children's early exposure to oral and written language occurs primarily through adult-mediated interactions (Justice & Pullen, 2003). Within this environment, children develop emergent literacy skills, which refers to their precursory knowledge about reading and writing. While most children are able to acquire this knowledge prior to formal literacy instruction, some children may be at risk of delay or difficulty in this area. Some risk factors may include developmental disability, low familial socio-economic status, parental history of literacy challenges as well as living within a

household that uses a language other than the primary language used in local schools (Justice & Pullen, 2003).

This paper will discuss the role of the home literacy environment and what factors may impact children's development of language and early literacy skills (i.e., socioeconomic status, parental education and literacy levels, and first language spoken in the home). The present study focuses on shared book reading activities, in which mothers "read" two different book types with their preschool aged children. The first book, *If You Take A Mouse to School* by Laura Numeroff, includes both pictures and text, whereas the second book, *Frog Where Are You?* by Mercer Meyer has pictures without text. Thus, we are interested in examining how the dialogue between parent and child varies across books with and without text, and if there are any sociodemographic factors that might play a role in differentiating the dialogue between these two text conditions. Given that we are interested in the role of the home literacy environment, having participants complete the study within their home allows for greater fidelity and procedural constancy. Due to COVID-19 restrictions, remote testing using Zoom permitted parents to engage at home while being observed by researchers. Interestingly, this provides the best-case scenario, as we were able to observe the participants' behaviour in their natural environment.

Shared Book Reading

Research regarding children's development of early language and literacy skills has established shared book reading as an important tool that parents can use to facilitate their children's development (Lonigan & Whitehurst, 1998). Shared book reading refers to the shared experience between an adult and a child when looking at a book together. Parent-child shared book reading is the interactive experience when a parent and child share a storybook (Lonigan & Whitehurst, 1998). When engaged in shared book reading, a parent or teacher reads a book to a

child or group of children, and uses the images, words, and characters in the story to engage the children in the text material (Justice & Pullen, 2003). The verbal responsiveness of the parent during shared book reading is related to children's oral language development and emergent literacy skills, as well as later reading achievement and recreational reading (Landry et al., 2011). Parent-child shared book reading has been shown to be beneficial in the development of language and literacy in preschool aged children (Leonard et al., 2009). Children are able to learn from books through shared story time, as listening to stories and looking at pictures fosters development of a child's language, general knowledge, and understanding of the world (Cameron-Faulkner & Noble, 2013). When reading with their child, parents will typically read the text, describe illustrations, provide labels for objects, give details about events, ask questions, and connect the story to the child's prior knowledge and experiences (Saracho, 2017).

A specific method of interacting with text is also known as dialogic reading (Justice & Pullen, 2003). In dialogic reading the adult supports the child or children by encouraging them to engage in the shared reading activity, to ask questions, and to explain their thinking. For example, the adult might direct the child's attention to the character on the page and ask the child what the character is doing. The adult may then encourage the child to expand on their answer, such as asking the child why the character is doing something, what they might be feeling, or if they can relate to the character. As the child learns new skills, the adult gradually allows the child to take on a greater leadership role in the dialog, thus demonstrating and strengthening what they have learned (Horst & Houston-Price, 2015). While occurrence of these types of dialogues might often be thought of within a school setting, early literacy development begins within the home. Benefits for dialogic reading increase because children have a more active role in the experience (Leonard et al., 2009). Book reading, such as dialogic reading, provides an

opportunity for children to experience both oral and written language at the same time (Gettinger & Stoiber, 2014). Importantly, these benefits of shared reading may depend on the parental strategy used.

Research assessing shared book reading has shown a growing focus on the parents' teaching behaviours and quality of interactions. Saracho (2017) provides a review of such research, specifically noting aspects of parental behaviours during formal and informal literacy experiences, such as the quality of interactions, interactions in dialogic reading, and extratextual interactions. Overall, there is a consensus among researchers that shared storybook reading has beneficial outcomes in terms of promoting children's language development, emergent literacy, and reading achievement (Saracho, 2017).

The present study observes dialogic reading within the home environment, thus informing our understanding of the naturally occurring dialogue between parent and child when engaging in shared storybook activities. Home literacy experiences have been shown to play an important role in school readiness and learning outcomes (Hood, Conlon & Andrews, 2007). This paper will help establish a baseline understanding of how parents engage with their children without instruction, as well as explore how different types of picture books can impact these results.

The Home Literacy Environment

The home literacy environment refers to the activities parents or other family members may engage children with at home to aid early literacy learning, as well as the resources in the home and attitudes towards literacy (Hood, Conlon & Andrews, 2007). Activities can be classified as either formal or informal literacy interactions. Formal interactions refer to direct literacy teaching, such as directly teaching a child to read or write (Puglisi et al., 2017). For

example, a parent might sit with their child to teach them about letter names and letter sounds, as well as writing letters (Hood et al., 2007). Informal interactions refer to indirect literacy teaching, such as shared reading, or directing a child's attention to print in their surroundings (i.e., asking what a street sign says) (Hood et al., 2007). Sénéchal and colleagues (1998) found different patterns of child outcomes based on the two types of literacy experiences. Specifically, storybook exposure predicted only oral language skills, whereas direct teaching predicted only emergent literacy skills (Sénéchal et al., 1998). This finding, as well as more recent literature, suggests that informal interactions are related to the development of receptive language, which refers to the child's ability to cognitively process and understand language, which includes vocabulary and listening comprehension (Le Fevre, 2003). In contrast, formal interactions are more closely related to the development of emergent literacy skills, which refers to what children know about reading and writing before they can actually read and write. These emergent literacy skills may include print concepts, alphabet knowledge, invented spelling, and decoding simple words (Sénéchal & Le Fevre, 2003).

Dialogic Reading and Scaffolding

Shared book reading has been shown to be particularly helpful in aiding in development when the caregiver employs guided participation, which is a collaborative process where the caregiver connects the child's present knowledge to new knowledge, and gradually shifts responsibility of the task to the child (Horst & Houston-Price, 2015). When guided participation occurs within a child's zone of proximal development (ZPD), scaffolding occurs (Leonard et al., 2009). The ZPD refers to the difference between a learner's ability to perform a task with and without the help of a more knowledgeable other (Vygotsky, 1978). Within the ZPD, a technique called scaffolding can be used to optimize learning by gradually adjusting the level of support

given to a child in proportion to their level of understanding and development (Horst & Houston-Price, 2015), specifically starting with high levels of support and then gradually decreasing support. Socio-Cultural Discourse Analysis (SDA) is a mixed methods analysis that allows researchers to assess the function, content, and ways shared understanding are developed in social contexts (Mercer, 2010). SDA has previously been used to assess dialogic interactions between students and teachers, and a specific subset of an analytical unit called ‘communicative acts’ has been suggested as an indicator of how adults utilize dialogic scaffolding (Rojas-Drummond et al., 2013). The present study explores mother’s natural use of communicative acts. The present study examines the dialogue between mother and child during one session, thus SDA would not be an appropriate approach for our analysis as the SDA is intended for dialogue between teachers and children over time. However, this study assesses communicative acts using criteria outlined in dialogic reading, specifically PEER. These communicative acts are an example of instructional support the adult may offer the child (Morgan & Meier, 2008). PEER stands for Prompt, Evaluate, Expand, and Repeat, and is a tool that can be used by the more knowledgeable other to engage the child in dialogue (Pillinger & Wood, 2014).

Parent-child shared book reading is not only a literacy experience but also a social interaction (Leonard et al., 2009). Dialogic reading is a technique where children are encouraged to actively participate in the shared reading experience (Knauer et al., 2020; Lonigan & Whitehurst, 1998). The goal is to facilitate a conversation fueled by positive responsiveness, which can gradually allow the child to take on a greater degree of responsibility in the task (i.e., dialogic scaffolding) (Knauer et al., 2020; Rojas- Drummon et al., 2012). This process can be understood as a shift in roles, where the adult might normally read while the child listens. In contrast, in dialogic reading the adult takes the role of an active listener. This might include asking questions, adding

information to enhance knowledge and understanding, and prompting the child to explain their thoughts (Whitehurst & Lonigan, 1998).

Storytelling has been utilized in education to help children develop sequencing skills, left-to-right directionality, long-term memory, vocabulary and self-expression as well as introducing new concepts (Miyata & Freeman, 2020). Dialogic reading allows the child to be the storyteller, while the parent encourages the child in this role through praise and repetition and encouraging them to expand on utterances. Whitehurst and Lonigan (1998) explain that the parental role might change focus depending on the age and reading ability of the child. For example, a parent reading with a 2- to 3-year-old might focus their questions on individual pages and images, such as asking what something is or what a character is doing. A parent reading with a 4- to 5-year-old might focus their questions on the narrative and on creating connections to the child's prior knowledge and experiences. For example, in a story about a duck, a parent might ask a child if the child has ever seen a live duck and ask the child to compare a real duck to the duck in the story (Whitehurst & Lonigan, 1998).

Wordless Picture Books

Literature suggests that the use of wordless picture books may facilitate dialogic reading and literacy skills, as they allow for a story-telling experience, rather than simply reading text (Miyata & Freeman, 2020). Given the prominence of print awareness and formal learning interactions in early literacy research, one might wonder how beneficial the use of wordless picture books could be. Within the past decade, studies asking this question have begun to emerge with diverse findings regarding their utility. However, much of what is known about shared book reading is about worded picture books rather than wordless picture books. Positive outcomes indicate that wordless picture books encourage increased active participation of the

reader, which may be understood through meaning-making and instructional support (Chaparro-Moreno et al., 2017). Wordless picture books can benefit the development of pre-reading skills, including sequential thinking, visual discrimination, and inferential thinking (Jalongo et al., 2002). A study conducted by Chaparro-Moreno and colleagues (2017) was the first to compare the use of wordless picture books and worded picture books in the development of preschoolers' language and literacy skills. It was found that children exhibited a significantly greater number of word tokens (total number of words), word types (total number of unique words), and utterances when a wordless picture book, compared to a worded book, was used in shared reading with their teacher (Chaparro-Moreno et al., 2017). However, this study was conducted with trained teachers, and not with parents – who might not have training in early literacy. The current study was conducted with parents rather than trained teachers.

Early Literacy and School Readiness

Early literacy and school readiness in young children have been studied extensively in the fields of psychology and education. There is a consensus among researchers that early literacy experiences play a crucial role in children's academic success, where children entering school with more advanced pre-literacy or early literacy skills tend to have increased chances of success in school (Saracho, 2017). There are several important areas involved in early literacy development related to knowledge and understanding of written and oral language (Gettinger & Stoiber, 2014). Specifically, research has established a relationship between learning to read and children's phonological awareness, knowledge of letters, print awareness, and language skills (Lonigan, Schatschneider, & Westberg, 2008; Sénéchal & Le Fevre, 2003).

Past research has extensively assessed print awareness, which refers to the child's understanding of print. Print awareness involves the code-related aspects of language, which

includes the ability to recognize and understand the form and function of print, identify letters of the alphabet, recognition of words as functional elements of print and speech, as well as a recognition of the relationship between written and oral language (Gettinger & Stoiber, 2014).

Prior to formal schooling, children are primarily exposed to books and print within the home environment. This preliminary exposure to books and print is important for school readiness (Puglisi et al., 2017). Book reading provides children with the opportunity to learn vocabulary in a semantically rich context where the words are thematically related. Both independent and shared book reading are crucial in developing literacy skills. Compared to independent reading, in shared reading children can also engage in conversation related to the text and thus are exposed to further learning and vocabulary existing beyond the text (Grover, Rydland & Gustaffson, 2020).

As mentioned, the existing research has explored the relationship between early literacy and shared book reading within the home using worded picture books rather than wordless picture books. Parental involvement within the home environment has been assessed in several longitudinal studies. Sénéchal and Le Fevre (2003) published the results of a 5-year longitudinal study examining the role of parental involvement in the development of reading skills in children. This study assessed early home literacy experiences and subsequent receptive language and emergent literacy skills, as well as reading achievement, in 168 middle- and upper middle-class children. There were two goals of this study, first, to assess the importance of formal versus informal literacy activities in the home on the development of the child's receptive language and emergent literacy. The second goal was to assess the relationship between early literacy experiences and subsequent reading acquisition (Sénéchal & Le Fevre, 2003). Storytelling within the home was used to measure informal literacy activities, whereas parental reports of reading

and writing instruction in the home were used to measure formal literacy activities. Consistent with previous findings, informed storybook exposure predicted receptive language, and explained 9% of the unique variance in children's receptive language after controlling for other influential factors, such as the children's initial level of receptive language, parent education, phonological awareness, and emergent literacy. Parents' reports of teaching reading and writing did not significantly correlate with receptive language. In contrast, parent's reports of formal teaching explained 4% of unique variance in children's emergent literacy after controlling for other aspects of emergent literacy (such as parent print exposure) (Sénéchal & LeFevre, 2003). Interestingly, both receptive language and emergent literacy were significant predictors of phonological awareness, but neither storybook exposure nor parent reports of teaching were predictive of variance in phonological awareness. This led the researchers to suggest that the impact of home literacy experiences on phonological awareness may be indirectly mediated by children's receptive language and emergent literacy skills (Sénéchal & LeFevre, 2003). Sénéchal and LeFevre (2002) also found that storybook reading is related to improved later reading comprehension. As mentioned, the sample of participants consisted of middle- and upper-middle class children, thus this study does not include families with lower socio-economic status (SES). However, it would be expected that the general outcomes would be generalizable to lower income families as the results were significant when controlling for influential factors relating to SES, such as parental education.

This model has been further extended to assess the role of maternal skills in shared book reading and child literacy outcomes. Puglisi and colleagues (2017) conducted a study assessing the role of the home literacy environment as a predictor of children's language and literacy skills after taking into account maternal language skills. The results of this study showed that maternal

language skills were predictive of storybook exposure but not direct literacy instruction.

Storybook exposure was also found to predict children's general language, reading, and spelling skills. Interestingly, the results of this study demonstrate that maternal skills highly impact the relationship between early informal home literacy activities and child literacy outcomes.

Specifically, when mother's language and phonological skills were accounted for, storybook exposure was no longer predictive of children's language or reading and spelling skills (Puglisi et al., 2017). This is an important finding because it indicates that children may be at greater risk of facing literacy challenges if maternal literacy skills are not strong. Therefore, strategies directed towards helping mothers engage their child in shared book reading may have a positive impact on the child's development of early literacy skills and may help bridge a gap.

Research has shown that children from low-income families are at a greater risk for slower development of language skills (Hart & Risley, 1995) and reading difficulties. Differences in socio-economic status (SES) are related to differences in children's letter knowledge and phonological sensitivity at the preschool ages (Whitehurst & Lonigan, 1998). Therefore, it is important to further explore strategies to minimize the variance between these shared-reading experiences and enhance the mother-child interactions regardless of the mother's level of language and literacy skills.

Research has further shown that parental involvement along with parent-teacher collaboration can have a positive impact on school readiness. Pelletier and Corter (2005) published a two-year longitudinal study assessing the implementation of school readiness programs, in which 10 Readiness Centers in Ontario primary schools were utilized. Importantly, this study included a diverse sample, with over half of the families in the sample being recent immigrants and having a first language other than English. In this study, parent-child dyads and

teachers attended a Readiness Center program for 12-weekly sessions. During these sessions, the teacher would typically guide the parents and children through a daily lesson, followed by various activities and free-play. Parents learned about the concepts being taught, why they were appropriate for the age of the children, and how they could use these concepts at home (Pelletier & Corter, 2005). For example, the teacher would model teaching strategies for the parents, such as a hands-on activity for learning numbers, and explain why this is an appropriate concept for their children's age based on development, and how these strategies aid in their learning. Within these sessions, data were collected through one-on-one interviews with parents and teachers, including a Parent Rating Scale of their child's school readiness and Kindergarten Teacher Ratings – Early Development Instrument for school readiness. Researchers also collected data about the early childhood learning environments of each center using the Early Childhood Environment Rating Scale Revised (ECERS-R), in which they took note of the use of time, space, people, and materials in the programs (Pelletier & Corter, 2005). In Year 2 of the study, the children entered their first year of kindergarten, where readiness effects were assessed. Positive correlations were found with the Interaction and Program components of the ECERS-R and child outcomes. Specifically, the quality of teacher-child interactions and quality of academic program were positively correlated with the Total Direct Child Outcome Score. This score refers to a cumulative score of various skills, including vocabulary, early reading, early number sense, and printing. The overall findings of this study emphasize the importance of parent-school partnerships in preparing children for school and allowing for an easier transition from home to school.

Importantly, there were some notable differences between English-speaking parents and English as a Second Language (ESL) parents. ESL parents rated academic preparation

significantly more often as the primary goal for their child, with socialization as a lesser goal. In contrast, English-speaking parents rated socialization as their primary goal more often for their child than academic performance (Pelletier & Corter, 2005). Important measures in this study were the direct child outcome scores, which refers to the measurements of school readiness following the 12-week program. These measures included activities to assess the child's vocabulary, early reading, early number sense, printing as well as a Puppet Interview where the child is asked about their understanding of kindergarten. Statistical analyses also revealed that ESL children who did not take part in a readiness program or preschool program had lower direct outcome scores than all other groups. However, ESL children who had Readiness Center experience scored significantly higher on their direct outcome scores than other ESL children. These results indicate that ESL children with no Readiness or preschool experience are the least ready for school according to the Direct Child Outcomes measures (Pelletier & Corter, 2005). This is an interesting finding because it may indicate that ESL parents may face different concerns than English-speaking parents when sending their children to English-speaking schools. This study also shows us that collaboration between parents and teachers is highly important to school readiness.

Interestingly, early individual differences in pre-literacy and literacy skills tend to remain stable from kindergarten onward (Sénéchal & Le Fevre, 2003). As previously mentioned, there is a notable difference in children's letter knowledge and phonological sensitivity at the preschool age (Whitehurst & Lonigan, 1998). Therefore, it is key to explore strategies that enhance these skills at the preschool age, and further, to explore strategies that can be effectively utilized within the home environment of families of all backgrounds. This further emphasizes the need for

research on strategies that enhance the parent-child interaction regardless of the parent's level of language and literacy skills, with an emphasis on the quality of the interaction.

Meaning Making

Using visual images without text to create meaning or tell stories goes far back into history. Not only is this historically significant, but interpreting meaning images is crucial in our daily lives. For example, we have been taught that a red light means to stop, and thus we know to stop whenever approaching a red light while driving. Ruth Carroll's picture book, *What Whiskers Did*, is suggested as the first American published wordless picture book (1932) which took hold in the 1960's. This book was drawn in black crayon, and tells the story of a Scottish terrier's adventure after running into the woods. Mercer Mayer, who now has a series of wordless picture books, published his first book, *A Boy, a Dog, and a Frog*, in 1967. Through the use of visual images, wordless picture books may assist in meaning-making. Studies have shown several cognitive processes occur in reading in order to make sense of the story when there is a lack of text. Specifically, the lack of text makes the reader use other information to understand what they are seeing, such as filling in icono-textual gaps, recognizing that there is a chronological sequence and connection between the images, and determining which pieces are significant to the narrative and which pieces are not (Arizpe, 2013). These processes are facilitated by the adult who is story telling with the child through the adults' use of meaning-related interactions to encourage oral language. These interactions may include describing illustrations, discussing novel concepts, or making connections to the child's prior knowledge (Gettinger & Stoiber, 2014).

The Current Study.

The current study aims to assess how the use of wordless picture books impacts the quality of the dialogue between mother and child. This was assessed on an individual level (i.e., quality of talk of the mother and child) and during an interaction to assess dialogic scaffolding (i.e., mother-child interaction). The study was conducted through an online format that included survey measures and direct observations (i.e., Qualtrics survey tool and Zoom video-conferencing). By conducting the study virtually, we were able to observe the mother-child interactions within the home-environment while engaging in shared story-telling experiences. This provides novel information on the natural dialogue occurring in this context.

The primary research question assessed through this study was: How does the book-type (i.e., worded vs. wordless) impact mother-child dialogue? Specifically, we coded transcripts for the mother and child's individual language production (including word type, word token and mean length of utterance), as well as for the mother's communicative acts (Prompts, Evaluate, Expand, Repeat). A second research question explored whether the mother's communicative acts were predictive of mother's language production in wordless compared to worded picture book conditions.

Method

Design.

This study was a within-subjects design, in which each dyad read a worded and wordless picture book. In addition, the child had the opportunity to retell the wordless story using the wordless picture book.

Participants.

Thirty-six mother-child dyads ($N=36$) were recruited to participate in the study through online mothers' groups and community-based organizations. Children were preschool and early school aged (children ages 3-5). The sample consisted of 19 girls and 17 boys (M age = 44.8 months; $SD = 10.02$), with ages ranging from 36-68 months. Thirty-two of the children who participated spoke English as their native language, and four children had a native language other than English (2 Arabic, 1 Hindi, 1 Turkish). Participants were recruited through online platforms which included sending the recruitment flyer to various local online communities. The testing procedure took place over Zoom video conferencing, at a time agreed upon by the researcher and participants. Participants were required to have access to either a computer or iPad and asked to find a location where they would have consistent Internet access and were unlikely to be disturbed during the testing period. Recruitment occurred within Canada and each mother-child pair was given a \$15 e-gift card from Indigo Canada as compensation for their participation. It is important to note that due to COVID-19, the study was adapted to an online format, and therefore participants were required to have reliable access to Wi-Fi and some form of technology (i.e., computer, iPad, video-conferencing technology). Given that the study was conducted virtually, participants were in their home environment while participating in the shared-reading tasks. This was ideal because we were able to observe the participants in their

natural home environment. We were also able to recruit a wider range of participants as the virtual format eliminated the additional time, distance and other obstacles that can arise when attending a research study in person.

Procedure.

The order of the worded and wordless picture books was counterbalanced across participants to prevent order effects. Participants who read the worded picture book first were coded as 1, where those who read the wordless picture book were coded as 2. The individual measures of quality of talk were analyzed using multiple regressions to determine the independent contribution of mothers' communicative acts, language production, and book type on children's language production. The study examined if book type is related to mother's communicative acts and language production, as this would indicate an interaction effect.

The study took place remotely, using Zoom video conferencing. The session was recorded through Zoom on the researcher's computer by screen recording the sessions. The participants were led through a series of PowerPoint slides containing the picture book pages and with instructions provided by the researcher. Several of these slides were adapted or created using the suggestions and information on running an online developmental study provided by the Social Learning Lab at Stanford. The researcher reviewed basic Zoom functions with each mother, and then presented the book pages through PowerPoint. Since the researcher had control of the slide deck, the mothers were asked to indicate when they were ready to turn the page by saying, 'next'. Mothers were not given instruction on how to read the book, but each were told they can read the same way they normally would with their child. Participants were not given a time limit and were allowed to take the activities at their own speed. Implementing a time limit could have

caused stress, particularly since the mothers were not instructed on strategies to approach the wordless picture book with.

Transcripts were coded for language and narrative strategies consistent with dialogic reading strategies. The language coding was based on the Systematic Analysis of Language Transcripts (SALT) Protocol (Miller, Andriacchi & Nockerts, 2015), which was developed as an evidence-based, reliable and repeatable protocol for conducting language sample analysis. Language measures from the SALT protocol were used to create our language coding protocol. Language measures that were relevant to our project were used, which included word type, word token, morphemes, utterances, and mean length of utterances (MLU) for each mother and child. Word Type refers to the total number of distinct words in a text, that is, the number of unique words in a transcript sample. Word Token refers to the total number of words regardless of how often they are repeated. Morphemes are the smallest element in a language capable of creating a difference in meaning. An utterance is a continuous piece of speech beginning and ending with a clear pause. Lastly, the MLU refers to the Total Morphemes divided by the Total Utterances, which provides us with the average length of the participant's utterances. The language coding protocol with examples can be found in Appendix C.

The narrative coding protocol was based on PEER coding as outlined by Pillinger and Wood (2014). As previously mentioned, PEER is an acronym representing a sequence that can be used by adults when engaging in dialogic reading with a child. PEER stands for Prompt, Evaluate, Expand, and Repeat, and was designed to target children's vocabulary and comprehension skills (Pillinger & Wood, 2014). The narrative coding protocol with examples can be found in Appendix D.

Materials.

The measures used within this study assess the home literacy environment, title recognition, the language production and communicative acts present in the shared storytelling tasks, as well as the child's vocabulary.

Prior to the video-conferencing session, mothers completed a brief family language questionnaire (See Appendix A) as well as a Title Recognition Task (See Appendix B). During the video-conferencing session, the parent and child engaged in shared-storytelling activities. These activities included the mother telling two stories to their child using electronic copies of two picture books, where one included both text and images (worded), while the other included only images (wordless). Note that while the previous literature has referenced shared reading, the activities in this study are better described as shared storytelling, as they are not actually 'reading' the wordless picture book. Parents were not told or shown the book selections ahead of time to ensure the books were novel to all participants. The child then engaged in a story-telling task where they were asked to make up their own story using the wordless picture book with guidance from the mother. Finally, children were tested on their English vocabulary. One month after the study session was completed, mothers were sent a brief, optional survey for feedback.

Home Literacy Environment: Family Language Questionnaire.

Mothers were emailed a brief questionnaire one week prior to their scheduled Zoom session. The purpose of the questionnaire was to assess the language of both the mother and child, the mother's education level, as well as items relating to the home literacy environment. This included questions about both the mother and child's literacy and education experience, native language and language(s) spoken at home, as well as shared and individual reading habits.

At the end of this questionnaire the mothers completed the Title Recognition task. This information gathering was completed through Qualtrics Survey Software (See Appendix A).

Mothers Title Recognition: Title Recognition Task.

The questionnaire that was sent out for the mother to complete prior to each participant's scheduled Zoom session also included a title recognition task (adapted from Cunningham & Stanovich, 1993). This was adapted using current best-seller and popular children's book lists, including the Indigo bestsellers Teacher's Choice Kid's Books, The Big Book of Beginner's Books, and Amazon's bestsellers for children's books. The titles included have been updated from the 1993 publication to more recent books (within the past 20 years), and thus included mostly different book titles from those provided by Cunningham and Stanovich. This task has been used in previous research to gauge a more accurate idea of how often the parent reads with their child. This task contains a list of 80 picture book titles, with 28 false titles (titles of books that do not exist) (See Appendix B). The average number of true titles identified by the mothers in this sample was 11, and ranged from 0-25. Thirty-five of the 36 mothers selected 3 or fewer false titles, indicating reliable self-reporting from the participants on this task. While the task itself is an updated version, mothers indicated a wide range of books, suggesting that these selections were recognizable to our sample.

Storytelling. Worded and wordless picture books.

Each mother-child pair read a worded and a wordless picture book. The order of interaction with the two books was counterbalanced to prevent order effects. The worded book selected for this study was called, *If You Take A Mouse to School* by Laura Numeroff. The wordless book selected for this study was called, *Frog Where Are You?* by Mercer Meyer. Both books contain a similar storyline of a child and an animal companion, with approximately the

same number of pages (32 pages and 27 pages, respectively). Children were also asked to retell the story using the wordless picture book, which took place after the mother lead the storytelling for both worded and wordless books. 23 of the children did not finish the story retell or skipped multiple pages, which seemed to be due to fatigue. Participants were given optional breaks between reading activities, and the mothers were instructed to read the way they normally would with their child. Parents were not provided with instruction on how to engage in dialogic reading, as the goal was to determine differences in the naturally occurring mother-child interactions as a direct result of the book type. While future strategies with wordless picture books might also include instruction on dialogic reading, for the purpose of this study it was important to determine if the lack of text alone could foster increased dialogue and engagement between mother and child.

Vocabulary.

The Peabody Picture Vocabulary Test – Third Edition (PPVT-III) is a commonly used standardized test that assesses comprehension of English vocabulary (Gettinger & Stoiber, 2014). This test is individually administered and has been designed for individuals ages 2-6 through 90+. Children were presented with four simple black and white pictures at a time. The researcher then told the child one word and asked them to identify which image corresponded to that word. Normally when conducted in person, children will point to the correct image. To adapt this to the video-conferencing format, children were given the option to either point to the correct image (and the mother would indicate if they pointed to the correct image or not) or indicate the image number. This was conducted as the final task in the session to ensure that children completed the shared book reading tasks while their attention was at its highest.

Transcription and coding. The shared storybook interactions were video recorded and transcribed verbatim. The shared reading was coded for mother and child's individual language production. Shared reading was also coded for mother's instructional support (quality of feedback). Individual language production was measured by coding for the number of morphemes, utterances, word type, word token, and MLU. The MLU was calculated as a separate score, as it has been shown to contribute separately to language production.

The mother's speech in the wordless, worded, and story retell conditions were coded for the PEER sequence of communicative acts, which are representative of dialogic teaching and learning. Communicative acts follow the PEER concept of dialogic reading. PEER refers to the sequence used in dialogic readings, where the parent may (P)rompt the child to say something about the text, (E)valuate the response, (E)xpand on the response, and (R)epet the prompt to see if the child has learned from the experience (Morgan & Meier, 2008). Importantly, utterances were not coded for more than one communicative act. Given that mothers were not instructed on the use of PEER, most mothers primarily used prompts. As mentioned, many children did not fully complete the story retell, thus some mothers may have had less opportunity to demonstrate these strategies. Finally, the child's story retelling will be coded for language quality (morphemes, utterances, word types, word tokens, MLU). Double-coding of approximately forty percent of the transcripts was used to ensure consistency and reliability between the two coders. Reliability was assessed by calculating the inter-rater reliability (IRR) using the formula introduced by Miles and Huberman (1994). In percentage agreement, IRR of 80% agreement or greater is considered sufficient agreement among multiple coders (McAlister et al., 2017). The interrater reliability was found to be reliable, and the report can be found in Appendix E.

Optional Feedback Questionnaire. Participants were given the choice to receive a follow-up email one month after their testing date to complete a feedback questionnaire. The purpose of this was to ask if they enjoyed using the wordless picture book, and if they have since purchased or borrowed from the library a wordless picture book of their own and/or incorporated this into their shared-reading routine with their children.

Analysis. Statistical analysis was completed using IBM SPSS Statistics Version 27. The variables related to the quality of talk (individual measures) were assessed using multiple regression analysis. This analysis allowed us to determine the independent contribution of the mother's instructional support, language production, and book type on indices of children's language production. The communicative acts (mother-child interaction measure) were analyzed using a repeated measures analysis with book type as the between-subjects variable to determine if the number of communicative acts differ across book type. This provided us with an understanding of how book type has an impact on dialogic teaching-and-learning between the mother and child. Given the large number of predictor variables, this is considered exploratory, and thus the results should be taken with caution.

Results

The findings of this study include exploratory descriptive results regarding the mothers' demographic characteristics and the home literacy environment, as well as data analysis of the mother's and child's language production (morphemes, utterances, word type, word token, and MLU) and mother's use of communicative acts (prompt, evaluate, expand, repeat). The analysis included 36 paired tests. Since this study was exploratory and the data were not independent, the Bonferroni correction was not used.

Mothers Demographics and Home Literacy Environment. Eight mothers (22%) indicated they had a first language other than English, and 8 mothers were born in a country other than Canada. Sixteen (44%) indicated that two languages were spoken in the home, and one indicated three languages spoken in the home. The languages reported included Arabic, Hindi, Turkish, Croatian and French. The remaining 19 (53%) indicated speaking only English in the home. These 19 mothers indicated their child was in school or childcare, which included junior kindergarten (M=2), senior kindergarten (M=5), preschool (M=7), and daycare (M=7). Note that some mothers indicated more than one answer for this question. Only two mothers noted that their child required assistance with pronunciation, and one noted receiving extra help with holding or using objects. Mothers indicated ages of first words and first sentences with answers ranging from 7 to 18 months and 11-26 months respectively. This information was collected via mothers self-report and some noted they were unsure of their answer and thus may not be entirely accurate. Hollich and Houston reports that infants begin to speak their first words from 12-18 months of age, and begin speaking sentences typically by 24 months of age (2007).

Mothers rated their English language skills, indicating their perceived fluency in understanding, speaking, reading and writing on a scale of 1-10, where 10 indicated complete

fluency, and 1 indicated no fluency in that skill. Overall, only one mother rated her fluency at a moderate level (score of 26 out of a possible 40), with all other mothers scoring high to completely fluent (score over 30). The average self-reported rating was 38.9, suggesting that the sample consisted of mother's who were confident in their English language skills. Three (8%) mothers indicated having at least some college or university experience, 18 (50%) mothers completed a college or university degree, 14 (39%) mothers completed a professional or graduate degree. Twenty-seven (75%) mothers indicated current employment, where the remaining 9 (25%) were stay-at-home mothers. The high level of education in this sample was interesting and may be a reflection of the motivation of the mothers to learn about maximizing their child/children's literacy and language development and potentially their future educational attainment. Mothers were asked how often they read parenting materials (e.g. Online parenting advice, parenting books or magazines, blogs, etc.). Ten (28%) mothers indicated consuming parenting materials about once a month, 10 (28%) indicating once a week, and 16 (44%) indicated more than once a week. This suggests that the mothers in the sample are highly invested in learning about parenting, and thus may have been motivated to participate in this type of research study.

Mothers were asked about their shared reading habits with their child as well as several questions regarding their home-literacy environment. Twenty-seven (75%) mothers reported reading with their child less than 1 hour per day but more than 15 minutes and 8 (22%) reported reading with their child 1-2 hours per day. Participants were also asked approximately how many books were in their home that were read to or could be read to their child, including library books. Eight (22%) mothers indicated having 10-25 books, 16 (44%) mothers indicated 25-100 books and 15 (41%) mothers indicated having 100+ books. Mothers were also asked about how

often they visited the library or bookstore to obtain reading material for their child. Three (8%) mothers reported going to the library more than once a week, 10 (27%) bi-weekly, 6 (16%) monthly, 6 (16%) yearly and 11 never (30%). Seventeen (48%) mothers indicating monthly trips to the bookstore for their child's reading material, 12 (33%) indicated once a year, 1 indicated never, and 1 indicated once every two weeks.

Mothers were asked if they engage in story making games or activities with their child; 28 (78%) indicated yes, 6 (6%) no. Those who said yes were asked to provide detail, which included answers such as make-believe using toys, making up stories at bedtime together, and asking the child to guess what is happening in a book using the pictures.

Mothers were asked about their personal reading habits, including how often they read at home for work and pleasure, and if they would like to read more often. Ten (27%) mothers reported never reading for work, 11(30%) reported spending less than 2 hours per week, 4 (11%) reported 2-5 hours per week, 3 (8%) reported 1-2 hours per day and 7 (19%) reported more than 2 hours per day. Four (11%) mothers reported that they do not read for pleasure, 8 (22%) reported reading 10-15 minutes per day, 13 (36%) reported 30 minutes per day, 7 (19%) an hour per day, and 4 (11%) more than an hour per day. Thirty-three (92%) mothers reported that they would like to read more and 3 (8%) responded maybe, none said no.

These data again suggest that the sample consisted of participants with middle to high SES and shows general accessibility to children's reading materials. The sample therefore consists of participants from high literacy households, which may speak to the motivation of the mothers to engage their child in literacy research. These mothers are also highly educated, and thus may be aware of general learning strategies.

Optional Feedback Questionnaire.

Fourteen (39%) mothers completed or partially completed the optional feedback questionnaire. This questionnaire consisted of three open ended questions. Mothers were asked if they would consider using a wordless picture book again. Twelve (33%) mothers indicated that they would consider using a wordless picture book again, and 2 (6%) indicated they would not use a wordless picture book again. Mothers were asked if they would be interested in story-making games using wordless (or nearly wordless) picture books, and if yes, would they like simple guidelines. Nine (25%) mothers indicated they were interested in story-making games, 3 (8%) indicated that they already do similar activities at home. Lastly, mothers were asked if they had purchased a picture book since participating in the study, and if yes, to indicate the name of the book and whether it was a worded or wordless picture book. Six mothers (17%) indicated that they had not purchased a book since the study, 3 (8%) mothers indicated purchasing worded picture books.

Comparisons across book types.

Within-subjects analyses were conducted to examine whether differences could be found in terms of language use by the mothers and children when interacting with and sharing worded and wordless picture books.

Mother's Individual Language Production. A series of 36 paired-samples t-tests were conducted to compare the mother's language production in the worded book condition and the wordless book condition (see Table 1). There was a significant difference in the number of morphemes, word tokens, and MLU in the wordless condition compared to the worded condition. There was a not a significant difference in the number of utterances in the wordless condition compared to the worded condition. There was not a significant difference in the

number of word types in the wordless condition compared to worded condition. Differences noted were in favour of the wordless picture book condition.

Children's Individual Language Production. A series of 36 paired-samples t-tests was conducted to compare the child's language production in the worded book condition and the wordless book condition (see Table 2). There was a significant difference in the number of morphemes in the wordless condition ($M= 55.22, SD= 37.69$) and the worded condition ($M= 38.83, SD = 43.79$); $t(35)= 2.59, p =.014$. There was a significant difference in the number of utterances in the wordless condition ($M= 16.78, SD= 12.25$) and the worded condition ($M= 12.19, SD = 11.56$); $t(35)= 2.34, p =.025$. There was a significant difference in the number of word types in the wordless condition ($M= 33.53, SD= 20.82$) and the worded condition ($M= 22.11, SD = 22.56$); $t(35)= 3.30, p =.002$. There was a significant difference in the number of word tokens in the wordless condition ($M= 47.53, SD= 33.43$) and the worded condition ($M= 33.47, SD = 38.03$); $t(35)= 2.42, p =.02$. There was a significant difference in the MLU in the wordless condition ($M= 3.32, SD= 1.62$) and the worded condition ($M= 2.75, SD = 1.63$); $t(35)= 2.23, p =.03$. These findings also favour the wordless picture book condition.

Mother's Communicative Acts. A series 36 of paired-samples t-tests was conducted to compare the mother's communicative acts (coded as PEER: prompt, evaluate, expand, repeat) in the worded book condition and the wordless book condition (see Table 3). There was not a significant difference in the number of prompts in the wordless condition ($M= 11.83, SD= 8.67$) and the worded condition ($M= 11.19, SD = 9.17$); $t(35)= -.401, p =.69$. There was not a significant difference in the number of evaluations in the wordless condition ($M= 2.92, SD= 3.27$) and the worded condition ($M= 2.69, SD = 3.21$); $t(35)= -.40, p =.69$. The difference in the number of expansions was not significant in the wordless condition ($M= 1.28, SD= 1.30$) and the

worded condition ($M = .86$, $SD = 1.46$); $t(35) = -1.21$, $p = .20$. The difference in the number of repetitions was not significant in the wordless condition ($M = .97$, $SD = 1.34$) and the worded condition ($M = .67$, $SD = .86$); $t(35) = -1.28$, $p = .21$. Therefore, communicative acts using PEER coding showed few differences across the picture book conditions.

Relations among variables.

Communicative Acts. There were several significant correlations between the mother's communicative acts and language production in the worded and wordless condition (see Table 15). In both the worded and wordless condition, a moderate correlation was found between mother's prompts and utterances, $r = .40$; $.36$ respectively, $p < .05$. In the worded condition there was a moderate correlation between mother's prompts and word tokens, $r = .34$, $p < .05$. In the worded condition there was also a moderate correlation between the mother's repetitions and both word types and word tokens, $r = .36$; $.39$ respectively, $p < .05$.

PPVT and Child Language Production. There were several expected correlations between the child's PPVT Raw Score, Age (months), and language production (see Table 16). For the story retell task, we found a moderate correlation between the child's age and production of morphemes, $r = .34$, $p < .05$. For the story retell task, we also found a moderate-strong correlation between the child's age and MLU, $r = .55$, $p < .01$. A moderate correlation was also found between the child's raw PPVT score and age, $r = .34$, $p < .05$.

Multiple Regressions: Language Production.

Multiple regressions analyses were performed to determine if variables of the mother's language production were related to the children's language production. We were specifically interested in how the mother's language production impacted the child's word type production and utterances. The word type production was of interest, as it indicates the complexity of the

language used when the child was speaking. The number of utterances was also of interest as this indicates how often the child was speaking. The final predictive models of each regression can be found in Tables 4, 5 and 6. The standardized beta coefficients were reported for the analyses. The order the books were read was counterbalanced and linear regression analysis was performed to determine if book order impacted the child's morphemes, word types and utterances in the story retell condition. The model was not a significant predictor of child's morpheme production ($F(1,34)=.77, p=.082$), word type production ($F(1,34)=2.17, p=.115$), or utterances ($F(1,34)=2.71, p=.606$). Therefore, the order in which the books were presented did not show significant order effects.

The first multiple regression analysis was performed to determine if the variables that measure mother's language production were significantly related to the child's production of word types in the wordless condition (see Table 7). The variables of mother's language production included the morphemes, utterances, type, token, MLU. The results indicate that the total variance explained by the model was 68.5% for the children's word type production in the wordless condition. The model was a significant predictor of child's word type production, $F(5,30)=13.025, p<.001$. While the mother's morpheme production contributed significantly to the model ($\beta =.084, t(35)= 2.36, p=.025$), the mother's utterances, type, token, and MLU did not contribute significantly to the child's word type production in the wordless condition.

A multiple regression analysis was performed to determine if the variables of the mother's language production (morphemes, utterances, type, token, MLU) were significantly related to the child's production of utterances in the wordless condition (see Table 8). The results indicate that the total variance explained by the model was 75.6% for children's utterances in the wordless condition. The model was a significant predictor of child's utterances, $F(5,30)=18.573,$

$p < .001$. The mother's morpheme production contributed significantly to the model ($\beta = .049$, $t(35) = 2.65$, $p = .01$), the mother's utterances, type, token, and MLU did not contribute significantly to the child's utterances in the wordless condition.

Multiple regressions analyses was used to determine if the variables of the mother's language production (morphemes, utterances, type, token, MLU) were significantly related to the child's production of word types in the worded condition (see Table 9). The results indicate that the total variance explained by the model was 40.9% for children's word type production in the worded condition. The model was a significant predictor of child's word type production, $F(5,30) = 4.161$, $p = .005$. None of the mother's production variables contributed significantly to the child's word type production in the wordless condition.

A multiple regression analysis was performed to determine if the variables of the mother's language production (morphemes, utterances, type, token, MLU) were significantly related to the child's production of utterances in the worded condition (see Table 10). The results indicate that the total variance explained by the model was 80.9% for children's utterances in the worded condition. The model was a significant predictor of child's utterances, $F(5,30) = 25.463$, $p < .0001$. The mothers' utterances contributed significantly to the model ($\beta = .795$, $t(35) = 2.22$, $p = .034$), but the number of mothers' morphemes, type, token, and MLU did not contribute significantly to the child's utterances production in the worded condition.

Mother's Prompts.

A series of 4 multiple regression analyses was performed to determine if the variables of the mother's language production (morphemes, utterances, type, token, MLU) were significantly related to the mother's communicative acts (prompt, evaluate, expand, repeat) in the worded and wordless conditions. The regression analyses with prompt as the dependent variable was found to

be significant and was reported. None of the other regressions with expand, evaluate or repeat were found to be significant and are therefore not reported in this document. Prompt was then selected as the key variable to focus on for further analysis. An regression analysis was performed to determine if the variables of the mother's language production were significantly related to the mother's use of prompts in the worded condition (see Table 13). The variables of mother's language production included the morphemes, utterances, and MLU. The results indicate that the total variance explained by the model was 49.1% for mother's prompts in the worded condition. The model was a significant predictor of the mother's prompts, $F(3,32)=3.38$, $p<.05$. The mother's utterances contributed significantly to the model ($\beta =2.14$, $p<.05$, $t(35)=2.2$), the mother's morphemes and MLU did not contribute significantly to the mother's use of prompts in the worded condition. The remaining regression analysis conducted to see if the mother's use of prompts and evaluations related to the mother's language production variables (morphemes, utterances, and MLU) were not significant (see Tables 11, 12, and 14).

Discussion

The findings of this study help inform an important area of research in the development of early language and literacy, specifically with regards to shared book reading and story-telling between mother and child. The key findings of this study suggest that the use of wordless picture books may encourage greater engagement in dialogue between mother and child during story-telling tasks when compared to the use of worded picture books. Overall, these results suggest that the use of wordless picture books for story-telling activities may provide a beneficial experience for the home literacy environment. As outlined in the literature review, early literacy experiences are crucial in children's language development. This study is unique in that mother-child dyads were observed interacting within the home environment and without specific instruction, which allowed us to explore the naturally occurring dialogue. By discovering strategies that may optimize early literacy experiences, research can inform parents on practical applications for the home, which may then lead to greater levels of school readiness as well as future academic success.

Language Production.

There was a significant difference in the child's production of morphemes, utterances, word types/tokens, and MLU in the wordless condition and the worded condition. Overall, these results indicate that both the mother and child spoke more often and with utterances of greater complexity and length in the wordless condition compared to the worded condition. This is important because it supports that there may be benefits to using wordless picture books when engaging in one-on-one shared storytelling activities.

An important finding of this study was that in the wordless condition, mother's morpheme production significantly contributed to both the child's word type production and

utterances. These findings suggest that when the mother provided more complex sentences or questions, the child spoke more often and with a more diverse vocabulary. In contrast, none of the mother's language production variables were significant predictors of child's word type in the worded condition. This means maternal talk only had a significant impact on the child's production of utterances and word types in the wordless condition but not the worded condition. Therefore, the book type impacts the quality of the dialogue between mother and child in shared story telling activities. Importantly, this finding was observed in the home environment, providing novel information on the natural dialogue occurring in this context. In comparison, the mother's production of utterances was significantly related to child's utterances in the worded condition. This suggests that the more sentences or questions the mother provided, the more often their child spoke. These results further support past literature suggesting that maternal talk in shared reading impacts the child's talk. While these language production variables are not independent of one another, it is important to note that while the child's utterances were impacted by the mother's talk in both conditions, the child's word type production was only impacted in the wordless condition. This key finding indicates that the wordless picture book may provide additional benefits to the shared reading experience. The results of this study may be additionally valuable for ESL families, as they may be able to rely on the picture cues to create meaning out of the wordless story. While we did not find any significant differences between mothers whose first language was English and mothers who speak English as a second language. All mothers were shown to speak more and with more complexity of language in the wordless condition, suggesting that wordless picture books provide similar benefits regardless of first language.

There was a significant difference in the mother's production of morphemes, tokens, and MLU in the wordless condition and the worded condition. This means that the mothers showed greater language production in the wordless condition than the worded condition. Without the constraints of the text, these mother-child dyads from upper-middle class backgrounds were free to engage in richer dialogue. This finding is encouraging because it demonstrates that the book type impacts the mother's language production. This suggests that wordless picture books can be utilized as a tool to encourage mothers to speak more when engaging in story-telling activities with their child. The study was conducted remotely, mothers and children participated in their homes and the instructions simply encouraged the mothers to interact with the books. Therefore, the observed behaviour allows us to be more confident that these results exist in the home environment, rather than if we had observed their behaviours in a laboratory setting.

These findings inform our understanding of children's language development, as it provides an analysis of maternal talk in relation to shared storytelling experiences. As previously discussed, maternal skills have been implicated as highly impactful in regards to informal home literacy activities and child literacy outcomes (Puglisi et al., 2017). The results of this study further support these relations, suggesting that supporting maternal talk may in turn enhance child engagement in informal home literacy activities, specifically when utilizing wordless picture books. This finding encourages further research on the use of wordless picture books in the home literacy environment to determine how related strategies may impact child language and literacy outcomes longitudinally.

These findings can also be looked at through the lens of Vygotsky's Sociocultural Theory of Development. We saw that maternal talk had a significant impact on the child's production of utterances and word types in the wordless condition but not the worded condition. As previously

discussed, Vygotsky emphasized the social and cultural contexts of learning, suggesting that children are able to develop higher order thinking and understanding through interaction with their sociocultural environment. Firstly, the difference in the child's production of utterances show that the children were speaking more often in the wordless condition, and therefore are more actively engaged in the activity. Active engagement is critical in dialogic reading, as without engagement from the child, it is not possible to tell if they are learning or making progress through these shared reading activities. Furthermore, the greater presentation of word types in the wordless condition compared to the worded condition points towards higher order thinking, as the child is using diverse language.

Some mothers did not read what was beyond the text in the worded condition which may have reduced the level of social interaction. In comparison, mothers seemed to engage in more conversation with their child in the wordless condition. This suggests that the use of wordless picture books may be particularly useful in encouraging the social interaction aspect of shared book reading. Telling a story without text may be perceived as more effortful than reading with text, however, this reflects a deeper level of thinking that is encouraged through this modality.

Mother's Prompts.

The mother's utterances contributed significantly to the mother's use of prompts in the worded condition, however the mother's morphemes and MLU did not. The remaining analyses were conducted to see if the mother's use of prompts and evaluations, which are components of dialogic reading were related to the mother's language production variables (morphemes, utterances, and MLU). It is important to note that mothers were not given instruction or information on dialogic reading or the PEER sequence as the goal was to explore the naturally occurring dialogue produced in these shared-storytelling activities. Therefore, we were able to

see how the book type impacted our variables and could be certain that the results were not due to instruction or preparation. While these results were not significant, they provide us with a baseline of the naturally occurring dialogue and PEER strategies between mother and child. This information is an important starting point to determine if instruction on PEER and other dialogic reading techniques may amplify the differences seen in the worded and wordless conditions. As previously discussed, a goal of dialogic reading and scaffolding is to gradually shift the responsibility of the activity from parent to child. Whitehurst and Lonigan (1998) have suggested that this allows the child to become the storyteller, while the parent encourages the child in this role through praise, repetition and encouraging them to expand on utterances. In the current study, the mothers' use of components of PEER was surprisingly high despite the lack of explicit instruction, although the other items presented at below 1. Notably, the mother's indicated high literacy households, and thus may have been more likely to use such literacy skills. This is important as it is possible that mothers in lower literacy households might be less familiar with shared book reading strategies. While the mothers in this sample showed comfortability with 'Prompt', it would be interesting to see how PEER presents itself in lower literacy households without instruction, and if this result generalizes. Interventions or workshops where parents are informed about the use of PEER could then provide insight on how parents utilize this information in worded and wordless storytelling activities. It would also be interesting to see how focusing on story-telling rather than simply text-reading may impact children's development of sequencing skills, directionality, long-term memory, vocabulary and self-expression in these conditions (Miyata & Freeman, 2020).

Implications.

Through this study, we hoped to determine the utility of wordless picture books in mother-child shared story time. These findings support the previous literature that suggests shared-reading experiences are crucial in early language development. Our findings imply that the use of wordless picture books may encourage mothers and children to speak more often and use more complex utterances and diverse vocabulary when engaging in shared-storytelling activities. Literature in this area has suggested that parents are the first teachers and the quality of these parent-child interactions play a key role in early literacy development and school readiness. Previous studies have tended to focus on the child when assessing early or pre-literacy skills. However, our study demonstrates that it is highly important to also assess parental behaviours and language in early literacy experiences. The findings of this study support this notion and provide insight on how the use of wordless picture books may help enhance these interactions between mothers and their preschool-aged children. Our findings also demonstrate that the use of wordless picture books shows similar benefits to ESL mothers as to L1 English mothers, and therefore the benefits are not limited by language spoken.

Limitations.

A possible limitation of this study could be the use of video-conferencing technology, as this required a level of technology-related knowledge. Use of technology to collect the data may have deterred some parents who are less familiar with such technologies. This also meant that mothers could not turn the pages of the book themselves, as the pages were presented on PowerPoint by the researcher. This could potentially influence how long the participant spent on each page, as they cannot tell how much longer the book is. Based on the demographic information collected, our sample consisted of mostly participants who were from middle to

upper SES backgrounds. Thus, we were not able to assess how these results might translate to mother-child dyads from lower SES backgrounds. These lower SES parents might also be more likely to benefit from ways of enhancing their children's language development. Another limitation of the study was that the video session was about an hour long, which seemed to be long for the children as reflected in the number of children who did not fully complete book during the retell condition. The study was completed in one session rather than two in order to prevent loss of participants over time. Recruitment during COVID was challenging, and thus we did not want to risk losing participants by having multiple sessions.

Future Directions.

Further research incorporating low SES families could help determine whether our results are generalizable. It would be important to determine any differences in the mother-child dialogue as this would indicate that the home literacy environment is highly influential in shared reading experiences. Observing these patterns may help identify strategies that may benefit children in living in lower literacy environments.

It would also be valuable to discover whether a longitudinal intervention could impact children's literacy skills and language production in shared-storytelling activities over time. This information could include assessment of mother/child engagement in shared story-telling activities prior to, during, and after the intervention. In this potential intervention, parents could be provided with information on how to engage in dialogic reading using PEER. It would be interesting to see if the mother's and child's level of engagement in dialogic scaffolding would differ over time if assigned to an intervention that focused on either worded or wordless picture books. It would be important to recruit a large, diverse sample in order to assess any potential risk factors or trends.

Conclusion

In conclusion, the study assessed how book-type (i.e., worded vs. wordless) impacted mother-child dialogue in a shared-reading experience. This research was accomplished by coding the session transcripts for the mother and child's individual language production (including word type, word token and mean length of utterance), as well as for the mother's communicative acts (Prompts, Evaluate, Expand, Repeat). Although mother's communicative acts are not strongly related to other linguistic variables, some significant relations suggest further exploration of this potential relationship. The key findings show the potential benefits of interacting with wordless picture books on mother's language production and its contribution to their child's language production. Therefore, the findings suggest the importance in considering wordless picture books in the development of childhood language and pre-literacy skills and the unique benefits afforded by this genre.

Table 1. Mother's Language Production in the Worded and Wordless Conditions: Means and Standard Deviation using a paired *t*-test.

	Worded		Wordless		<i>t</i> -test
	M	SD	M	SD	
Morphemes	516.83	234.58	687.83	287.71	4.09**
Utterances	43.64	16.76	48.17	23.13	ns
Word Type	180.64	52.87	202.97	69.03	ns
Word Tokens	445.81	204.11	613.86	280.41	3.79**
MLU	11.88	2.15	15.35	4.92	4.51**

***p*<.01

**p*<.05

Table 2. Child's Language Production in Worded and Wordless Conditions: Means and Standard Deviation using a paired *t*-test.

	Worded		Wordless		<i>t</i> -test
	M	SD	M	SD	
Morphemes	38.83	43.79	55.22	37.69	2.59*
Utterances	12.19	11.56	16.78	12.25	2.34*
Word Type	22.11	22.56	33.53	20.82	3.30**
Word Tokens	33.47	38.03	47.53	33.43	2.42*
MLU	2.75	1.63	3.32	1.62	2.23*

***p*<.01**p*<.05

Table 3. Mother's Production of Communicative Acts in Worded and Wordless Conditions: Means and Standard Deviation using a paired *t*-test.

	Worded		Wordless		<i>t</i> -test
	M	SD	M	SD	
Prompt	11.19	9.17	11.83	8.67	-.40
Evaluate	2.69	3.21	2.92	3.27	-.40
Expand	.86	1.46	1.28	1.30	-1.21
Repeat	.67	.86	.97	1.34	-1.28

** $p < .01$

* $p < .05$

Table 4. Correlations Among Mother and Child's Language Production In Wordless Picture Book Task

	1	2	3	4	5	6	7	8	9	10
1. Morphemes (Mom)										
2. Utterances (Mom)	.77**									
3. Type (Mom)	.94**	.69**								
4. Token (Mom)	.97**	.75**	.96**							
5. MLU (Mom)	.11	.47**	.19	.09						
6. Morphemes (Child)	.81**	.68**	.70**	.76**	-.04					
7. Utterances (Child)	.77**	.82**	.65**	.71**	-.27	.87**				
8. Type (Child)	.80**	.72**	.70**	.75**	-.08	.94**	.86**			
9. Token (Child)	.82**	.69**	.71**	.77**	-.05	.99**	.86**	.92**		
10. MLU (Child)	.14	-.04	.24	.18	.11	.34*	-.02	.35*	.31	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 5. Correlations Among Mother and Child's Language Production In Worded Picture Book Task

	1	2	3	4	5	6	7	8	9	10
1. Morphemes (Mom)										
2. Utterances (Mom)	.86**									
3. Type (Mom)	.80**	.83**								
4. Token (Mom)	.96**	.86**	.85**							
5. MLU (Mom)	.46**	-.043	.14	.38*						
6. Morphemes (Child)	.67**	.69**	.60**	.63**	.14					
7. Utterances (Child)	.83**	.88**	.72**	.81**	.13	.89**				
8. Type (Child)	.58**	.62**	.55**	.56**	.09	.97**	.81**			
9. Token (Child)	.63**	.65**	.56**	.59**	.11	.99**	.86**	.98**		
10. MLU (Child)	.13	.09	.13	.09	.11	.57**	.29	.65**	.59**	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 6. Correlations Among Mother and Child's Language Production In Story Retell Task

	1	2	3	4	5	6	7	8	9
1. Morphemes (Mom)									
2. Utterances (Mom)	.94**								
3. Type (Mom)	.95**	.93**							
4. Token (Mom)	.99**	.93**	.91**						
5. Morphemes (Child)	.29	.34*	.40*	.27					
6. Utterances (Child)	.40*	.51**	.50**	.34*	.56**				
7. Type (Child)	.40*	.37*	.47**	.36*	.69**	.32			
8. Token (Child)	.28	.31	.38*	.24	.98**	.52**	.73**		
9. MLU (Child)	.11	.08	.17	.12	.77**	.	.63**	.77**	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 7. Variation in Child's Word Type Production Predicted by Mother's Language Production in the Wordless Condition.

Total $R^2 = .685$

Variables	β	t-value	Sig.
Morphemes (Mother)	1.163	2.357	.025*
Utterances (Mother)	.136	.401	.692
Type (Mother)	-.276	-.707	.485
Token (Mother)	-.206	-.414	.682
MLU (Mother)	-.063	-.279	.782

** Significant at the 0.01 level (2-tailed).

* Significant at the 0.05 level (2-tailed).

Table 8. Variation in Child's Production of Utterances Predicted by Mother's Language Production in the Wordless Condition.

Total $R^2 = .756$

Variables	β	t-value	Sig.
Morphemes (Mother)	1.152	2.654	.013*
Utterances (Mother)	.398	1.330	.194
Type (Mother)	-.224	-.651	.520
Token (Mother)	-.481	-1.100	.280
MLU (Mother)	-.114	-.569	.574

** Significant at the 0.01 level (2-tailed).

* Significant at the 0.05 level (2-tailed).

Table 9. Variation in Child's Word Type Production Predicted by Mother's Language Production in the Worded Condition.

Total $R^2 = .409$

Variables	β	t-value	Sig.
Morphemes (Mother)	-.296	-.268	.791
Utterances (Mother)	1.023	1.122	.271
Type (Mother)	.100	.342	.735
Token (Mother)	-.248	-.430	.670
MLU (Mother)	.344	.667	.510

** Significant at the 0.01 level (2-tailed).

* Significant at the 0.05 level (2-tailed).

Table 10. Variation in Child's Production of Utterances Predicted by Mother's Language
Production in the Worded Condition.

Total $R^2 = .809$

Variables	β	t-value	Sig.
Morphemes (Mother)	-.059	-.095	.925
Utterances (Mother)	1.153	2.224	.034*
Type (Mother)	-.110	-.664	.512
Token (Mother)	-.139	-.423	.675
MLU (Mother)	.278	.947	.351

** Significant at the 0.01 level (2-tailed).

* Significant at the 0.05 level (2-tailed).

Table 11. Variation in Mothers use of Prompts Predicted by Mother's Language Production in the Wordless Condition.

Total $R^2 = .459$

Variables	β	t-value	Sig.
Morphemes (Mother)	.01	-.45	.66
Utterances (Mother)	.19	.83	.41
MLU (Mother)	.58	-.59	.56

** Significant at the 0.01 level (2-tailed).

* Significant at the 0.05 level (2-tailed).

Table 12. Variation in Mother's use of Evaluations Predicted by Mother's Language Production in the Wordless Condition.

Total $R^2 = .335$

Variables	β	t-value	Sig.
Morphemes (Mother)	.21	.45	.66
Utterances (Mother)	.03	.06	.96
MLU (Mother)	-.24	-.70	.49

** Significant at the 0.01 level (2-tailed).

* Significant at the 0.05 level (2-tailed).

Table 13. Variation in Mothers use of Prompts Predicted by Mother's Language Production in the Worded Condition.

Total $R^2 = .491$

Variables	β	t-value	Sig.
Morphemes (Mother)	-1.98	-1.81	.08
Utterances (Mother)	2.14	2.22	.035*
MLU (Mother)	4.40	.95	.077

** Significant at the 0.01 level (2-tailed).

* Significant at the 0.05 level (2-tailed).

Table 14. Variation in Mothers use of Evaluations Predicted by Mother's Language Production in the Worded Condition.

Total $R^2 = .319$

Variables	β	t-value	Sig.
Morphemes (Mother)	1.55	1.50	.152
Utterances (Mother)	-1.50	-1.26	.216
MLU (Mother)	.79	1.29	.207

** Significant at the 0.01 level (2-tailed).

* Significant at the 0.05 level (2-tailed).

Table 15. Correlations Between Mother’s Communicative Acts and Language Production in the Worded and Wordless Condition

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Prompt (Worded)																		
2. Evaluate (Worded)	.77**																	
3. Expand (Worded)	.65**	.66**																
4. Repeat (Worded)	.36*	.13	-.02															
5. Prompt (Wordless)	.43**	.08	-.06	.52**														
6. Evaluate (Wordless)	.48**	.47**	.07	.43**	.53**													
7. Expand (Wordless)	.05	-.18	-.13	.57**	.51**	.37*												
8. Repeat (Wordless)	.05	-.15	-.16	.21	.39*	.16	.27											
9. Morpheme (Wordless)	.36*	.37*	.48**	.17	.1	.21	.06	.24										
10. Utterances (Wordless)	.42*	.45**	.33*	.2	.36*	.31	.15	.2	.77**									
11. Type (Wordless)	.26	.32	.43**	.06	.06	.21	.05	.3	.94**	.69**								
12. Token (Wordless)	.3	.31	.46**	.07	.06	.2	.04	.32	.97**	.75**	.96**							
13. MLU (Wordless)	-.18	-.18	.07	-.16	-.42	-.24	-.27	.08	.11	-.48	.19	.09						
14. Morpheme (Worded)	.33	.19	.33*	.34*	.1	.3	.14	.01	.55*	.40*	.46**	.54**	.07					
15. Utterances (Worded)	.40*	.23	.21	.32	.2	.34*	.22	.03	.40*	.44**	.35*	.38*	-.12	.86**				
16. Type (Worded)	.28	.17	.22	.36*	.19	.3	.25	.05	.36*	.3	.32	.31	-.03	.80**	.83**			
18. Token (Worded)	.34*	.22	.3	.39*	.16	.32	.17	.01	.52**	.38*	.44**	.49**	.07	.96**	.86**	.85**		
17. MLU (Worded)	.03	.04	.32	.17	-.09	.06	.12	.05	.44**	.07	.33*	.43**	.36*	.46**	-.04	.14	.38*	

Table 16. Correlation Between Child’s PPVT Score, Age, and Language Production

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. PPVT Raw Score																		
2. PPVT Standard Score	.72**																	
3. Age (months)	.34*	.05																
4. Morpheme (Wordless)	-.19	-.01	.															
5. Utterance (Wordless)	-.15	.04	-.1	.87**														
6. Type (Wordless)	-.1	.06	.07	.94**	.86**													
7. Token (Wordless)	-.23	-.02	.01	.99**	.86**	.92**												
8. MLU (Wordless)	-.07	-.13	.11	.34*	-.02	.35*	.31											
9. Morpheme (Worded)	-.14	-.11	.26	.56**	.37*	.56**	.56**	.38*										
10. Utterances (Worded)	-.31	-.24	.17	.64**	.52**	.60**	.64**	.21	.89**									
11. Type (Worded)	-.05	-.01	.29	.52**	.37*	.54**	.51**	.37*	.97**	.81**								
12. Token (Worded)	-.1	-.08	.27	.54**	.35*	.53**	.53**	.37*	.99**	.86**	.98**							
13. MLU (Worded)	.13	.22	.15	.32	.16	.35*	.31	.54**	.57**	.29	.65**	.59**						
14. Morpheme (Retell)	.06	-.02	.34*	.28	.06	.19	.3	.2	.15	.01	.12	.16	.21					
15. Utterances (Retell)	.05	-.01	-.21	.09	-.04	-.04	.08	.09	-.2	-.18	-.27	-.19	-.06	.56**				
16. Type (Retell)	.04	-.1	.31	.27	.26	.21	.3	.	.16	.08	.14	.16	.15	.69**	.32			
17. Token (Retell)	.03	.	.32	.32	.12	.23	.35*	.17	.13	.02	.1	.13	.21	.98**	.52**	.73**		
18. MLU (Retell)	-.02	-.1	.55**	.2	.05	.17	.25	.19	.15	.02	.14	.14	.22	.77**	.	.63**	.77**	

Appendix A:**Family Language Questionnaire**

In order to be able to better understand the factors that influence a child's ability to learn through shared book reading, we would like to obtain some information about language knowledge and language use in the home. We would greatly appreciate it if you would complete the following questions concerning your family and your child who is in the study. Please read each statement carefully and respond as honestly as possible. The information collected in the following questionnaire will remain confidential.

Q1 Please answer the following questions about the child in the study.

What is the child's age? (In months)

Q2 What is your child's gender?

Q3 Is your child currently in school?

Yes (1)

No (2)

Q4 If you answered 'Yes' to the previous question, please check all that apply. If you answered 'No' to the previous question, please select 'N/A'.

Day Care (1)

Preschool (2)

Junior Kindergarten (3)

Senior Kindergarten (4)

N/A (5)

Q5 What is your child's first language?

English (1)

Other (Specify) (2) _____

Q6 When did the child learn to speak their native language? Please write how old they were when they spoke their first words (in months).

Q7 When did the child learn to speak their native language? Please write how old they were when they spoke their first sentences (in months).

Q8 Has the child ever received extra help in the following areas? Please select all area's that the child has received extra help. If the child has not received help in any area listed below please select "N/A".

Pronouncing sounds (1)

Speaking in sentences (2)

Walking (3)

Holding or using objects (4)

N/A (5)

Q9 What language or languages are spoken at home?

Q10. How often does your child watch TV or videos? Please select the most applicable answer.

- More than 3 hours per day (1)
- 2-3 hours per day (2)
- 1 to almost 2 hours per day (3)
- Less than 1 hour per day (4)
- Never (5)

Q14 How often do you read to your child? Please circle the most applicable answer.

- More than 2 hours per day (1)
- 1-2 hours per day (2)
- Less than 1 hour per day but more than 15 minutes (3)
- Less than 15 minutes per day (4)
- Almost never (5)

Q15 Approximately how many books do you have at your house that your child has read or might read (including library books)? Please select the most applicable answer.

- 1-2 (1)
- 3-5 (2)
- 5-10 (3)

- 10-25 (4)
- 25-100 (5)
- 100+ (6)
- None (7)

Q16 How often does your go to the **library** to obtain reading materials for your child? Please select the most applicable answer.

- Once a week or more (1)
- Once every 2 weeks (2)
- Once a month (3)
- Once a year (4)
- Never (5)

Q19 How often does your go to the **bookstore** to obtain reading materials for your child? Please select the most applicable answer.

- Once a week or more (1)
- Once every 2 weeks (2)
- Once a month (3)
- Once a year (4)
- Never (5)

Q31 Do you engage in story-making games/activities with your child? If yes, please describe the

(10)

Understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(1)										
Speaking (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reading (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q25 What is the highest level of education that you have attained?

- Elementary school (1)
- Some high school studies (2)
- Completed high school (3)
- Some college or university studies (4)
- Completed college diploma (5)
- Completed undergraduate degree (6)
- Some postgraduate studies (7)
- Completed graduate or professional degree (8)

Q26 What is your current occupation?

Q27 If you are a new Canadian and were employed before immigrating to Canada, please indicate your occupation in your former country.

Q28 How often do **you** read at home **for work**? Please select the most applicable answer.

- More than 2 hours per day (1)
- 1-2 hours per day (2)
- 2-5 hours per week (3)
- Less than 2 hours per week (4)
- Never (5)

Q29 How often do you read (on average) at home for pleasure? Please select the most applicable answer.

- 10-15 minutes per day (1)
- 30 minutes a day (2)
- An hour a day (3)
- More than an hour a day (4)
- I do not read for pleasure or rarely so (5)

Q30 Would you like to read more often?

- Yes (1)
- Maybe (2)
- No (3)

Q30 Do you read parenting books or magazines or look up advice about parenting online? Please

note in the free space if this is parenting books/magazines, online advice, or both.

Daily (1) _____

2-6 times per week (2) _____

Once a week (3) _____

Once a month (4) _____

Never (5)

Appendix B

Title Recognition Task and End of Survey

Please select all titles that you have heard of or recognize. The following list are of picture books.

- The Most Magnificent Thing (1)
- The Good Egg (2)
- Love You Forever (3)
- Bean the Boisterous Bunny (4)
- Let's Go to Australia (5)
- The Wonky Donkey (6)
- Alexander and the Terrible, Horrible, No Good, Very Bad Day (7)
- The Purple Polka Dot Umbrella (8)
- There's No Place Like Space (9)
- The Pout Pout Fish (10)
- Giraffes Can't Dance (11)
- The Day The Crayons Quit (12)
- The Hidden One (13)
- Mortimer (14)
- The Missing Letter (15)
- The World Needs More Purple People (16)

- The Rollaway (17)
- The Day You Begin (18)
- Sadie Goes to Hollywood (19)
- James & The Giant Peach (20)
- Peppa Pig: Peppa's Magical Unicorn (21)
- The Paper Bag Princess (22)
- The Case of the Unusual Porcupine (23)
- The Schoolhouse (24)
- The Name Jar (25)
- The Night Before Kindergarten (26)
- The Word Collector (27)
- Vegetables in the Kitchen (28)
- Squid's are Squishy (29)
- The New Baby (30)
- The Pigeon HAS to Go To School (31)
- Goose of the Loose and His Friend Moose (32)
- I Have To Go (33)
- The Ocean and Beyond (34)

- Farmer Frank and Charlie Chicken (35)
- The Monkey Doctor (36)
- Sam and the Firefly (37)
- I'll Teach My Dog 100 Words (38)
- A Fish Out of Water (39)
- Would You Rather Be A Bullfrog (40)
- Dream Big Little One (41)
- The Very Bad Bunny (42)
- Jane's Truck Company (43)
- Three Wombats (44)
- The Giving Tree (45)
- The Color Monster: A Story About Emotions (46)
- We Don't Eat Our Classmates (47)
- Where's Spot? (48)
- Where The Wild Things Are (49)
- He's Your Big Brother! (50)
- The Goodnight Train (51)
- Cory the Caterpillar (52)

- The Lost Unicorn (53)
- Ten Little Night Stars (54)
- Dragons Love Tacos (55)
- In My Heart (56)
- All Are Welcome (57)
- The Invisible String (58)
- The Bad Seed (59)
- Across the River (60)
- Ada Twist, Scientist (61)
- Mighty, Mighty, Construction Site (62)
- That's What Dinosaurs Do (63)
- Rosie Revere, Engineer (64)
- My Magic Breath (65)
- Roger Rhino (66)
- Malala's Magic Pencil (67)
- Pink Is For Boys (68)
- Happy Hearts (69)
- Over and Under the Pond (70)

- Stolen Words (71)
 - The Magic Orange Tree (72)
 - Pete the Cat: I Love My White Shoes (73)
 - Swimming Under the Stars (74)
 - How To Be A Kangaroo (75)
 - New Tricks I Can Do (76)
 - Sweetest Kulu (77)
 - In the Snow (78)
 - The Going to Bed Book (79)
 - To Saturn and Beyond (80)
 - I do not recognize any of the above titles. (81)
-

Q34 Thank you for completing the Family Language Questionnaire and Title Recognition Task. Please indicate below if you would like to receive a brief questionnaire following the study. This will take only 5 minutes to complete and will be sent to you after your scheduled session. We look forward to sharing the findings of the project with you.

- Yes, I would like to receive the follow-up questionnaire (1)
 - No, I would not like to receive the follow-up questionnaire (2)
-

Please enter your participant number below.

Your participant number can be found in the email from the researcher with the link to this survey.

Thank you for taking the time to complete the questionnaire!

Appendix C

Language Coding

Word Type: total number of distinct words in a text

Word Token: total number of words regardless of how often they are repeated

Morphemes: the smallest element in a language capable of creating a difference in meaning, e.g. in the word *dis-interest-ed*, *dis-* is a prefix, *-interest-* is a root, and *-ed* is a suffix: these are all morphemes

Utterance: A continuous piece of speech beginning and ending with a clear pause (Note: a one word response counts as an utterance)

Mean Length of Utterance (MLU): Total Morphemes/Total Utterances

Coding Protocol for Morphemes with Examples:

	Do Count
1.	The -s plural marker (e.g. <i>cat-s, dog-s</i>). Count it even when used on irregular plurals (e.g. <i>mouse-s</i>) <u>Exception</u> : plurals never occurring in the singular (e.g. <i>pants, clothes</i>) count as just one morpheme
2.	The -ed past tense marker (<i>walk-ed, play-ed</i>). The -ed morpheme is counted even when used improperly (<i>go-ed, drink-ed</i>)
3.	The -ing present participle marker (e.g. <i>walk-ing, count-ing</i>)
4.	Possessive -'s marker (e.g. <i>mummy's hat, boy's toy</i>)
5.	Contractions (e.g. <i>she's, he'll, they're, what's, she'd, we've, can't, aren't</i> would all count as 2 morphemes each).
6.	The -s 3rd person regular tense marker (e.g. <i>he like-s sweets, Bob walk-s fast</i>).
7.	Compound words (e.g. <i>lunch-box</i>). Each word within the compound word that has meaning alone is counted as a morpheme.
	Do NOT Count
1.	False starts, reformulations, or repetitions unless the repetition is for emphasis (e.g. "[then] then [he go] he went to the zoo" is counted as 6 morphemes; "No! No! No!" is counted as 3).
2.	Irregular past tense verbs and irregular plurals count as one morpheme (e.g. <i>took, went, mice, men</i>)
3.	Diminutives (e.g. <i>doggie, horsie, dolly</i>) and catenatives (e.g. <i>gonna, wanna, hafta</i>) count as one morpheme
4.	Fillers (e.g. <i>um, well, oh, um hmm</i>)

Morpheme and Utterance Coding Examples:

Ex 1. *The frog is gett-ing out yeah and what about this one?*

In example 1, the word ‘getting’ is counted as 2 morphemes because of the -ing marker. Thus, 12 morphemes were counted in this sentence. This example is also counted as 1 utterance because it was spoken as one sentence/thought.

Ex 2. *Then the dog flew-ed high on the floor and then the bee-s get really mad at him and then he was on the tree and then Bob was look-ing in the hole and an owl was in there.*

In example 2, the word ‘flew-ed’ is counted as 2 morphemes, as the -ed marker is counted even when used improperly. The word ‘looking’ is counted as 2 morphemes because of the -ing marker, and the word ‘bees’ is counted as 2 morphemes because of the -s plural marker. Thus, 41 morphemes were counted in this sentence. This example is also counted as 1 utterance because it was spoken as one sentence/thought, even though it is long.

Ex 3. *You want to go in the house? Where would you want to sit? On the chair?*

In example 3, there are 16 morphemes (each word here is counted as one). This example is counted as 3 utterances, as there was a clear pause after each sentence indicating the end of the thought.

Mean Length of Utterance Example:

The MLU is calculated by dividing the number of morphemes by the number of utterances in a sample to determine the average length of the utterances. For example, a mother’s transcript was coded for her language use when reading *If You Take A Mouse to School*. In this sample, the mother spoke 612 morphemes and 41 utterances. Therefore, the $MLU = 612/41 = 14.92$. This means that the average number of morphemes per utterance was about 15 for the mother in this task. A higher MLU indicates that the participant is speaking in longer sentences.

Word Type and Token Examples:

Ex 1. *While he’s waiting he’ll play a quick game of soccer*

Example 1 shows a case where the number of words and tokens is the same. Since no words are repeated, this example has 10 word tokens and 10 word types.

Ex 2. *When he’s finished he’ll want to read his book to you. Would you like to read his book?*

Example 2 shows a case where the number of word types and word tokens are not the same. This is because some words were repeated (to, read, his, book, you). If a word is repeated it is counted

towards the number of word tokens, but not the number of word types. Therefore, this example has 18 word tokens and 12 word types.

Appendix D

Narrative Coding: Communicative Acts Using PEER

PEER stands for *Prompt, Evaluate, Expand and Repeat*

The coding was based on the protocol and definitions outlined by Pillinger & Wood, 2014. The mother’s statements were coded for PEER in the worded condition, wordless condition, and story retell.

Label	Definition	Examples
Prompt (P)	Refers to adult prompting the child to say something related to the book (i.e., using wh-questions, open-ended questions)	What is the boy doing? Does the boy look happy or mad?
Evaluate (Ev)	Evaluate what the child has said	Child: he got puppy Mother: Yeah, he got the puppy
Expand (Ex)	Expanding on the response by repeating what the child has said and adding information to it	Child: He’ looking in the glass Mother: He is looking in the glass, what is he looking for?
Repeat (R)	Asking the child to repeat the expansion (Lonigan & Whitehurst, 1998; Whitehurst et al., 1994)	Mother: Oh is that a little mouse house? (prompt) Child: A big house Mother: That’s a giant mouse house isn’t it? (repeat)

Sample:

Mother: And it looks like he caught a frog and dog really likes the frog
 Child: he eating the food
 Mother: he is eating the food? **(Ev)** Maybe he is eating the food **(Ex)**
 Child: the puppy food, puppy food
 Mother: Do you think the frog is food for the puppy? **(Ev)**
 Child: shakes head no
 Mother: No, I think the frog might be a friend for the puppy **(Ex)**
 Mother: uh-oh, boy is asleep and puppy is asleep and what is the frog doing? **(P)**
 Mother: The frog is climbing out of its jar and do you think he is going to be loud or quiet? **(P)**
 Child: quiet
 Mother: the boy and dog woke up and uh-oh, where is the frog? **(P)**
 Child: mumbles
 Mother: Where do you think the frog went? **(P)**

Mother: Puppy is looking in the jar and is like, “froggy are you in here”, and the boy is looking in his boots. Do you think the frog is in his boots? **(P)**

Child: No

Mother: No I don't think so. **(EV)**

Appendix E

Interrater Reliability Report.**Language Coding Reliability Scores As a Percentage.**

	Worded (Mom)	Wordless (Mom)	Retell (Mom)	Worded (Child)	Wordless (Child)	Retell (Child)
Morphemes	100	100	99.9	99.8	100	100
Utterances	99.9	89.5	88.4	99.7	100	99.8
Word Type	99.9	100	99.1	99.7	99.9	99.8
Word Token	100	100	99.4	95.4	99.9	100

Narrative Coding Reliability Scores.

	Worded (Mom)	Wordless (Mom)	Retell (Mom)
Prompt	100	96.3	99.9
Evaluate	99.9	97.5	99.1
Expand	100	100	100
Repeat	100	100	100

References

- Arizpe, E. (2013). Meaning-making from wordless (or nearly wordless) picturebooks: What educational research expects and what readers have to say. *Cambridge Journal of Education*, 43(2), 163–176. <https://doi.org/10.1080/0305764X.2013.767879>
- Cameron-Faulkner, T., & Noble, C. (2013). A comparison of book text and Child Directed Speech. *First Language*, 33(3), 268–279.
- Chaparro-Moreno, L. J., Reali, F., & Maldonado-Carreño, C. (2017). Wordless picture books boost preschoolers' language production during shared reading. *Early Childhood Research Quarterly*, 40, 52–62. <https://doi.org/10.1016/j.ecresq.2017.03.001>
- Gettinger, M., & Stoiber, K. C. (2014). Increasing opportunities to respond to print during storybook reading: Effects of evocative print-referencing techniques. *Early Childhood Research Quarterly*, 29(3), 283–297. <https://doi.org/10.1016/j.ecresq.2014.03.001>
- Grover, V., Rydland V., & Gustafsson J. (2020). Shared book reading in preschool supports bilingual children's second-language learning: A cluster-randomized trial. *Child Development*, 91(6), 1-19.
- Hollich, G. & Houston, D. (2007). *Language development: From speech perception to first words* (pp.170-178).
- Hood, M., Andrews, G., & Conlon, E. (2007). Preschool Home Literacy Practices and Children's Literacy Development: A Longitudinal Analysis. *Journal of Educational Psychology*, 100(2).
- Horst, J. S., & Houston-Price, C. (2015). Editorial: An open book: What and how young children learn from picture and story books. *Frontiers in Psychology*, 6(NOV), 1–4. <https://doi.org/10.3389/fpsyg.2015.01719>

- Jalongo, M. R., Dragich, D., Conrad, N. K., & Zhang, A. (2002). Using wordless picture books to support emergent literacy. *Early Childhood Education Journal*, 29(3), 167–177.
<https://doi.org/10.1023/A:1014584509011>
- Justice, L. M., & Pullen, P. C. (2003). Promising Interventions for Promoting Emergent Literacy Skills: Three Evidence-Based Approaches. *Topics in Early Childhood Special Education*, 23(3), 99–113. <https://doi.org/10.1177/02711214030230030101>
- Knauer, H. A., Jakiela, P., Ozier, O., Aboud, F., & Fernald, L. C. H. (2020). Enhancing young children’s language acquisition through parent–child book-sharing: A randomized trial in rural Kenya. *Early Childhood Research Quarterly*, 50, 179–190.
<https://doi.org/10.1016/j.ecresq.2019.01.002>
- Landry, S. H., Smith, K. E., Swank, P. R., Zucker, T., Crawford, A. D., & Solari, E. F. (2012). The effects of a responsive parenting intervention on parent-child interactions during shared book reading. *Developmental Psychology*, 48(4), 969–986.
<https://doi.org/10.1037/a0026400>
- Leonard, M. A., Lorch, E. P., Milich, R., & Hagans, N. (2009). Parent-Child Joint Picture-Book Reading Among Children With ADHD. *Journal of Attention Disorders*, 12(4), 361–371.
- Lonigan, C. J., Schatschneider, C., & Westberg, L., The National Early Literacy Panel. (2008). Identification of children’s skills and abilities linked to later outcomes in reading, writing, and spelling (pp. 55-106). In National Early Literacy Panel (US) & National Center for Family Literacy (Eds.), *Developing Early Literacy: Report of the National Early Literacy Panel*. Washington, DC: National Institute for Literacy.
- Lysaker, J., & Hopper, E. (2015). A kindergartner’s emergent strategy use during wordless picture book reading. *Reading Teacher*, 68(8), 649–657. <https://doi.org/10.1002/trtr.1352>

- McAlister, A., Lee, D., & Ehlert, K. (2017). ASSE Annual Conference and Exposition, Conference Proceedings.
- Mercer, N. (2010). The analysis of classroom talk: Methods and methodologies. *British Journal of Educational Psychology*, 80(1), 1–14. <https://doi.org/10.1348/000709909X479853>
- Miller, J. F., Andriacchi, K., & Nockerts, A. (2016). *Assessing language production using salt software: A clinician's guide to language sample analysis*. SALT Software, LLC.
- Morgan, P. L., & Meier, C. R. (2008). Dialogic Reading's Potential to Improve Children's Emergent Literacy Skills and Behavior. *Preventing School Failure: Alternative Education for Children and Youth*, 52(4), 11–16. <https://doi.org/10.3200/psfl.52.4.11-16>
- Pelletier, J., & Lasenby, J. (2007). Early writing development in 11 englishspeaking children. *L1 Educational Studies in Language and Literature*, 7(3), 81–107. <https://doi.org/10.17239/11esll-2007.07.03.08>
- Puglisi, M. L., Hulme, C., Hamilton, L. G., & Snowling, M. J. (2017). The Home Literacy Environment Is a Correlate, but Perhaps Not a Cause, of Variations in Children's Language and Literacy Development. *Scientific Studies of Reading*, 21(6), 498–514.
- Reunamo, J., & Nurmilaakso, M. (2007). Vygotsky and agency in language development. *European Early Childhood Education Research Journal*, 15(3), 313–327. <https://doi.org/10.1080/13502930701679320>
- Rojas-Drummond, S., Torreblanca, O., Pedraza, H., Velez, M., & Guzman, K. (2013). “Dialogic scaffolding”: Enhancing learning and understanding in collaborative contexts. *Learning, Culture and Social Interaction*, 2, 11–21.
- Saracho, O. N. (2020). Parents' shared storybook reading – learning to read. *Research in Young Children's Literacy and Language Development*, 187(2002), 256–269.

<https://doi.org/10.4324/9781315108278-20>

Senechal, M., & LeFevre, J.-A. (2002). Parental Involvement in the Development of Children's

Reading Skills: A Five-Year Longitudinal Study. *Child Development*, 73(2), 445–460.

Wasik, B. A., Hindman, A. H., & Snell, E. K. (2016). Book reading and vocabulary

development: A systematic review. *Early Childhood Research Quarterly*, 37, 39–57.

<https://doi.org/10.1016/j.ecresq.2016.04.003>

What Works Clearinghouse. (2015). *WWC Intervention Report: Shared Book Reading*.

Whitehurst, G. J., & Lonigan, C. J. (1998). Child development and emergent literacy. *Child*

Development, 69(3), 848–872. <https://doi.org/10.1111/j.1467-8624.1998.tb06247.x>