Text-Influenced Expressions of Understanding: Differences in Kindergartners’ Discourse and Written Retellings of Traditional and Digital Texts During Buddy Reading

Julie Parrish
Louisiana State University and Agricultural and Mechanical College

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TEXT-INFLUENCED EXPRESSIONS OF UNDERSTANDING: DIFFERENCES IN KINDERGARTNERS’ DISCOURSE AND WRITTEN RETELLINGS OF TRADITIONAL AND DIGITAL TEXTS DURING BUDDY READING

A Dissertation

Submitted to the Graduate Faculty of Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

The School of Education

by
Julie Parrish
B.S., University of Texas at Austin, 1988
M.S., Texas A & M University at Corpus Christi, 2008
August 2020
This work is dedicated to the memory of my father, James E. Parrish, my number one cheerleader. He taught me always to remember the answer to the age-old question, “How do you eat an elephant? One bite at a time, Julie P., one bite at a time.” I love you and miss you, Daddy!
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To my children, Amy and Eric, thank you for supporting me when I decided to move to Louisiana and pursue this dream. Knowing that you were in my corner kept me going through the most challenging times. I am honored and proud to have two such brilliant, talented, and caring children. You both are my heart, and I love you so very much!

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ABSTRACT

Buddy reading a text is a collaborative act that typically generates discourse that provides researchers with a glimpse of the comprehending taking place. However, in recent years, the infusion of technology in classrooms has resulted in many traditional texts being replaced by digital versions. Thus, this qualitative case study examined the spoken and written discourse of 12 kindergartners (6 dyads) as they buddy read a traditional and digital text. Drawing upon two distinct lenses—sociocultural and comprehension signifier—video recordings, transcriptions, and written retellings were analyzed. Specifically, process coding and in vivo coding were used to construct categories and uncover sociocultural patterns in the discourse. Provisional coding was used to identify explicit (character, setting, initiating event, problem, outcome resolution), implicit (feelings, causal inference, dialogue, prediction), and reading strategy (repeats, questions, connects, dramatizes) comprehension signifiers.

Findings indicate a mismatch between the kind of discourse that transpired and how it translated into the written retellings. When children engaged in conversation as they read the traditional storybook, the discussion exemplified high-frequency use of explicit and implicit comprehension signifiers. However, few of the written retellings utilized implicit comprehension signifiers. The discourse surrounding the digital texts consisted mostly of implicit comprehension signifiers and reading strategy signifiers. Conversely, the writing reflected a more extensive comprehension signifier use with many of the children’s retellings containing examples from two or more different subcategories.
CHAPTER 1. INTRODUCTION

Digital screens are omnipresent it seems. Scan any coffee shop, city sidewalk, and even busy highway, and you will see the majority of adults staring at a computer, smart phone, or a tablet. The same holds true for the youngest members of society. According to Rideout (2017), who has been documenting the media habits of children under the age of eight since 2011, 98% of children age 8 and under live in a domicile with some type of mobile device. Rideout (2017) states that this number has increased 47 percentage points since the study was first conducted in 2011, and 78% of homes with children age 8 and under has a tablet, almost double the amount of homes that had them in 2013. Of the digital devices available to children age 4 and under, tablets have seen a surge of use in both the home and in school. Rideout (2017) reports that 43% of children age two to four of the families surveyed have their own tablet. Tablets are also increasingly seen in prekindergarten classrooms and used for such distinct curricular areas as handwriting, math skills, and social interactions (Moore & Adair, 2015; Schater & Booil, 2017; Wells, Sulak, Saxon & Howell, 2016).

Overview of the Issue

The digital age has ushered in new equipment for young students to use at home and at school. One can see these students using interactive smart boards, computers, and tablets in their classroom. This increase in the availability of tablet technology to young children presents a unique issue for the area of early childhood literacy instruction. One concern confronting early childhood educators and researchers is whether students are able to read digital texts of the same or higher level of complexity as the traditional paper texts they are able to read. And when they do read those texts, are they able to do so with the same level of comprehension? Given the
ubiquitousness of tablets, it is important to know if young children are being helped or hindered in the area of reading when using these devices.

We also know that emergent writing is an important curricular area that does not get the necessary attention by classroom early childhood teachers (Gerde, Bingham, & Pendergast, 2015; Korth et al., 2017; Piasta, 2016)). Studying the best use of iPads as we support early learners in emergent reading and writing addresses two major needs in early literacy research – identifying the best way to use the plethora of digital devices present in kindergarten classrooms and discovering ways to encourage classroom teachers as they guide children in emergent reading and writing.

**Significance of the Study**

Research into young children’s use of digital and traditional storybooks in a school setting might impact the three distinct populations include the children themselves, their teachers, and their parents. Researching the ways young children use both traditional texts and digital texts could help students to identify new ways with which to interact with digital devices. Early childhood teachers may discover new instructional strategies and possibly new ways to assess early literacy. Parents and other adults charged with caring for young children may be able to make more informed choices about the use of tablets and how to best support their children when reading texts digitally.

While parents and teachers most frequently come to mind when considering who supports young children’s early literacy development and learning, the role of peers should not be overlooked. There is an emerging body of literature that demonstrates that even young children provide significant support to each other as they read and write together. There are few studies, however that examine how children interact as they read both digital and traditional
storybooks together. A more robust understanding of similarities and differences in their interactions with each type of book may support decisions about when and for what purposes children might be encouraged to read together.

**Purpose of the Study and Research Questions**

The purpose of this study is to examine the spoken and written discourse that occurs when kindergartners buddy read traditional and digital, texts and then write about the them. I aim to articulate what comprehension looks and sounds like when kindergartners buddy read under the two different conditions. Specific research questions are as follows:

- **Question 1.** What is the nature of reading comprehension, as evidenced in interactions that occur when kindergartners read a traditional and a digital storybook?
- **Question 2.** How is reading comprehension expressed in the written retellings of kindergartners when they read traditional and digital storybooks?

**Overview of the Study**

This study is drawn from a larger data set that examined and compared 51 kindergartners' ability to write about/retell a story presented digitally and in a traditional picture book format (Burstein, Casbergue, & Parrish, 2019). That study entailed quantitative analysis of children’s scores on a standardized measure of early writing that examined both mechanical and composition aspects of writing. Based on that measure, no significant differences were found as children wrote in response to each of the two different types of texts.

My interrogation of the data aims to explore the qualitative similarities and differences in student interactions and comprehension that occur when kindergartners buddy read digital and traditional books. For the purposes of this study, buddy reading is defined as two or three students reading together, either emergently or conventionally.
Chapter Organization

Chapter 2 provides an overview of the literature pertinent to this study. Areas I address are emergent literacy, reading comprehension, buddy reading, early reading and writing, best practices in early literacy instruction, and digital literacy in early childhood. Chapter 2 also provides an examination of the theoretical framework grounded in sociocultural concepts discussed by Vygotsky and Bruner. Chapter 3 presents the method of the study, the procedures for data collection and analysis, and a discussion of the trustworthiness of the study. Chapter 4 catalogs the research findings, and Chapter 5 reviews and discusses the findings.
CHAPTER 2. LITERATURE REVIEW AND THEORETICAL CONSIDERATIONS

Emergent Literacy

In 1966, Marie Clay coined the term emergent literacy to describe the process through which young children acquire and hone literacy knowledge and skill (Graves, 1985). In their seminal work, Teale and Sulzby (1986) explained their adoption of the term emergent literacy as one that connotes a process that is intrinsic to children, where they are constantly “changing and refining their motives and strategies and even developing new ones” (p. xx) as they move continuously toward becoming expert readers and writers. Whitehurst & Lonigan (1998) call attention to the intrinsic role of the home in their definition.

The term “emergent literacy” is used to denote the idea that the acquisition of literacy is best conceptualized as a developmental continuum, with its origins early in the life of a child, rather than an all-or-none phenomenon that begins when children start school (p. 848).

This section will explore the role of emergent literacy and the ways in which long-standing instructional strategies and new technologies mesh to support this critical feature of children’s development.

Learning About Print

When children are first learning to use print for both reading and writing, their developmental understanding of how print functions is visible as they attempt to read stories aloud and as they begin to write, albeit with non-conventional approaches to both reading and writing. These approaches use what Whitehurst and Lonigan (1998) called outside-in and inside-out comprehension processes. The outside-in skills refer to children’s use of known concepts and ideas to make sense of the illustrations, story language, and print that surrounds young children, and inside-out skills pertain to code-filled marks they see (Rohde, 2015). Children often begin by
“pretend reading” favorite books reciting the stories they have heard using the pictures to help remember and construct these retellings (Pappas, 1993). As they become aware of the print around them, children identify that these marks carry meaning and they can read their names and the environmental print on boxes, bottles, and signs such as, “Goldfish,” “Sunny Delight,” or “Target” (McGee & Richgels, 2012). Children eventually transition to print-governed reading as they acquire alphabetic knowledge and phonics skills, reading words and phrases that they recognize.

Children’s attempts to write follow a similar trajectory as reading where broad literacy-like behaviors are honed into more conventional skills. Emergent writing begins in earnest when writers use marks, like drawings or scribbles, to intentionally communicate information (McGee & Richgels, 2012). The progression of young children from making haphazard marks on paper to authoring a conventional text is a journey marked by milestones where children’s awareness moves from discriminating between creating drawings and creating representations of words all the way to writing messages with conventional letters (Casbergue & Strickland, 2016).

Occasionally young children engage in print-related pursuits for other purposes than deliberate communication. Rowe (1994) identified two literacy activities in which children were not simply assigning meaning to marks made on paper. She termed one “process-dominated events” and the other “interaction-dominated events” (p. 30). Process-dominated writing privileged the act of creating the marks over any assignation of meaning, and interaction-dominated writing privileged the social aspect of writing over any actual text composition.

Schickedanz and Casbergue (2009) identified three main areas that early writers address on their way to becoming conventional writers – mark making, word creation, and message creation (p. 75). Children’s development in mark making involves moving from scribbling to
letter-like marks to marks that increasingly resemble real letters. Once children make letters and letter-like marks, they often progress to word creation. Word creation happens along a continuum as well, beginning with mock words, moving to non-phonemic syllabic representation (one mark represents one syllable), followed by the use of some letter matching to a few phonemes, and finally more phonemes, invented spelling, that have letter names matching within the “word” (Schickedanz & Casbergue, 2009). McGee and Richgels (2012) define invented spelling as “children’s systematic but not conventional matching of sounds in words with letters” (p. 91). When young children write words, research has documented that they move through various stages of spelling from nonspelling (use of drawings and letter-like forms) to an increasing mastery of letters that correspond with conventional spellings (Bear, Invernizzi, Templeton, and Johnston, 2008).

The continuum of message creation addresses the length and complexity of the writing as it relates to the communicative intent. For example, a child’s writing that contains explanatory sentences is considered a higher-level message than a drawing with a few words written as labels. It is important to note that in terms of message creation it does not matter what form the child uses to record the message—letters, letter-like symbols, drawings; what is important is the meaning that the child is trying to convey. Meaning is paramount in this continuum.

**Reading Comprehension**

While children’s unconventional use of print prompted much of the early study of emergent literacy, many researchers have also investigated children’s approach to meaning making, or comprehension. Sulzby (1985), in her foundational study of prekindergarten and kindergarten children, articulated a classification scheme that showed how a child’s ability to retell a storybook matured has the child developed. Children’s capability to read a storybook
progressed from picture-governed attempts to print-governed attempts. Further, within those
categories, children moved from retellings that had no story formed to stories that sounded like
written language. In another study that investigated how kindergartners retold books, Pappas
(1993) found that young children were able to demonstrate comprehension of informational and
narrative books through their retellings.

Because reading comprehension is typically used to denote an outcome of reading, such
as the reader’s personal understanding, or “poem” as defined by Rosenblatt, more recently,
Lysaker (2018a) espoused substituting the term comprehending. She did so to capture the
meaning making of young children as an ongoing active process of constructing their own ideas
of what a storybook means. Lysaker (2018a) writes:

I do this to highlight the fact that I attend exclusively to what children are doing as they
read. You might also notice that I use the word activity rather than strategy. Strategy
denotes a kind of purposeful application of something, in this case ways of
comprehending, to achieve a particular outcome. While young children’s meaning-
making is purposeful in itself (like all human meaning-making) their ways of sense-
making, rather than being strategically enacted, happen as organic to their sense-making
(p. 3).

In this way she expanded the notion of comprehension to go beyond what children say in
response to text to also encompass their embodied understanding as it is evident in their gestures,
facial expressions, and movements. She studied children as they read wordless picture books,
and the students who exhibited more kinesthetic expressions, like bouncing in the chair and eye
gaze that swept back and forth across the page, appeared to have a deeper social understanding
allowing them to comprehend the book at a deeper level (Lysaker, 2018a, Lysaker, Shaw, &
Arvelo Alicea, 2016).

In a three-year longitudinal study, Kragler, Martin, and Schreier (2015) followed 16
early-elementary-aged children and examined their use of reading strategies over time. The
researchers interviewed and observed the children, who were representative of low, average, and above-average readers, in regard to their reading strategy use while reading traditional fiction and expository text. Kragler, et al. found that the children “regardless of their reading level, basically used the same four strategies – sounding out, rereading, using pictures, and skipping text – throughout first through third grade” (p. 463). The use of strategies seemed to help students attain a high accuracy rate; however, strategy use did not positively impact comprehension as their retelling scores were relatively low. Kragler et al. asserted that the study shows that young children are using various reading strategies and that it points to the need “for a systematic instructional program that encourages teacher modeling of comprehension strategies and rich discussions” (p. 468).

In the creation of the assessment *Narrative Comprehension of Picture Book* tasks, Paris and Paris (2003) noticed that the process of meaning making with picture books aligned with the cognitive load required when construction meaning from printed words. Children had to construct meaning across pages which necessitated synthesizing information to create a coherent narrative. Paris and Paris suggested that narratives were an appropriate type of text for assessment of early readers because children have a rich history of daily experience with narratives at home and at school.

**Buddy Reading**

Emergent literacy researchers have also investigated the social interactions that support young children’s reading. Initial studies centered around the parent/child dyad, and these studies typically explored the positive effect of adult interactions on a child’s skill acquisition (Bus & Van Ijzendoorn, 1992; Bus, Van Ijzendoorn, & Pellegrini, 1995; Pellegrini, Perlmutter, Galda, & Brody, 1990). Dickinson, De Temple, Hirschler, and Smith (1992) examined the differences
between book-reading that occurs at home and book-reading that occurs at preschool. When they compared how mothers read to their children with how teachers read to their students, researchers discovered that not only did the mothers in the study ask more challenging questions than the teachers, but a greater variety of books were read at home as well.

Recently, early reading scholars have turned their attention to examining the impact that peer interaction has on the literacy learning of young children. Peer reading is congruous with Vygotsky’s idea of a more knowledgeable other, and it is keeping with his contention that an excellent instructor is someone with the proper amount of knowledge and skill to present information in a child’s zone of proximal development (ZPD) (Casbergue, 2013). The ZPD is defined as the space between a child’s actual development and the possible attainable level. One aspect of peer interaction that has been studied is the discourse that happens when young children read together. Pilonieta, Hathaway, and Casto (2019) examined the talk, specifically around reading strategies, that occurred between kindergartens as they read a book together. They found that kindergartners were able to use reading strategies if the teacher gave pairs scaffolding. Predicting, connecting, clarifying, and retelling were some of the comprehension processes they observed children using demonstrating the instructional value of buddy reading in a kindergarten classroom.

Christ, Wang, and Ming Chiu (2015) also studied the comprehension processes that young children use when they buddy read, but they examined the relationship between social interaction styles and strategy use. Findings from the 40 buddy reading interactions of 14 preschoolers indicate that the ways that children interact socially are differentially related to the comprehension processes used by the children. They identified four social interaction styles – parallel (child focuses only on his meaning-making), collaborative (child creates meaning jointly
with a buddy), tutor (child is directive towards the buddy, controlling the reading), and tutee (child takes a passive role and follows the lead of the tutor). The comprehension processes observed are as follows: recognizing explicit information, inferencing, emotional response, comprehension monitoring, identifying misinformation, questioning, predicting, rereads, and repeats. They found that when children used a collaborative interaction style, they were 21% more likely to recognized explicit information, 48% more likely to engage in inferencing, and 34% more likely to exhibit emotional responses. The tutor/tutee style of social interaction was 40% more likely to encourage the pair to set purposes for reading and 46% more likely to see the children reread for understanding. These findings also support the inclusion of buddy reading in an early childhood classroom.

Two other studies explore the unique possibilities for social interaction and meaning construction that partner work can provide. Rubenstein-Ávila's (2003) qualitative case study examined how a dyad in a Portuguese/English dual-immersion classroom negotiated power as they worked together to read and retell various texts. She discovered that the buddy reading partnership allowed for fluidity in the tutor/tutee roles and the dyad's language. Likewise, Flint and Adams (2018) found that students engaged in responsive play that allowed for individual expression as they dialogically retold stories using dramatic play.

The majority of the research surrounding buddy reading involves children interacting with traditional paper books. I was able to locate one study that investigated how young children buddy read multimodal app books. Christ, Wang, and Erdemir (2018) examined 27 United States and 28 Turkish dyads of children between four and six years of age who read 12 app books across the school year. They chose 10 dyads (5 from each site) to be focal dyads, and the app book reading patterns these dyads used – hotspot-centric, text-centric, and integrated – were
determined. A hotspot-centric reading pattern was characterized by the children primarily engaging with hotspots, places on the app book that provided animation, sounds, or additional information when clicked on by the students, and not the written text. The text-centric reading patterned saw the children attending almost exclusively to the print or having the print read aloud by the app, missing opportunities to enrich the story. The final reading pattern was the integrated pattern which involved the dyads reading through the story first and then going back to discover all of the hotspots.

They found that the students who used the hotspot-centric and the text-centric patterns had surface-level engagement with the story. However, the students who used the integrated reading pattern had more fruitful discussions and engaged with the text more deeply. In addition to examining the reading patterns, Christ, et al. (2018), investigated the types of social interaction styles – parallel, tutor/tutee, and collaborative. Findings indicate differences in social interaction styles between traditional books and digital books. It appears that students did not engage in the tutor/tutee interaction style when reading digital books, but there was an additional interaction style seen only in reading of app books – conflict. Conflict interaction style occurred when children within a dyad fought over how to engage with the app book. The researchers found that the use of a collaborative interaction style resulted in the most robust meaning making.

**Emergent Writing**

Just as researchers expanded their attention to children’s reading beyond their use of print to a focus on meaning making, so too did researchers who explored children’s emergent writing. Research points to the many ways young children write to communicate, sometimes referred to as meaning-making. Meaning making develops on a continuum within two distinct areas –
complexity of message and the “representational vehicle a child uses” (Schickedanz & Casbergue, 2009, p. 86). Sometimes this composing is an intentional attempt to communicate an idea to someone or group of people – writing to request something, tell a story, or relay a message (Bissex, 1980; Dyson, 1997; Genishi & Dyson, 2009; Rowe, 1994). At other times, children’s writing does not begin with an intentional message, although emergent writers will often “romance” their writing (Gardner, 1980), ascribing meaning only after they have finished making marks on a page. It is also common for children to request that an adult ascribe meaning to their writing by asking, “What does this say?” when they finish writing. (Bissex, 1990)

Meaning making also occurs fluidly during the act of composing. Rowe, Fitch, and Bass (2003) noted a connection between play and writing as they found that as young children moved from creating stories with toy props to writing them down, they often used reflection as a mediating technique. The researchers noticed that the participants in their study began to “write and rewrite” their stories orally while they were engaging in dramatic play before they committed to recording the story in print.

Children’s writing has been shown to communicate interests as well as imagination. The link between children’s play behaviors and literacy preferences was made apparent in a study conducted by Rowe and Neitzel (2010) who documented that children “chose some activities, material, and interactions more often than others, creating profiles of preferred writing activities based on personal interests that were remarkably consistent with their profiles of play behaviors” (p. 193). For instance, children who demonstrated an interest in activities that highlighted conceptual thinking, like theme related play and sorting, saw writing as a way to explore and record ideas. Conversely, children with procedural interests like puzzles and construction
activities saw writing as a something to figure out through careful observation and repeated practice.

Learning about uses of print for meaning making does not wait until children enter the classroom. Young children have shown to take up a considerable amount of knowledge about print before formal instruction. Often, they are able to personalize a written message and move just beyond their conventional print competency when focused on the meaning they want to convey (Harste, Burke, & Woodward, 1982).

Similar to Lysaker’s investigation of young children’s reading, Rowe (2019) established an interesting connection between gestures used to communicate and the development of writing in 2- to 3-year-olds. Purposeful marks, such as circling or writing on top of pictures, served as a way to direct attention or emphasize particular objects. Rowe found that children used three major categories of gestures - empty-handed gesture (calling attention to something by pointing without touching), object gestures (touching, grabbing, moving the toy to the shared visual field), and tracing (gestures that trace or circle the object).

**Writing as a Social Act**

Just as emergent reading has been demonstrated to be a social activity for many young children, the influence of social interactions on emergent writing is broad and varied. In an ethnographic study, Rowe (1994) was able to identify participation patterns that involved social interaction among 3- and 4-year-olds. Children were observed interacting with peers and teachers as they authored texts individually, relying on others for audience feedback or eliciting suggestions. They were also observed collaborating as they coauthored pieces or sent “class mail” back and forth to each other.
Researchers have also documented examples of how children use their literacy knowledge, specifically their ability to author texts, to establish their identity in the classroom (Dyson, 1993; Kissel, Hansen, Tower, & Lawrence, 2011). Rowe and Neitzel (2010) highlighted the connection between socially constructed identities and children’s play preferences as they relate to emergent writing. Their findings show that play behaviors encompassed conceptual, procedural, creative, or socially oriented interests. Interestingly each interest was related to the ways in which children would engage in emergent writing. For example, children whose play was more socially aligned engaged in writing activities that involved other students or activities that encouraged joint interaction.

In a broader cultural sense, Dyson (1999) demonstrated how one preschool class appropriated various aspects of popular culture such as sports and movies into their writing. This appropriation reflected the shared sociocultural experiences of the children. Some studies also highlight the primacy of social interactions between students and teachers (Rowe, 2019). Rowe (2019) found that children would use gestures and then marks with a pen to engage an adult in a shared activity. As they did so, children would often narrate while making marks which signaled the beginning of making the connection between marks on the page and actions or spoken words. As Kissel et al. note, “Effective writing classrooms in pre-K cannot be silent ones. Students use the interaction as a way to develop their knowledge and push themselves forward as writers” (p. 450).

Assessing Emergent Writing

The progression of young children from making haphazard marks on paper to authoring a conventional text is journey marked by milestones where children’s awareness moves from discriminating between creating drawings and creating representations of words all the way to
writing messages with conventional letters (Casbergue & Strickland, 2016). How one determines those milestones and consequently evaluation of their writing is a subject of debate among scholars. In a recent review of 30 years’ worth of literature surrounding the concept (definition and assessment) of children’s composition of texts before mandatory formalized schooling in grade 1, Quinn and Bingham (2018) found a disturbing lack of specific and operationalized definitions as well as assessments that do not address all of facets of early writing. The sociocultural context of emergent literacy is not addressed in Puranik and Lonigan's (2014) model that consists of skills mapped to three broad concepts of writing knowledge: conceptual, procedural, and generative. In the Write Start! writing assessment, Rowe and Wilson (2016) focus on message creation and not discrete writing skills.

One tool for assessing emergent writing does address both discrete writing skills and the transmission of meaning in a message. The continuum of writing development presented by Shickedanz and Casbergue (2009) describes developmental milestones for mark making (moving from scribbles to actual alphabet letters), word creation (from non-phonemic letter strings to use of phonemic and/or conventional spelling), and message creation (from simple labels for drawings to stories written without pictures). They assert that children’s understanding of writing is not necessarily consistent across all three discrete continua. For example, a child may display very early stages of word creation or even primitive mark making yet be able to produce sophisticated stories – a high level of message creation – when they read what they have intended to write. The continuum provides samples of children’s writing with which early childhood teachers can compare their own students’ writing.
Reading and Writing Connection

The reciprocal nature of reading and writing is apparent with our youngest learners. In a relatively large study of 151 kindergarten students, D’On Jones, Reutzel, & Fargo (2010) discovered that students that received regular writing instruction through interactive writing or writing workshop exhibited significant growth in their reading skills. Specifically, their study demonstrated that students who received focused writing instruction made significant gains in phonological awareness, alphabet knowledge, and word reading ability.

Researchers studied the effects of the Early Authors Program (EAP), a 12-month intervention program implemented in Miami-Dade county Florida childcare centers. The EAP focused on encouraging children’s writing and book-making in early childhood classrooms by providing professional development and instructional support as well as materials and an array of technological equipment. Their study found that children who participated in EAP classrooms exhibited greater gains in language and literacy skills than children in the control classrooms (Bernhard, Winsler, Bleker, Ginieniewicz, & Madigan, 2008).

Even adding the most basic writing activities, i.e. name writing and letter writing, positively influenced reading skills significantly (Aram & Biron, 2004; Justice, Chow, Capellini, Flanigan, & Colton, 2003; Vera, 2011). D’On Jones et al. summarized the connection between reading and writing when they stated, “The task of writing serves as a natural bridge from a child’s early literacy experiences to formal literacy instruction in kindergarten. Effective writing instruction is not built from stolen moments but is an essential component of early literacy” (p. 338).
Emergent Literacy Instruction

The research on emergent literacy cited here provides significant insight into children’s development of early literacy. It also has significant implications for approaches to literacy instruction for the youngest learners. Yet as literacy practices continue to evolve, particularly with the introduction of digital literacies and the use of multimodal texts and various media as early preschool, there are still questions to be answered regarding best practices for facilitating the literacy development of young children.

Piasta (2016) defines the term best practices as “empirically backed instructional strategies independent of curricula” (p. 236). Some best practices listed by Piasta that encourage the growth of emergent literacy in preschool children include scaffolding by skilled teachers, code- and meaning- focused instruction that is sequenced and intentional, and opportunities for children to use literacy in a variety of play contexts. Other scholars suggest building emergent literacy instruction into daily routines such as morning meeting time with something as simple as adding one “teacher-mediated writing component” and one independent student-writing component (Zhang & Quinn, 2017, p. 553). Research by Rowe and Neitzel (2010) suggests that early childhood teachers need to provide a variety of writing experiences that correspond with children’s play preferences.

Digital Literacy and Young Children

A relatively recent area of study in emergent literacy is children’s use of digital devices for both reading and writing. While earlier studies examined children’s use of computer technology primarily for writing and internet use (Li, Atkins, & Stanton, 2006), attention has now turned to the nearly ubiquitous use of personal touch screen devices like tablets and smartphones by even the youngest children. Rideout (2017) reported that 78% of 0-to 8-year-olds live
in homes with a tablet, a 70% increase in just 6 years. With this proliferation of devices, researchers want to know what effect, if any, they have on literacy interactions in the home.

**Impact of Digital Technology on Early Literacy**

Neumann (2018a) studied 48 mother-child dyads as they interacted with each other using an iPad. The children ranged in age from 1.98 to 4.59 years. Each dyad was observed completing two joint-writing tasks and the children were assessed on emergent literacy skills on the same day. Mothers were asked to help their child write the words JUMP and RABBIT with the Draw Buddy app on an iPad and with paper and pencil. The sessions were transcribed, coded, and analyzed using a procedure comparable to the one used by Aram (2002) to score positive utterances. The children were assessed on early literacy skills such as letter name and sound knowledge, letter and name writing, and print concepts. No significant differences were found in the frequency of maternal utterances across the two conditions.

Krcmar & Cingel (2014) studied the dialogue of 70 parent-child dyads as they read a traditional book and an electronic book. They found that the children scored significantly higher on comprehension with the traditional book than with the electronic book. One possible explanation for this is result is that parents, not children, engage in more distraction talk while reading the electronic book.

In addition to children’s access to digital devices for use at home, both independently and with parents, recent years have also seen a tremendous increase in the use of mobile devices in early childhood classrooms. One of the most targeted curricular areas is literacy and language instruction (Paciga & Donahue, 2017). Results of studies of digital devices to support literacy among young children have been mixed, some suggesting advantages of digital literacy, and others offering less support for digital over traditional literacy media.
In a case study that examined how two Pre K teachers integrated iPads into their classroom, Beschorner and Hutchison (2013) found that six themes emerged from the analysis of the data. Data included observations, children’s digital work samples, semi-structured interviews of the teachers, parent emails, and an informal survey of parents. First, they discovered that iPads supported children’s awareness of print; for example, children began to recognize the various apps and call them by name eliciting a digital environmental print effect. Secondly, they found that the children viewed themselves as writers; this was evidenced in their digital writing as well their efforts using apps like Doodle Buddy and Drawing Pad. A third theme that arose was the ease in which children could write letters, some used their fingers to form letters, and other children used the keyboard for strings of letters and invented spelling.

Another theme that Beschorner and Hutchison discovered was that authentic writing was supported by the iPads. The technology provided opportunities for children to email parents and to create class books using photos and drawings which gave children authentic reasons to write. The fifth theme that emerged was the ability of tablets to fluidly connect reading, writing, listening, and speaking. Children were observed listening to stories and using voice recording features to retell stories. Finally, the researchers documented an increase of cooperative behavior. Teachers noticed that students often worked together to use the apps and solve problems.

Integration of Digital Technology in Early Childhood Classrooms

Flewitt, Messer, and Kucirkova (2015) examined the ways in which an iPad was incorporated into the literacy experiences of three classrooms – a childcare class of 3- to 4-year-olds, a primary school class of 4- to 5- year-olds, and special school classroom with children with learning disabilities ages 7-13. Each classroom was loaned an iPad for two months. Staff
members were interviewed before and after use of the tablets in their classrooms. The themes that emerged in this study were how iPads helped adults and children fill the role of an expert; how the construction of an app shaped teaching and learning; how iPads increased motivation, independence, and attention; and how iPads enriched communication and collaboration.

Neumann (2018b) determined that iPads were effective when used to support emergent reading skills such as letter identification, sound/symbol matching, and name writing skills. It is important to note that Neumann used Marie Clay’s Concepts About Print test as her measure of emergent literacy (2005). Neumann’s study saw the researcher/participant leading a small group of students through an activity on individual iPads using an “active scaffolding approach” to support student learning (p. 245).

Researching how young bilingual children create using various digital devices, Rowe and Miller (2015) determined that the affordances provided by the digital devices enable students to compose multimodal texts. Students used iPads and digital cameras to author stories about their families, their neighborhood, and themselves. Those affordances, i.e., voice-recorder, digital camera, and text tools, enabled students to participate in literacy activities using their heritage language. Falloon and Khoo (2014) also discovered that iPads provide a platform for teachers to record student talk, but in this case, teachers could listen to the student-talk generated while pairs solved math problems.

Studies show that iPads are not as effective when used to facilitate fine motor activities like finger painting or handwriting. In a study that recorded 2-and3-year-olds as they used a finger paint app to create a picture of their choosing, Price, Jewitt, and Crescenzi (2015) determined pros and cons to using the app instead of real finger paint and paper. Although children used fewer fingers while mark making in addition to the absence of tactile stimulation,
they did make more marks overall and stayed engaged with the activity for longer periods when using the iPad. While some studies showed that students who were provided reading intervention with iPads posted literacy gains (Larabee, Burns, & McComas, 2014; Musti-Rao, Lo, & Plati, 2015), closer analysis reveals that students were tested on measures that looked only at either isolated word reading or reading nonsense words, neither of which is an accurate test of a child’s reading ability (Kamii & Manning, 2005).

**Early Literacy and Sociocultural Theory**

Early childhood scholars are very aware of the influence that our culture wields upon the young in our society. Several research studies share a theoretical framework grounded in the work of Vygotsky, Bruner, and other theorists from the sociocultural or social constructivism tradition. In a six-year ethnographic study, Kissel et al. (2011) examined the interactions among children during writers’ workshop in a prekindergarten classroom. They begin by positioning emergent writing as social and multimodal in nature and go on to demonstrate that children use their interactions with each other create their own writing identities.

Vygotsky’s theories provide the theoretical basis for two different qualitative studies. Rowe (2019) situates her exploration of the relationship between gesture and early writing in Vygotsky’s assertion that gesture is at the core of early writing as children direct their gestures to the page. By watching young children participate in writing activities and administering the caption writing activity from the Write Start! early writing assessment, Rowe was able to identify gestures that most students engaged in while writing. The study followed children over the course of three years. Kirova and Jamison (2018) used Vygotsky’s concept of zone of proximal development (ZPD) and the importance of socially situated learning to ground their
investigation of scaffolding, especially peer to peer scaffolding, that took place in a preschool over a four-month period.

**Sociocultural Theory**

Two researchers that help form the bedrock of this way of viewing the acquisition of knowledge are Lev Vygotsky and Jerome Bruner. While they conducted their studies during different times in history and in different parts of the world (Vygotsky was active in academia from 1917 to 1934 in post-revolutionary Russia, and Bruner worked from 1945 to 2016 in the United States and Great Britain.), they made similar observations about how humans learn and interact with the world. Their findings are comparable in several areas: the way children construct knowledge, the impact of social/cultural connections on learning, the use of language in meaning-making, and the ever-changing ability of human beings to make sense of the world through mediation.

**Construction of Knowledge**

The internal process of how children acquire knowledge is so much more than just “development happens.” Vygotsky (1978) referred to the phenomenon when he asserted that children possess at least two developmental levels. The first level is the “actual developmental level,” or the level at which they can complete tasks independently, and the second level is the “level of potential development,” or the level at which they can complete tasks with slight assistance (p. 86). He then labels the cognitive space between these two levels the “zone of proximal development” and cautions schools that this is the most effective place to target learning (p. 89). No longer should children be evaluated solely on current performance; evaluation should include a measure of the highest level of performance with assistance as well.
Interestingly, this “zone of proximal development” is unique to each student, and it must be determined to provide the most effective instruction.

Instruction takes on a unique meaning in light of the concept of the zone of proximal development. If the perception of how a child learns changes, it stands to reason that the way a teacher instructs needs to change as well. In their seminal study, Wood, Bruner, and Ross (1974) addressed this adjustment to the education process when they define “scaffolding” as the process by which a more experienced person introduces a new task to a beginner by making intentional tutoring moves to lead the beginner to the new task (p.90). The tutor only provides assistance on those parts of the task that are outside of the learner’s ability, essentially “pulling” the learner up to a new level of proficiency. By watching a skilled tutor teach three, four, and five-year-olds, Wood et al. were able identify six specific teaching moves that are made during the “scaffolding” process: “recruitment,” “reduction in degrees of freedom,” “direction maintenance,” “marking critical features,” “frustration control,” and “demonstration” (p.98). It is important to note that in order for the student to capitalize on the “scaffolding” process, “the learner must be able to recognize a solution to a particular class of problems before he is himself able to produce the steps leading to it without assistance” (p. 90). Both developmental concepts, “scaffolding” and “zone of proximal development,” are contingent on the presence of another person in addition to the learner. This highlights another aspect of learning upon which Bruner and Vygotsky put great importance – the social basis for making meaning. Kirova and Jamison’s (2018) study showed that preschool children are able to fill the role of the more capable peer and provide scaffolding to classmates to show them how to use a book-making app on an iPad.
Social Connections and Learning

Bruner (1990) introduced the idea of “cultural psychology” as a way to describe human behavior – it is this “quest for meaning within culture” that most influences decision-making (p. 20). He asserted that human beings are constantly comparing new learning and new experiences to established cultural knowledge. It is within these connections to others that people construct meaning and identify values. Moreover, it is this social transmission of knowledge that demonstrates “what distinguishes man as a species is not only his capacity for learning, but for teaching as well” (Wood, Bruner, & Ross, 1976, p. 89).

However, this relationship of an individual with culture is not one-sided. Just as an individual is impacted by the prevailing culture, so is the culture impacted by the individual; it is a mutually influential relationship. The social aspect of acquiring knowledge figured prominently when Vygotsky (1978) argued that cultural learning, and consequently all other learning, occurs twice: “first on the social level, and later, on the individual level” (p. 57). It is as if the learning needs to be processed in a cultural context before it can be processed internally. Vygotsky did not subscribe to the popular belief that biology was the primary driver of human behavior and development. On the contrary, his work speaks to the indelible effects of culture on learning.

Role of language in meaning-making.

Another area where the ideas of Vygotsky and Bruner mesh is in the signification of language to the construction of knowledge. Vygotsky (1978) asserted that children use language as much as they use their eyes and hands to solve problems and complete tasks. His observations pointed to a deliberate use of language in three contexts when faced with a difficult task. First, children use speech to plan a strategy to solve a problem. Speech is used as a tool to “talk
through” possible solutions. Speech is then used to carry out the plan developed; language aids in the modulation of activity. Finally, speech becomes an agent that governs the activity of the child. “Thus, with the help of speech children, unlike apes, acquire the capacity to be both the subjects and objects of their own behavior” (p. 26).

A child’s use of speech changes as maturation occurs. Speech begins as a way to report on what activities are taking place. It also becomes a way to act on the environment and enlist the help of adults. Then, the purpose of speech moves to signal a behavior that is about to occur. Speech now “precedes action” instead of reporting on what happened ushering in the “the planning function of speech” (Vygotsky, 1978, p. 28). As development progresses, speech turns inward and becomes a way to manage behavior. Speech moves from being an external activity to an internal one. One sign that a child is moving the speech inward, is when her egocentric speech changes and she deletes the subject and speaks only in predicates. Egocentric speech is speech spoken not to communicate to another but solely for oneself. Vygotsky contends that “all higher functions” follow a process that moves “first, between people (interpsychological), and then inside the child (intrapsychological)” (p. 57). Recent neuropsychological studies suggest that scientists have located the place in the brain that processes inner speech as in the Broca’s area (Ardila, 2016).

This similar relationship exists between words and actions in Bruner’s (1990) discussion of a cultural psychology when he stated that a majority of meaning is situated in what people say to themselves and others before, during, and after an event. “Saying and doing represent a functionally inseparable unit in a culturally oriented psychology” (p. 19). Bruner maintained that this link between words and actions has its basis in social constructs, and that three generalizations about the early language acquisition can be made. First, the acquisition of
language is dependent on the interaction with others, such as parents and caregivers. This interaction goes beyond just hearing words; children acquire language through actually “experiencing” language. Not only do they learn “what to say but how, where, to whom, and under what circumstances” (p. 71).

Second, children have learned many underlying communication rules well before they are able articulate them. Such skills include, but are not limited to, labeling, requesting, attention-giving, and turn-taking. The final generalization states that “the acquisition of a first language is very context-sensitive; by which is meant that it progresses far better when the child already grasps in some prelinguistic way the significance of what is being talked about or of the situation in which the talk is occurring” (p. 71). Once children master the ability to use language as a “tool” they are ready to begin to incorporate the idea of narrative as a way to make meaning.

**Making sense of the world through mediation.**

Both Vygotsky and Bruner explored the ability of humans to make sense of the world – Vygotsky through the concept of mediation, and Bruner through the notion of narrative. It is well known that humans are able to use tools to manipulate their environment. Vygotsky (1978) showed that humans are just as capable of manipulating their “internal environment” as well. His research demonstrated that children are able “to convert their remembering into a mediated activity using pictures as auxiliary memory aids” (p. 48). It is this use of an outside object, or sign, that affects an internal behavior that Vygotsky found fascinating. He contended that the use of signs by children is not something that they create or inherit, rather a sign comes into being “only after a series of qualitative transformations. Each of these transformations provides the conditions for the next stage” (p. 46). This ability to create signs is borne out of the early use of language and tools to make meaning and manipulate the environment.
Bruner (1990) posited that meaning making is accomplished through the juxtaposition of a narrative frame over reality. He contended that the “method of negotiating and renegotiating meanings by the mediation of narrative interpretation is” “one of the crowning achievements of human development in the ontogenetic, cultural, and phylogenetic senses of that expression” (p. 67). There were two reasons that Bruner identified as why narrative discourse is so important to human development. First is that a narrative is inherently linear and easy to follow cognitively. Second is that a narrative has the ability to move between the real and imaginary worlds while keeping its sense of story (p. 44). It is his position that even the way humans acquire language point to the ultimate goal of operating from a narrative standpoint (p. 79). Narrative plays a critical role in this study. It is through narrative that the children make sense of the text, and it is with the help of narrative that the children write about what they read.

Chapter Summary

My study will draw on the literature presented here to examine children’s reading and writing in relation to traditional and digital storybooks to answer the following research questions:

1. What is the nature of reading comprehending, as evidenced in interactions that occur when kindergartners read a traditional and a digital storybook?

2. How is reading comprehending expressed in the written retellings of kindergartners when they read traditional and digital storybooks?

Both the discourse among children as they read each book and the written retellings they produce after reading will be examined through the lens of sociocultural theory and descriptions of comprehension/comprehending found in the literature related to emergent literacy.
CHAPTER 3. METHOD OF THE STUDY

Digital devices permeate early childhood classrooms (Paciga & Donahue, 2017), and so do the electronic storybooks that are available for children to enjoy. Ebooks can provide direct support to children developing literacy skills by including engaging images, animations comprehension, and highlighted text that accompanies an audible reading (Burnett et al., 2017; Bus et al., 2015). This proliferation of digital devices in educational settings provokes different, often opposing, stances as to the impact of digital texts versus traditional texts on comprehension and reading instruction (Martin-Beltrán, 2017; Neumann, 2018). This study is drawn from a larger data set that examined and compared 51 kindergartners' ability to write about/retell a story presented digitally and in a traditional picture book format (Burstein, Casbergue, & Parrish, 2019). My interrogation of the data aims to explore the differences in student interactions and comprehension that occur when kindergartners buddy read digital and traditional books. Buddy reading is defined as two (dyad) students reading, emergently or conventionally, a text together. Question 1. What is the nature of reading comprehension, as evidenced in interactions that occur when kindergartners buddy read a traditional and a digital storybook? Question 2. How is reading comprehension expressed in the written retellings of kindergartners when they buddy read traditional and digital storybooks?

Research Design

Hakim (1982) defines secondary analysis as any additional analysis of a “dataset that presents interpretations, conclusions or knowledge additional to, or different from, those presented in the first report on the enquiry as a whole and its main results,” and she cautions that the term ‘secondary’ in no way connotes that this type of research “is of lower status or lesser importance than primary analysis, only that it is carried out at a later point in time, usually by
researchers who did not themselves collect the data” (p. 12). Several current scholars extol the benefits of doing secondary research (Clarke & Cosette, 2016; Mitchell, 2015; and Serif, 2018) as it can be cost effective and save time. This study is a secondary analysis with one important caveat, I was on the original team who collected and analyzed the data giving me a wealth of knowledge to which many researchers of secondary data are not privy. This chapter begins by describing the original study and providing a discussion of the research setting, overview of the study, materials, participants, and the procedures for data collection. The chapter then goes on to delineate the rationale guiding my current study and the data collection, participants, data analysis, and issues of trustworthiness that are particular the secondary study.

**Primary Study**

Burstein, Casbergue, and Parrish (2019) examined kindergarten children’s emerging ability to demonstrate comprehension of digital and traditional picture books through retelling and writing. Three early childhood researchers, each with over 25 years’ experience working with young children, collected the data. This study employed a quantitative perspective comparing scored responses that children penned to digital and traditional story books.

**Research Setting**

Waterside, the kindergarten campus of a nonprofit charter school I will call Invent School provided the setting for this study. Located in a suburb of a large metropolitan city along the southern gulf coast, Invent School is an open-enrollment public charter school that serves approximately 1200 students, kindergarten through grade twelve, on four campuses. The local education agency authorizes this free charter school, and children are selected via a lottery system to attend. Invent School is popular; the school received almost 2,000 applications for 290 seats at the most recent lottery. Established in 2013, Invent School’s charter status allows the
school officials flexibility to meet individual student needs without strict adherence to state guidelines.

The demographics of the entire charter school are reported by Invent School as 50% White, 26% Hispanic, 19% Black/African American, 4% Asian, and 1% Other. Fifty-one percent of the student body at Invent School receives free or reduced-cost lunch. Waterside is a kindergarten center physically separated from the main 1st through 8th grade and high school campuses; it houses five kindergarten classrooms that serve 125 children. Each classroom has two certified teachers – a lead teacher and a co-teacher. Waterside was chosen as a research site because of its diverse student population, commitment to high-quality instruction, and a robust inclusion of digital devices like iPads in the kindergarten classrooms.

**Buddy Reading and Individual Written Retelling: Overview of the Process**

The three-week study took place at the Waterside campus of Invent School at a table in various spaces outside the classroom – the hallway, the activity room, and a small classroom. It was necessary to have the students away from the class to obtain a clean recording and diminish background noise to hear the participants' discourse clearly. Children, individually or in groups of two or three, read two high-quality storybooks; one was an electronic storybook on an iPad using the Tumblebooks application (Tumbleweed Press, 2015), and the other was a traditional book. A crossover design was employed by counter-balancing book titles and text types. Dyads and triads were randomly assigned initial storybook titles and types. After reading each book, the participants completed a written retelling of the story. All students read both books within at least seven days of each other to control for any differences due to maturation or instruction. Each session was video recorded from the time children entered the research space until they had completed the writing task.
Materials

The researchers chose the two titles authored by Robert Munsch, *Pigs* (1996) and *Mud Puddle* (1992), for several reasons. Both titles were available as both an electronic storybook and a traditional book. They were similar in length and lexile level, and they both employ an element of humor and patterned text that make for an engaging read for kindergarten children. Table 3.1 compares the two texts. Summaries of the books are as follows:

1. *Mud Puddle* by Robert Munsch: Jule Ann puts on new clothes and goes outside to play. Unbeknownst to her, a huge mud puddle is lurking in the tree and plops himself on Jule Ann. After several rounds of getting muddy and being bathed by her mother, Jule Ann figures out how to scare away the muddle puddle – a couple of bars of smelly soap!

2. *Pigs* by Robert Munsch: Megan’s father warns her not to open the gate to the pigpen. When she does anyway, the pigs trample her, invade the farmhouse kitchen and then the school before driving themselves home on the school bus. Megan promised to never let animals out again. But the last page of the book shows her eyeing the lock on the elephant enclosure at the zoo.

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Typically, digital storybooks exhibit a range of affordances not present in traditional picture books. These may include highlighting and reading text automatically, allowing children to choose how the story is advanced, and extra features such as the presence of background music and animations. Some digital texts also contain “hotspots” – points in the text that children can activate. These may include definitions for highlighted words or animations not related to the story itself (as for example when clicking on a window opens and closes it, even though the position of the window has no connection to the story content).
For the purposes of the original study, digital texts with none of those affordances beyond a few animations directly related to action in the story and highlighting text as it was read aloud by the narrator were selected. This decision was driven by a desire to make the digital text match the traditional text as closely as possible given the focus of the primary study on writing outcomes exclusively.

Participants

Researchers invited all kindergarten children enrolled at Waterside to participate in the study by sending notices home with the students. Of the 125 families, 51 granted parental consent, 41 percent of the student enrollment. The researchers then then met with each child and obtained child assent. The researchers randomly assigned the 51 students to groups of two or three children creating approximately 25 groups. Initial title and text type were also randomly assigned to each group. All 51 children who began the study completed the study for 100 percent completion rate.

Data Collection

The following section outlines the procedures for the collection of data. Data were collected as children read traditional and digital storybooks. Written retellings under both conditions, traditional and digital, were also gathered.

Procedures for traditional storybook data collection.

A researcher worked with a group of two or three students at a table in an area outside of the classroom and gave the following instructions to the participants for the traditional storybook:

I am going to read a story to you, and then you are going to read it by yourself. After you are finished reading, I am going to ask you to write about it, so try to remember as much of the story as you can.
The researcher read the story to the small group with little to no questioning or commenting during the reading. While all three researchers typically engage children with more interactive read aloud and recognize the value of children’s active participation while a book is being read to them, this type of read-aloud was provided in an attempt to ensure that any comprehension or retelling was generated by the students and not elicited by the researcher. After reading the book one time, the researcher gave the book to the students and instructed them to read the book a second time as a pair or a group. They were encouraged to take turns. If students hesitated or said, "I can't read," the researcher suggested they read the book using the pictures. Once the students were finished buddy reading the book, the researcher gave instructions to complete a written retelling of the story they just read. All sessions were video recorded by the researcher.

**Procedures for electronic storybook data collection.**

A researcher worked with a group of two or three students at a table in an area outside of the classroom. The following instructions were given to the participants for the electronic storybook:

We are going to use an iPad to read a story to us, then you are going to let the iPad read it to you again, and then I am going to ask you to write about it, so try to remember as much of the story as you can.

The researcher helped the children launch the story on the iPad. The Tumblebooks app read the story audibly, highlighting the words on the screen. After reading the book one time, the researcher then gave the iPad to the students and instructed them to read the book a second time as a pair or a group. The researcher moved away from the buddy group. Students were allowed to pause the book or go back if they wanted. When the students were finished buddy reading the
book on the iPad, the researcher gave instructions to complete a written retelling of the story they just read. All sessions were video recorded by the researcher.

**Written Retellings**

This task was modified from the Contextual Writing subtest of the Test of Early Written Language-3 (TEWL-3) (Hresko et al., 2012). The subtest for children ages 5 years-0 months to 6 years-11 months provides three pictures that potentially form the beginning, middle, and end of a story as a visual prompt for writing. This task was adapted to include four illustrations from each of the two books to adequately capture events in the stories. The response sheet had the four pictures from the text placed at the top of the recording page as a visual aid. The paper was unlined, and students were allowed to respond in any way they preferred – with drawings, emergent print, letters, words, or sentences. Immediately following the second reading of the story, students were instructed to write everything they remembered about the story. They were also made aware that they would be reading their writing aloud to the researcher when they finished. The students were given pencils with which to write.

Burstein, Casbergue, and Parrish (2019) analyzed the children’s writing quantitatively using the scoring protocol from the TEWL-3 and reached these conclusions:

- Children’s writing attempts embodied the entire range of writing development in terms of use of print, word creation, and message creation.
- For children engaging in emergent conventional writing, there are no significant differences between the use of digital versus traditional picture book formats as an impetus for writing.
• For children who had yet to exhibit conventional writing (beyond name writing), the digital condition was more supportive of their ability to retell the story using the assessment prompt.

Current Study

Rationale for Qualitative Research

As one of the researchers in the primary study, I was intrigued by the findings; I wanted to know more about what was happening in the groups as the children read the books. I was also interested in examining the children’s writing extensively. I have taken a qualitative stance methodologically as I endeavor to gain insight into how children construct meaning with peers as they read digital and traditional texts jointly. This study is an analysis of oral and written discourse among kindergartners as they read two different types of storybooks. According to Denzin and Lincoln (2011), “Qualitative research is a situated activity that locates the observer in the world. Qualitative research consists of a set of interpretive, material practices that make the world visible” (p. 3). My goal is to use case notes, interactions among children, and the written retellings to reconstruct the “world” of the comprehending that occurs when children buddy read digital and traditional texts. The following sections detail the specific research design, participants, data collection, and data analysis of my study.

Case Study Design

Merriam and Tisdell (2016) define the case study research design as "an in-depth description and analysis of a bounded system" (p. 37). As a former classroom teacher, I was always intrigued by how students would make meaning together without adult help. This study examines the system created when kindergartners interact with the texts in dyads. Barone states, “Boundedness is important because it defines what is excluded or included in a study” (2011, p.
The dialogic system that was created when the children read and conversed in groups of two created the bounded system – the specific phenomenon – which I studied (Merriam & Tisdell, 2016). Additionally, this study asks “how” or “why” questions, examines something over which the investigator has little control, and explores events within a real-life context exhibiting further characteristics of a case study (Yin, 2018).

**Data Collection**

This study examined the available data (video recordings and writing samples) of twelve kindergarten students; this number is consistent with other studies that have explored how young children interact while partner reading, for example, Christ, Wang, & Chiu (2015) followed fourteen preschoolers and Pilonieta, Hathaway, & Casto (2019) examined the strategic talk of eight kindergartners. Moving the videos from multiple devices to one central technological location proved problematic. Because of this, I was able to gain access to only 29 of the approximately 55 original videos. From the 29 videos, 12 videos met the criteria for my study:

1. Exhibit adequate sound quality to transcribe children's verbal interactions,
2. Show two or three children reading together, and
3. Document participants reading the traditional and digital text.

I was able to examine 12 students interacting with at least one other student in both conditions – the reading of a digital storybook and a traditional storybook. The goal of this case study is not one of generalizability but one of transferability accomplished by providing a thick description and critical analysis of the discourse, verbal and written, that occurs when these young children read different types of texts together.

To answer the research questions, I observed how students interacted with the various texts and with each other and recorded their exchanges. I also collected written retellings. During
the study, data collected included the identification of 13 video-recorded sessions, transcriptions of the 13 sessions, two written retelling samples per participant, and dyadic video analysis notes of the video recorded sessions. A full description of the dyadic video analysis is located in the section entitled *Trustworthiness of the Study*.

**Participants**

The mean age of the 12 children was six years one month. The demographics of the participants in the current study are as follows: 6 (50 percent) identified as White, 3 (25 percent) identified as Hispanic, 2 (17 percent) identified as Black/African American, and 1 (8 percent) identified as Other. This very closely matches the demographic profile of the Invent School. The eight girls and four boys originated from three different homerooms.

**Procedures for Data Analysis**

There were four primary data sources examined in this study – video recordings of students interacting and reading their written retellings, transcripts of the video recordings, the notes from watching the videos with a fellow scholar, and the written retellings created by the children. Multiple copies of case notes, written retellings, and transcripts were prepared to facilitate in-depth interrogation.

The videos were transcribed and organized, building on the transcription conventions laid out by Gee (2005). I arranged the text of the transcriptions in "stanzas," as defined by Gee (p. 107), chunks of speech that revolve around a single subject or topic. Stanzas are constructed from thought units, and each thought unit is represented on one line. I used the following conventions:

*Pigs*  
Words that are underlined are the most stressed in what Gee (2005) calls “tone units” (p. 107).
(low pitch) Words in parenthesis describe the pitch of the voice and/or the changing quality of the voice, such as sliding up or down.

Umm..I think Two periods indicate an audible pause, whether between words our within one word.

[gasps] Words in brackets reflect the researcher's commentary of the talk, not transcriptions of it.

Let the pi- A hyphen represents a sudden cessation of the word in progress (the example listed shows a self-interrupted “pigs”).

MUD PUDDLE Words in all capitals signify words said with extra emphasis.

**Coding Cycles**

Guided by Merriam and Tisdale's (2016) notion of the construction of categories and using a sociocultural lens, I analyzed the data sources continuously and in a recursive manner. I created a codebook and recorded all the codes from each of the coding cycles. For the first coding cycle, I employed In Vivo and Process coding. In Vivo coding uses the participants' own written and spoken words as codes and Process coding uses -ing words as codes to describe what the researcher sees in the data (Saldaña, 2016). For the second coding cycle, I examined the data with what Saldaña calls Provisional Coding using a theoretical lens that looked at reading behaviors and comprehension moves by students. This analysis was accomplished by making multiple passes through the data line by line with color-coded highlighters assigned to the specific concepts and entering the codes and memos in the codebook as well as a spreadsheet. Using the spreadsheet allowed for organizing and reorganizing the concepts to form themes. By interrogating the data, my goal is to provide a detailed description of the spoken and written discourse that occurs when young children read electronic and traditional texts together.
First Coding Cycle: In Vivo and Process Coding

The first round of coding followed assertion of Merriam and Tisdale (2016) that “qualitative data analysis is primarily inductive and comparative” (p.201). Using In Vivo coding I analyzed the data through a sociocultural lens as I recorded the participants exact spoken and written words. I then further collapsed concepts into categories. One example of this was the number of times words like “mud monster” and “bad pigs” were used to describe the antagonists in the two stories.

For the final round of the first coding cycle, I employed Process coding where I looked for or assigned -ing words, gerunds, to represent what was occurring in the either in the discourse or in the writing. A gerund is a word ending in -ing that is a form of a verb but grammatically performs as a noun. One concept that emerged from this round of coding was the idea of attending. Attending was observed in several different ways with students attending to the sounds of the iPad during digital reading, or attending to the pictures of both types of storybooks, or only attending to their buddy as she says things to elicit laughter.

Second Coding Cycle: Provisional Coding Framework

I adapted the comprehension criteria utilized by Paris and Paris (2003) in their seminal work which resulted in the development of the Narrative Comprehension of Picture Books task (NC task). The Prompted Comprehension subtest of the NC task consists of ten total criteria -five addressing explicit comprehension of a narrative and five addressing implicit comprehension of a narrative. I chose the NC task criteria for several reasons:

- The assessment does not require decoding skills, which was important because some of the participants in my study were emergent readers.
- It adequately addressed the main areas of reading comprehension.
• There is a robust amount of research linked to the NC task. Several studies explore young children's comprehension quantitatively using the ten criteria (Altun, 2018; Sari et al., 2019; Silva & Cain, 2019). However, I chose to use the five explicit comprehension items and the four of the five implicit comprehension items qualitatively as I researched their occurrence in the children's discourse and written retellings analyzing the comprehension moves made by children during and after reading.

**Comprehension Signifiers**

Because I applied the criteria and the strategies to all of the data sources – video recordings, transcripts, dyadic video analysis notes, and written retellings – I have employed the term *comprehension signifiers* instead of *comprehension criteria* to accurately reflect the addition of comprehension strategies and the qualitative manner in which they are used in this study. Table 3.2 lists the comprehension signifiers. In this section I describe the comprehension signifiers.

This is in keeping with the emergent literacy perspective that positions the ongoing act of comprehending over more conventional perspectives of comprehension as an outcome after reading (Lysaker, 2018). As discussed in Chapter 2, Lysaker eschewed use of the term comprehension strategies which implies a level of intentionality not often present in young children’s more organic approaches to meaning making during reading and writing. My use of the term comprehension signifiers is an attempt to capture the active aspect of children’s meaning making such as gestures and discourse as form of processing. This reflected more “in the moment” idea of comprehending.
Table 3.2. Comprehension Signifiers

<table>
<thead>
<tr>
<th>Explicit</th>
<th>Character</th>
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<tbody>
<tr>
<td></td>
<td>Setting</td>
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<td></td>
<td>Initiating Event</td>
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<td></td>
<td>Problem</td>
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<td></td>
<td>Outcome resolution</td>
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<tr>
<td>Implicit</td>
<td>Feelings</td>
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<td></td>
<td>Causal inference</td>
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<td>Dialogue</td>
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<td></td>
<td>Prediction</td>
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<td>Reading Strategies</td>
<td>Repeats</td>
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<td>Questions</td>
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<td></td>
<td>Connects</td>
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<td></td>
<td>Dramatizes</td>
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</table>

**Explicit comprehension signifiers.** The first group of comprehension signifiers is made up of aspects of the narrative that can be explicitly found in the story. I began the second coding cycle going through the transcripts, dyadic notes, and the children’s written retellings line by line looking for examples of story structure and plot occurrences (Morrow, 1988; Paris and Paris, 2003).

**Character.** I analyzed the data for any mention of the characters from the story. *Character* refers to the people, animals, or things introduced in the story. I made notations when the children mention any of the characters either by name or general description. Some examples of children referring to a character are “the girl,” “Megan,” “Mud Monster,” and “piggies.”

**Setting.** Another element of story structure that I analyzed for was setting. *Setting* is defined as any location or space in which the action of the story takes place such as “the yard,” “the school,” and “outside.”

**Initiating event.** The third explicit comprehension element involves the inclusion of plot structure in the children’s discourse. When participants discussed an event from the story that preceded the problem, this was coded as an *initiating event*. An occasion that exemplifies this
element is when Abigail and Brooklyn exclaimed in unison, “A mud puddle jumped on me!” while reading a traditional book together.

**Problem.** The fourth comprehension signifier also pertains to plot structure. I followed Morrow’s (1988) suggestion and described *problem* as “plot episodes” that demonstrate a difficulty for a character that needs to be resolved (p. 133). Patrick acknowledged the *problem* when he wrote, “The pigs got out of the gate.”

**Outcome resolution.** For the final element in the plot structure trio, *outcome resolution*, I looked for occasions when the students talked about the resolution of a plot problem. As when Lawson said, “It’s like they got in the pen all by THEMSELVES!” while reading the digital text with his buddy.

**Implicit comprehension signifiers.** The second section contains examples of reactions to the story that reflect child’s ability to make inferences. I employed the definition for inference offered by Christ et al. (2015), “The child makes inferences based on clues” (p.52). The child uses their own knowledge of the world together with the clues in the story to make observations or come to conclusions.

**Feelings.** The signifier *feelings* included instances where children talked about the feelings of the characters (Paris & Paris, 2003) and occasions when children exhibited any kind of emotional reaction (Christ, et al., 2015) such as laughter or exclamations of disgust. An example of the latter definition of *feelings* is when I recorded at least 15 moments of laughter while Ava and Dante read a digital book.

**Casual inference.** When analyzing the data for *causal inference* I was searching for examples of when a child was able to determine why something happened in the story connecting multiple events in a narrative (Paris & Paris, 2003). An example of causal inference
is when Abigail and Brooklyn talk about the character being scared to go outside because, “It's going to plop on her head!”

**Dialogue.** The element of *dialogue* included all instances described by Paris and Paris (2003) in which the “response indicates the inference of appropriate character dialogue” (p. 74). An example of the use of dialogue is when Caitlin wrote in her story, “Hey you are a dumb pig and you look dumb.”

**Prediction.** *Prediction* is defined as an occurrence where the children used knowledge of the story to make a prediction of what they think will happen next, as when Ava said, “I think it wants to get someone else now.” after finishing the eBook *Mud Puddle.*

**Reading strategies.** For the third and final section I looked for instances of the children using reading strategies either as they read with their buddies or some indication of strategies in reflected in their writing. Christ, et al., (2015) and Christ, et al., (2014) informed the definitions of the signifiers in this group.

**Repeats.** Christ et al. (2015) defined the comprehension process of *repeats* as, “Children repeat what their buddy just read as way of participating in the reading” (p.52). There were several instances of students repeating the eBook as the recorded voice on the app read the words audibly.

**Questions.** The second reading strategy, *questions*, speaks to the occasions that the children asked questions for information regarding the storybook (Christ et al., 2015). An example of the signifier questions is when Keri and Patrick were reading *Pigs* (the traditional book) and they began to question what was happening in the picture. “Hey what’s that pig doing?”
**Connects.** Following the descriptor penned by Christ et al. (2014) I assigned the signifier connects when the children drew “a connection between the text and himself or herself, another text or the world” (p. 385). Dante exhibited the signifier connects when the eBook came to the part where the mother washes out the little girl’s bellybutton and he exclaimed, “Hey her belly button! I have a belly button!”

**Dramatizes action.** This strategy emerged from the data as I saw several instances where the students would perform the action of the characters in the story especially when they were reading the digital text. Dramatizes action is exemplified by the child doing hand or body movements along with the text as a way of interacting with the story. Patrick mimed all the actions of the character from getting her ears cleaned out to putting on a new shirt.

**Trustworthiness of the Study**

Several measures were enacted to increase the validity and reliability of this study. Two of the four types of triangulation that Patton (2015) lists were used in this study – data triangulation and investigator triangulation. Data triangulation was achieved through the analysis of three different data sources: transcripts of the student discourse, student-written retellings, and dyadic video analysis notes. The reliability of the study was strengthened by the creation of a case study database and a case study protocol (Yin, 2018). This facilitated my ability to maintain a chain of evidence that connects the case study findings to the case study database, which ties to the case study protocol, ultimately linking to the case study questions.

**Dyadic Video Analysis**

Building on Saldaña’s (2016) notion of dyadic video analysis, a fellow graduate student and I watched the videos of the children's buddy-reading. The graduate student that served as my reliability data collector is a reading specialist, taught English language arts (ELA) for three
years in public elementary, and is a doctoral candidate in curriculum and instruction with an emphasis in literacy. We stopped the videos every 3 minutes to compare our written observations. We would rewind and review videos as needed until we reached a consensus about the interactions we were observing and recorded those observations in the form of notes for each video. This scholarly interaction adds depth and breadth to the analysis and contributes to the trustworthiness of the research.

**Ethical Considerations**

The guidelines of the Louisiana State University (LSU) Institutional Review Board (IRB) were followed. Parents were sent information sheets detailing the study. Parental consent and child assent were obtained from all participants. Participants, either parents or children, could revoke their permission/assent at in time during the study. Child and teacher privacy was maintained by establishing procedures surrounding data collection and storage. One example of these procedures is the assignment of a pseudonym to all teachers and children, and the use of that pseudonym with all artifacts, such as video files, writing samples, and database information. All digital data was kept on a password protected device and data in hard copy form was stored in a locked office to which only I had a key.

**Researcher Positionality**

As an investigator in the primary study, I was responsible for following the research protocol while working with the children. This required that I refrain from interacting with the students as they reread the story. As a former preschool and first grade teacher, I am drawn to interacting with children, so it is possible that occasionally I may not have been as removed from the interaction as was expected. However, videos of interactions were observed by the other researchers and notes were made to encourage consistency among the researchers.
Chapter Summary

This chapter presented a comprehensive discussion as to the premise behind the implementation of a qualitative case study design. To close this chapter, I provide a summary of how I used the various cycles of analysis of all the data sources to answer the two research questions.

*What is the nature of reading comprehension, as evidenced in interactions that occur when kindergartners read a traditional and a digital storybook?*

To answer this question, I began analyzing the videos, the transcripts, and the dyadic notes inductively using the participants’ own words. Recording those words and grouping them into categories using a sociocultural lens. I then interrogated the data a second time assigning descriptive words to capture what was happening in the interaction. The third and final round of analysis allowed me to overlay a framework of reading comprehension strategies and skills to further investigate what kind of reading meaning was being constructed.

*How is reading comprehension expressed in the written retellings of kindergartners when they read traditional and digital storybooks?*

This aspect of analysis saw the same three cycles of inquiry used on the written retellings. In the first round of analysis, I used an inductive approach by pulling words and phrases from the children’s’ written responses. Those words and phrases were grouped and regrouped until themes began to emerge. The second round of analysis saw the designation of gerunds to represent ideas presented in the participants’ work, and those concepts were categorized. For the last round of interrogating the data, I employed the framework of comprehension signifiers to see which narrative elements were represented in the children’s stories.
CHAPTER 4. RESEARCH FINDINGS

I used two distinct conceptual lenses, a sociocultural lens and a comprehension signifier lens, to examine the spoken and written discourse of kindergartners after buddy reading of a traditional and digital storybook. This examination provided an opportunity to develop a robust view of what comprehension looks like for emergent readers as a dyad and as individuals. This chapter is organized into four sections. I begin with the findings from the analysis of the discourse that occurred when the kindergartners buddy read the traditional storybook followed by the findings surrounding discourse associated with the reading of the digital storybook. These two sections aim to answer the first research question:

*What is the nature of reading comprehension, as evidenced in interactions that occur when kindergartners read a traditional and a digital storybook?*

The third section includes the findings from the analysis of the children’s written retellings of traditional storybook, and the fourth section discusses what was discovered within the written retellings of the digital storybook. The final two sections address the second research question:

*How is reading comprehension expressed in the written retellings of kindergartners when they read traditional and digital storybooks?*

**Traditional Storybook Discourse**

I examined the transcripts, videos, and dyadic analysis notes of five dyads and one triad as they read a traditional book. Four groups read *Pigs* (Munsch, 1996) and two groups read *Mud Puddle* (Munsch, 1992).  

**Sociocultural Connections**

Viewing the traditional storybook discourse data through a sociocultural lens illuminated Vygotsky’s (1978) concepts that learning is collaborative and that a child’s development is
impacted by cultural forces. Vygotsky stated, “If analyzed dynamically, this alloy of speech and action has a very specific function in the history of the child’s development” (p. 30).

One prevalent theme was the use of language as a tool to incite shock or encourage laughter in the reading buddy or the researcher. Sometimes children played with language to try and get their partner(s) to laugh like Brayden did when he pointed to the pigs in the book and said, “Piggy-wiggy TOOT TOOT!” (Video 1, Lawson and Brayden, Line 4) or when Dante exclaimed, “Pooping! Poop, poop, poop, poop, poop,” (Video 4, Ava and Dante, Line 40) and immediately looked at his partner and smiled. Once she laughed, he then turned the page and said, “Oh, she opened the door a lot. And then the pigs went out and ran over her,” (Video 4, Ava and Dante, Line 43), making noises and jerking his body around like he was being trampled. It is important to mention that the book does talk about the pigs “peeing” in inappropriate places (e.g. her father’s shoes), but neither “pooping” nor “tooting” are included in the story. Another example of using language to provoke a response is when the children used character dialogue to say something shocking or naughty like Nevaeh said while pointing to the dog in Mud Puddle and wiggling in her chair, “Hey Mommy! I have a TAIL! I’m gonna go poo-poo.” (Video 5 Traditional, Nevaeh and Katherine, Line 39).

Another sociocultural concept that emerged from the data is the appearance of the “more capable peer” (Vygotsky, 1978, p. 86). This exchange that occurred between Brooklyn and Abigail is an example of one child extending help and having that help taken up by the reading buddy.

Abigail: A mud puddle jumped on me! Here…
Brooklyn: Oh, I’ll read this part. His mom…Her mom took off all his…Her clothes and hopped her in the tub.
Abigail: Tub. And Jule Ann, she…Wait. She scrubbed her up on her head.
Brooklyn: That word. That word. What’s that? (pointing to word in the book)
Abigail: Case of…
Brooklyn: If you need help, tell me.
Abigail: She even scrubbed on her…
Brooklyn: Wait, see? Red. (pointing to the word red)
Abigail: Oh.
Brooklyn: Until she was all red.
Abigail: Oh, her…Until she was all red.
Brooklyn: Red. Yeah. Turn the page!
(Video 6, Brooklyn and Abigail, Lines 33-44)

Abigail was reading the book by looking at the pictures. She remembered part of the story, but hesitated when she couldn’t remember the part after the mom in the story scrubbed Jule Ann. Brooklyn was effectively operating in Abigail’s Zone of Proximal Development when she pointed out the word red in the text and connected it to what happened in the story (Vygotsky, 1978).

Another sociocultural aspect of children’s discourse is the use of phrases and sentences constructed with primarily subject and predicates. This shows that the children were taking a narrator’s viewpoint, accessing what Bruner (1990) identified as one of the most powerful linguistic forms – the narrative. All six groups, 100% of the groups, told the story primarily using sentences that contained a subject and a predicate, even when they were not reading the printed text but instead were relying on illustrations to tell the story. Four of the six groups, 67% of the groups, used the antagonist(s) of the story (the pigs, the mud puddle) as the subject in most of those spoken sentences. This could be an extension of the cultural function of the language of meaning-making discussed earlier in the chapter. It is possible that kindergartners were enthralled with the jolting nature of the book and the preponderance of examples of the antagonist(s) as the subject of the discourse exemplifies this.

**Presence of Comprehension Signifiers**

My research shows that kindergartners employ a variety of comprehension signifiers when they read a traditional storybook. Most of the instances of comprehension centered in the
explicit category followed by the implicit category. Reading comprehension strategies had the fewest representations.

**Explicit comprehension signifiers.**

Explicit signifiers are concepts or items that can be directly located in the text of the story. Three explicit comprehension signifiers, *character, initiating event,* and *problem,* were utilized by all of the groups during the reading of the traditional book. The other two signifiers, *setting* and *outcome resolution* were used by 83% and 67% respectively. Table 4.1 provides examples of each type of signifier drawn from children’s discourse and summarizes the percentage of groups that used each type of signifier.

**Table 4.1. Explicit Comprehension Signifiers Used by Children While Reading a Traditional Storybook**

<table>
<thead>
<tr>
<th>Comprehension Signifier</th>
<th>Percentage of Groups Exhibiting Signifier</th>
<th>Example</th>
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</thead>
<tbody>
<tr>
<td>Character</td>
<td>100%</td>
<td>Amir: Okay. Megan fed the pigs. And Megan was see- Lily: A bad pig. (Video 2, Lily and Amir, Lines 5-6)</td>
</tr>
<tr>
<td>Setting</td>
<td>83%</td>
<td>Ava: She’s walking… Dante: Oh, she opened the door a lot. And then the pigs went out and ran over her. Ava: And then they went in the school. (Video 4, Ava and Dante, Lines 33-35)</td>
</tr>
<tr>
<td>Initiating Event</td>
<td>100%</td>
<td>Neveah: There was a mud puddle jumped right on her head. (Video 5, Neveah and Katherine, Line 19)</td>
</tr>
<tr>
<td>Problem</td>
<td>100%</td>
<td>Keri: Then the pigs ran out the farm and just pushed her over. Patrick: Then the pigs ran in the house, and they’re doing all kinds of crazy stuff in the house. (Video 3, Keri and Patrick, Lines 21 and 25)</td>
</tr>
<tr>
<td>Outcome Resolution</td>
<td>67%</td>
<td>Neveah: And then she threw another soap. Researcher: Mmm hmm Neveah: No Mud Puddle…Puddle ever again. (Video 5, Neveah and Katherine, Lines 95-97)</td>
</tr>
</tbody>
</table>
In even brief interactions between children around a single page in the book, children often included multiple explicit signifiers within the same exchange. This was the case for Lawson and Brayden as they discussed a page on which a little girl opens the gate to a pig pen and is trampled by the pigs as they escape.

Lawson: And that’s her…Then daddy…(character)
Brayden: My daddy told me not to open the gate.
Lawson: Gate where the pigs are! [Making circles with his finger inside the pig pen] (setting)
Brayden: Oh no!
Lawson: Ah! Oh no!
Brayden: Wait. Hey you pigs! Ooh!
Lawson: Ooh!
Brayden: And then they all ran over her. (problem) (Video 1, Lawson and Brayden, Lines 18-25)

Similarly, Brooklyn and Abigail included character, setting and outcome resolution in one brief exchange as illustrated in this example.

Brooklyn: She put it in her pocket pants. And then she said, “Mud Puddle! MUD PUDDLE!” The Mud Puddle came from the gate to the backyard into…And then they were at the backyard. (character, setting)
Abigail: And then she threw it in the middle of the mud puddle. And then she threw the other one in the middle of the mud puddle. And then the mud puddle jumped over the fence. And then he never came back. (outcome resolution) [They are looking at the page where Jule Ann throws soap into the Mud Puddle and it runs away never to be seen again.]
(Video 6, Brooklyn and Abigail, Lines 130-136)

At other times, children focused on one explicit signifier, as did Amir and Lily as they focused on the little girl gradually opening the gate, the initiating event that sets off the chain of actions that comprise the remainder of the story.

Amir: She opened the gate.
Lily: She opened it a little bit more, more, more.
Amir: She let out all the pigs. Ha ha ha ha ha! Oink! (initiating event) (Video 2, Lily and Amir, Lines 7-8)

Implicit comprehension signifiers.
Implicit signifiers pertain to concepts that are more abstract and for which a child has to invoke inferencing skills (Paris & Paris, 2003). These include expression of feelings, making causal
inferences, inclusion of dialogue, and making predictions. All groups exhibited instances of expressing feelings and use of dialogue as they read the traditional book. 67% of the groups used prediction in their discourse, while only 33% highlighted causal inference. Table 4.2 provides examples of discourse for each type of implicit comprehension signifier and the percentage of groups that included each type of signifier in their discourse.

**Table 4.2. Implicit Comprehension Signifiers Used by Children While Reading a Traditional Storybook**

<table>
<thead>
<tr>
<th>Comprehension Signifier</th>
<th>Percentage of Groups Exhibiting Signifier</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feelings</td>
<td>100%</td>
<td>Brayden: And then they all ran over her. Lawson: And then… Brayden: [Injury noises] Ooh, owie, wow! Dumb pigs! (Video 1, Lawson and Brayden, Lines 25-27)</td>
</tr>
<tr>
<td>Causal Inferences</td>
<td>33%</td>
<td>Brooklyn: Puddle…She is being… Abigail: She’s scared. Brooklyn: To go outside because it will plop on her head. (Video 6, Brooklyn and Abigail, Lines 118-120)</td>
</tr>
<tr>
<td>Dialogue</td>
<td>100%</td>
<td>Amir: Hey, you <strong>dumb</strong> pigs! Get out of my classroom. [Laughter] Lily: She sat on a <strong>baby</strong> pig! Amir: Oink! [Snorting sounds] She say, “Megan, get that pig out of this.” (Video 2, Lily and Amir, Lines 24-26)</td>
</tr>
<tr>
<td>Prediction</td>
<td>67%</td>
<td>[Dante and Ava are reading the last page of the story that shows the main character at the zoo eyeing the lock on the elephant’s cage.] Dante: And they took those dumb pigs out. And they knew everything would went back to normal. Ava: [Laughter] She’s like, she’s like, “Ahhhh!” She’s scared. Researcher: And then? Dante: She got all dirty. And she met a big darn elephant. Ava: And there’s no animals left. Dante: She goes in there with the big sharp teeth. [Pointing to the elephant tusk.] Ava: Horns. There’s no animals left for us…Hmmm (Video 4, Ava and Dante, Lines 78-84)</td>
</tr>
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</table>

Feelings were expressed in a variety of ways such as relating how the character(s) might be feeling or how the readers themselves felt as they read. All groups laughed while reading this
book, but some showed disgust as well like Neveah and Katherine who exclaimed, “Ewww!” when the Mud Puddle jumped on the girl (Video 5, Neveah and Katherine, Lines 20-23).

Dialogue had two expressions as well, sometimes in the language of the story and sometimes as the child taking on a character role. The following exchange shows the use of *feelings* and *dialogue* on multiple levels.

Katherine: I’m sad. I’m afraid. She said, “I’m afraid to go outside!” and then she had an idea…(*feelings, dialogue*)

Naveah: Okay, my turn. Then she had an idea. She got smelly soap…Yucky! Yucky! And then she like, “Hey, Mud Puddle!” And the Mud Puddle like…(*dialogue*)

[Laughter]

Naveah: And then she threw it. “Hey you, I’m throwing soap on you!” She would like okay…(*dialogue*)

Many of these exchanges contain several different signifiers such as these two different interchanges between Lily and Amir.

Lily: Is a she. [talking about the principal] She [Megan] stared at the pigs there down in the window.

Amir: The window? Oh…. That’s….They’re [pointing to the pigs] probably mad at her. (*feelings, questions*)

(Video 2, Lily and Amir, Lines 18-19)

Amir: And there’s Mom and Dad.

Lily: Megan said…

Amir: She is letting the elephant get out. [He is looking at the page where Megan is at the zoo and eyeing the lock on the gate to the elephant enclosure.] (*prediction*)

Lily: [laughter]

Amir: Why’s she letting an elephant get out? (*questions, prediction*)

Lily: The end.

(Video 2, Lily and Amir, Lines 39-44)

**Reading comprehension strategy signifiers.**

Reading comprehension strategies are specific behaviors that children employ to aid in the comprehension of a text (Paris & Paris, 2003). Reading strategies identified by (reference) were analyzed for each buddy reading group. Strategies include repeating, questioning,
dramatizing, and making connections to self or other sources. Table 4.3 provides examples from the children’s discourse for each type of strategy as well as the percentage of groups that made use of each strategy as they read the book together. The reading strategy used most frequently was *questions* at 83% followed by *connects* at 50%. The other two strategies were only used by one group each.

**Table 4.3. Reading Comprehension Strategies Used by Children While Reading a Traditional Storybook**

<table>
<thead>
<tr>
<th>Comprehension Signifier</th>
<th>Percentage of Groups Exhibiting Signifier</th>
<th>Example</th>
</tr>
</thead>
</table>
| Repeats                | 17%                                       | Lawson: They stared at her like a dumb pig. And then they stare at her and look up. And then they ran away all the way.  
Brayden: No, no! And then she said, and then she said, “Hey, dumb pigs!” And then they all ran over me.  
Lawson: And then she opened the door. And then she opened up the door all the way, and she said, “Hey, dumb pigs!” And they all ran over her.  
(Video 1, Lawson and Brayden, Lines 28-30) |
| Questions              | 83%                                       | Lily: that sounds like the other pigs. There’s a lot of pigs in the bus.  
Amir: A lot of pigs are peeing in the bus. I see pee on the window.  
Lily: [Laughter] Hmmm…Where? Oh, yeah! I do too! Then the pigs shut the door.  
(Video 2, Lily and Amir, Lines 33-36) |
| Dramatizes             | 17%                                       | Brayden: And there’s a pig that’s a school driver.  
Lawson: It goes, and then they were all prancing [moving from side to side like he is prancing] and going “Oink oink oink oink oink!”  
(Video 1, Lawson and Brayden, Lines 55-56) |
| Connects               | 50%                                       | Abigail: Why is she happy?  
Brooklyn: I don’t know.  
Abigail: Oh what?....She lost a tooth.  
Brooklyn: Oh yeah? Did you lost a tooth yet?  
Abigail: Uh-uh.  
Brooklyn: Okay. I’m about to. [Opening her mouth and wiggling her tooth for Abigail.]  
Abigail: Oh my God!  
(Video 6, Brooklyn and Abigail, Lines 18-26) |
Some additional examples of questions and connects are listed below.

Brayden: [taking on the role of the pigs] Oink oink oink oink oink. Are you still in there? [looking at the bus] (*questions*)
(Video 1, Lawson and Brayden, Line 49)

Abigail: Tub. And Julie Ann, she…Wait. She scrubbed her up on her head.
Brooklyn: That word. That word. What’s that? (*questions*)

Dante: [looking at the picture of the elephant on the last page of Pigs] Baby elephants are cute, right? (*connects*)
Researcher: Mmm hmm.
Dante: I like the zoo. (*connects*)

**Summing Up Traditional Storybook Discourse**

Three sociocultural patterns were identified – using language as a tool, more knowledgeable other, and the primary use of sentences containing a subject and a predicate. The children repeatedly used language as a way to entertain (make someone laugh) or to shock (use words deemed “bad”). Children were also likely to take on the role of more knowledgeable other and help their buddy read the text. Finally, all six dyads read the story primarily using sentences with a subject and a predicate, even when their “reading” was governed by pictures, not the printed text.

The discourse employed by the students centered around the use of mostly explicit and implicit comprehension signifiers. Of the explicit signifiers, over 80% of the dyads used character, setting, initiating event, and problem. Feelings and dialogue were two implicit signifiers used by 100% of the groups. Only one reading comprehension strategy signifier, questions, was used by the majority of the groups at 100%, although there was some evidence of limited use of other strategies.
Digital Storybook Discourse

As I did for the traditional storybooks, I examined the transcripts, videos, and dyadic analysis notes of five dyads and one triad as they read a digital book. Four groups read *Pigs* (Munsch, 1996) and two groups read *Mud Puddle* (Munsch, 1992).

Sociocultural Connections

Vygotsky (1978) asserts that a child’s language and actions are inextricably linked, cemented together from birth as they are processed through and with another person. This connection between language and action was evident when the children read the digital text. One pattern that emerged was that most of the groups engaged in some kind of dramatizing while listening to the story being read audibly by the iPad app. Some groups acted out small parts of the story, for instance, when Navaeh made trampling noises and stomped her feet when the pigs ran over Megan (Video 5D, Navaeh and Katherine, Line 23), and some groups acted out most or all of story like the following example. The words spoken by the reader on the iPad app are italicized.

*Her mother picked her up, took off all her clothes and dropped her into a tub of water. She scrubbed Jule Ann till she was red all over.*

Patrick: [Scrubbing motions]

*She washed out her ears.*

Patrick: [Mimes washing ears.]

*She washed out her eyes.*

Patrick: [Mimes washing eyes.]

Keri: This puddle is still on the tree?

Researcher: Mmm hmm.

*She even washed out her mouth.*

Patrick: [Washes mouth.]

(Video 3D, Katherine and Patrick, Lines 10-20)

A second theme that was prevalent throughout the digital storybook data was engagement. All of the groups were laughing, dancing, smiling or moving together in some form or fashion during the digital reading. They leaned in together to examine illustrations more
closely, pointed out details in the pictures to each other, and looked at their partners for reactions
to the narration or to each other’s comments. This amplifies Vygotsky’s (1978) ideas that
learning is collaborative and centered in social interaction.

A third finding that surfaced during the reading of the digital text was the fact there was
very little mention of the subject, but if there was it was almost exclusively the antagonist(s) –
Mud Puddle or Pigs. This finding coupled with discovery that 50% of the groups engaged in an
interesting type of repetition is reflective of the developmental process that Vygotsky (1986)
called the creation of inner speech. Half of the dyads repeated the predicate of the sentence
spoken by the app reader. Two examples of this type of repetition are provided below.

_ Jule Ann put on a clean new shirt and buttoned it up the front.
She put on clean new pants and buttoned them up the front._
Brayden: New pants.
 Then she looked out the back door.
She couldn’t see a mud puddle anywhere, so she walked outside and sat down in her sand
box. The sand box was next to the house and hiding up on top of the house there was a
mud puddle.
Brayden and Lawson: Mud Puddle!
It saw Jule Ann sitting down there and it jumped right on her head.
Brayden: On her head.
(Video 1D, Brayden and Lawson, Lines 21-27)

_Her mother picked her up, took off all her clothes and dropped her into a tub full of
water. She scrubbed Jule Ann till she was red all over._
Amir: Red all over.
_She washed out her ears._
Amir: Her ears…
_She washed out her eyes._
Amir: Washed out eyes.
_She washed out her mouth._
Amir: Washed out her mouth.
_She washed out her nose._
Amir: Washed out her…
_She even washed out her belly button._
Amir: Even washed… belly button.
(Video 2D, Lily and Amir, Lines 43-55)
Vygotsky (1986) asserted that inner speech is not “just speech minus sound” but “an entirely separate speech function” (p. 235). This type of speech is characterized by its short and choppy manner of execution. Egocentric speech can be defined as speech not meant for another person, but vocalizations just for the speaker. Vygotsky found “that as egocentric speech develops, it shows a tendency toward an altogether specific form of abbreviation, namely: omitting the subject of a sentence and all words connected with it, while preserving the predicate” (p. 236). My study suggests that we see this evolution to inner speech when children read digital books.

**Presence of Comprehending Signifiers**

As for children’s reading of the traditional books, their discourse as they followed the narration of the digital books was analyzed for the presence of explicit and implicit comprehension signifiers as well as signifiers of use of comprehension strategies. Those result are presented here.

*Explicit comprehension signifiers.*

There was very little evidence that children utilized explicit comprehension signifiers while reading the digital storybook. As Table 4.4 shows, none of the groups employed *setting, initiating event, problem, or outcome resolution* in the discourse surrounding the reading of a digital text. The only explicit comprehension signifier evident in children’s discourse was use of character.
Table 4.4. Explicit Comprehension Signifiers Used by Children While Reading a Digital Storybook

<table>
<thead>
<tr>
<th>Comprehension Signifier</th>
<th>Percentage of Groups Demonstrating Signifier in Discourse</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Character</td>
<td>83%</td>
<td>Katherine: Megan, get these PIGS out of here! (Video 5D, Nevaeh and Katherine, Line 67)</td>
</tr>
<tr>
<td>Setting</td>
<td>0%</td>
<td>Not observed</td>
</tr>
<tr>
<td>Initiating Event</td>
<td>0%</td>
<td>Not observed</td>
</tr>
<tr>
<td>Problem</td>
<td>0%</td>
<td>Not observed</td>
</tr>
<tr>
<td>Outcome Resolution</td>
<td>0%</td>
<td>Not observed</td>
</tr>
</tbody>
</table>

The presence of talk involving character occurred with 83% of the groups. In each case, this took the form of children mentioning one or more characters from the story. This most often took the form of children commenting about the action being narrated as the book was read aloud within the iPad app, as in these examples.

Brayden: Mud Puddle! How many times do I have to deal with you? (Video 1D, Lawson and Brayden, Line 64)

Brooklyn: Look at all them PIGS! (Video 6D, Brooklyn and Abigail, Line22)

**Implicit comprehension signifiers.**

Interestingly the more abstract implicit comprehension signifiers, shown in Table 4.5, were evident as kindergartners read the digital storybook. All groups exhibited instances of feelings and 83% used dialogue as they read the eBook. 33% of the groups used prediction in their discourse, while only 17% highlighted causal inference.
<table>
<thead>
<tr>
<th>Comprehension Signifier</th>
<th>Percentage of Groups Demonstrating Signifier in Discourse</th>
<th>Example</th>
</tr>
</thead>
</table>
| Feelings                | 100%                                                      | *It saw Jule Ann sitting there and it jumped right on her head.*  
*She got completely all over muddy. Even her ears were full of mud.*  
Ava: Ewww!  
(Video 4D, Ava and Dante, Line 12) |
| Causal Inferences       | 17%                                                       | *She washed out her mouth.*  
*She even washed out her nose.*  
Lawson: Her…  
Brayden: [Making some noises.]  
Lawson: And her hair! (It does not ever state in the story that the mom washes the girl’s hair, this is a causal inference.)  
(Video 1D, Lawson and Brayden, Lines 34-44)  
(This was the only example of causal inferences.) |
| Dialogue                | 83%                                                       | *Megan's father asked her to feed the pigs on her way to school. He said, "Megan, please feed the pigs, but don't open the gate. Pigs are smarter than you think. Don't open the gate."*  
Navaeh: We're like gonna punch you in the face pigs!  
[Laughter]  
"*Right," said Megan. "I will not open the gate. Not me. No sir. No, no, no, no, no."*  
So Megan went out to the pig pen. She looked at the pigs.  
The pigs looked at Megan.  
Navaeh: Hey piggy!  
(Video 5D, Neveah and Katherine, Lines 7-10) |
| Prediction              | 33%                                                       | *It ran across the grass, jumped over the fence, and never came back.*  
Ava: I think it wants to get someone else now.  
Dante: The end.  
(Video 4D, Ava and Dante, Lines 93-99) |
The implicit comprehension signifier, *feelings*, was exemplified by 100% of the groups. All groups participated in laughter or smiling throughout the story. In addition to laughter, another emotion that was prevalent was the expression of surprise or disgust as in these examples:

*Her mother picked her up, took off all her clothes and dropped her into a tub of water. She scrubbed Jule Ann till she was red all over. She washed out her ears. She washed out her eyes. Brayden: …Oh! She washed out her belly button. She even washed out her mouth. Brayden: Eech! I wouldn't be able to ever (do that?) Oof.*

(Video 1D, Lawson and Brayden, Lines 14-20)

*She washed out her eyes. She washed out her mouth. Ava: Wait, that's disgusting. Dante: (Laughter) Ava: That's disgusting.*

(Video 4D, Ava and Dante, Lines 46-50)

Of the five groups that used some kind of dialogue while reading the digital books, three groups spoke original dialogue that corresponded with the action of the story, and two groups recited the dialogue after it was spoken. Two other examples of original dialogue are listed below.

*Brooklyn: [Laughter] So pigs! They say, "Oink!" [Right after the music played to begin the book.]*  
(Video 6D, Brooklyn and Abigail, Line 1)

*Then she went to tell her father the bad news. When she got to the house Megan heard a noise coming from the kitchen. It went, "OINK, OINK, OINK" "That doesn't sound like my mother. That doesn't sound like my father. That sounds like pigs." She looked in the window. There was her father, sitting at the breakfast table. Navaeh: Hi dad.*  
(Video 5D, Navaeh and Katherine, Lines 27-31)

Only 33% of the groups included prediction in their discourse, and both examples came at the end of the story. An example from the book *Mud Puddle* can be found in Table 4.5. In that
case, it may be that Ava has the space to insert a prediction because the automatic narration of the digital book had ended.

The other example of making predictions occurred at the end of the book *Pigs*. In this book, the illustration overtly invites prediction with the line, “At least, not any more pigs,” while showing the little girl looking at the lock on an elephant enclosure in a zoo, as in the following example.

> *And Megan never let out any more animals.*  
> *At least, not any more pigs.*  
> Abigail: Elephants, now.  
> (Video 6D, Brooklyn and Abigail, Lines 81-91)

**Reading comprehension strategies.**

As was discussed earlier, reading strategies are actions that children use to help deepen their comprehension of text. Table 4.6 shows the reading strategy used the most frequently was repeats at 100% followed by questions, dramatizes, and connects at 67%. Examples of each strategy used are included in the table.
<table>
<thead>
<tr>
<th>Comprehension Signifier</th>
<th>Percentage of Groups Demonstrating Signifier in Discourse</th>
<th>Example</th>
</tr>
</thead>
</table>
| Repeats                 | 100%                                                     | **Megan ran outside, chased all the pigs into the pig pen and shut the gate. Then she looked at the pigs and said, “You are still dumb, like lumps on a bump.” Then she ran off to school. Just as she was about to open the front door, she heard a sound: "OINK, OINK, OINK.”**  
Abigail: Oink! Oink! Oink! Oink! Oink!  
She said, "That doesn't sound like my teacher. That doesn't sound like the principal. That sounds like pigs."  
Brooklyn: Pigs!  
Abigail: [Laughter]  
(Video 6D, Brooklyn and Abigail, Lines 44-51) |
| Questions               | 67%                                                      | **Then she had an idea.**  
**She reached up to the sink and took a bar of smelly yellow soap. She gave it a smell – yecch! She took another bar of smelly yellow soap and gave it a smell – yecch!**  
Ava: Smells bad. Is that dog on the floor in there?  
(Video 4D, Ava and Dante, Lines 85-88) |
| Dramatizes              | 67%                                                      | **Then Megan yelled, "HEY YOU DUMB PIGS!" The pigs jumped up and ran right over Megan, WAP-WAP-WAP-WAP-WAP, out the gate.**  
Nevaeh and Katherine: [Laughter]  
N: [Makes noises of pigs running over Megan and stomps her feet]  
(Video 5D, Nevaeh and Katherine, Lines 20-23) |
| Connects                | 67%                                                      | **Navaeh: [Talking about the story right as it ended.] It’s like, in like Moana [Disney movie], Maui said, like when were like he said, “oh well, Moana tried this” and Maui said dum-dum.**  
(Video 5 D, Nevaeh and Katherine, Lines 98-99) |

Some dyads repeated one phrase like Navaeh who kept repeating “Hey you dumb pigs!” or Lawson and Brayden who often repeated “Mud Puddle!” Other dyads repeated the narrator for several phrases like the example from Ava and Dante listed below.

*Jule Ann's mother bought her clean new clothes.*
Jule Ann put on a clean shirt and buttoned it up the front. She put on clean new pants and buttoned them up the front. Then she walked outside and sat down under the apple tree. Unfortunately, hiding up in the apple tree, there was a mud puddle.

Ava and Dante: Mud puddle!

It saw Jule Ann sitting there and it jumped right on her head.

She got completely all over muddy. Even her ears were full of mud.

Ava: Eww!

Jule Ann ran inside yelling, "Mummy, Mummy! A Mud Puddle jumped on me."

Dante: Mummy, mommy!

Her mother picked her up, took off all her clothes and dropped her into a tub of water.

She scrubbed Jule Ann till she was red all over.

Ava: Clothes.

She washed out her ears.

Dante: Ears.

She washed out her eyes.

Ava and Dante: Eyes.

(Video 4D, Ava and Dante, Lines 5-21)

Sometimes dyads had the same question as Navaeh and Katherine, but they asked it at different times.

Megan ran outside, chased all the pigs into the pig pen and shut the gate. Then she looked at the pigs and said, "You are still dumb, like lumps on a bump." Then she ran off to school. Just as she was about to open the front door, she heard a sound: "OINK, OINK, OINK."

Katherine: Eww!

Nevaeh: Hey you dumb pigs!

Katherine: School.


She said, "That doesn't sound like my teacher. That doesn't sound like the principal. That sounds like pigs."

Katherine: Eww! What's that?

Katherine and Navaeh: [Laughter]

(Video 5D, Navaeh and Katherine, Lines 47-56)

Other times a dyad engages in questioning to really make sense of the story like these exchanges between Brooklyn and Abigail from Video 6D:

Megan said, "These are the dumbest-looking animals I have ever seen. They stand there like lumps on a bump. They wouldn't do anything if I did open the gate."

Brooklyn: [Laughter] Lumps on a… Wait. Do you see that little head? It's sniffing its butt!

(Lines 7-10)
When Megan got up she couldn't see the pigs anywhere. She said, "Uh-oh, I am in bad trouble. Maybe pigs are not so dumb after all."

Brooklyn: Why is the pigs laying down? Oh.
Abigail: It's right here. Right here.
(Lines 23-26)

Megan looked in the principal's window. There was a pig drinking the principal's coffee. There was a pig eating the principal's newspaper. And a pig was peeing on the principal's shoe. The principal yelled, "Megan, get these pigs out of here!"

Abigail: Look at that. Right there.
Brooklyn: Which one? Reading the newspaper?
Abigail: Newspaper? No, dressing room. In…
Brooklyn: That one? [Abigail nods her head yes.]
(Lines 52-58)

There were two different ways groups would dramatize the story. Some acted out everything the narrator said like the example of Kerri and Patrick listed in at the very beginning of this section. Other students who dramatized parts of the digital story were Brooklyn and Ava. Brooklyn made motions to go with the sound effects on the app, i.e., moving her arms and legs with the sound of running, and Ava would act out one part of the story, the mud falling on Jule Ann’s head, all through the book.

The final comprehension signifier connects was observed as children made connections to their own life or to other texts or movies. Three examples of children connecting the digital story to their own experience are described below.

Dante made two connections. The first one is when he noticed that the sandbox in the book was a square not a circle like his familiar sandbox.

She put on clean new pants and buttoned them up the front. Then she looked out the back door. She couldn't see a mud puddle anywhere, so she walked outside and sat down in her sand box.

Dante: It's not a ring.
Ava: What?
D: It's a square. It looks like a square.
Dante made a second connection during part of the story detailing one of the baths given to Jule Ann by her mother.

*She washed out her ears.*
*She washed out her eyes.*
*She washed out her mouth.*
*She washed out her nose.*
*She even washed out her belly button.*
Dante: Her belly button! I have a belly button.
(Video 4D, Ava and Dante, Lines 27-31 and Lines 75-80)

Similarly, Amir made a connection to his own experience of mud puddles when he said at the end of the Mud Puddle story,

Amir: Mud puddles just stay still; they not can come alive!
(Video 2 D, Lily and Amir, Line 84)

**Summing Up Digital Storybook Discourse**

Three sociocultural patterns were identified – responding to language spoken by someone else with action, theme of engagement, and the primary use of just the predicate when vocalizing. Most groups engaged in acting out the story while the narrator read. All of the groups were laughing, smiling, dancing, or moving throughout the whole story with both children in the dyad participating equally. Finally, there was very little use of subjects in the discourse spoken. Half of the groups repeated only the predicate during the story.

The discourse employed by the students centered around the use of mostly implicit and reading strategy comprehension signifiers. Of the implicit signifiers, 83% of the dyads used *dialogue*, and 100% used *feelings*. All of reading strategy signifiers were used by over half of the groups – 67% of the dyads employed *questions, dramatizes, and connects*. *Repeats* was used by 100% of the groups.
Traditional Storybook Written Retellings

The twelve writing samples produced in response to the traditional storybook fall all along the writing development continuum (Schickendanz & Casbergue, 2009). Some children drew only pictures, and some have strings of letters. Others have word approximations, and some have conventional words. Nine of the writings are attempts to retell or comment on the book, while two have some retelling and some writing for another purpose. One student wrote a completely new story. Regardless of whether the actual writing was early emergent (using pictures and non-phonemic strings of letters), later emergent (using phonemic spelling), or conventional (using conventionally written words and symbols), children were asked to read what they had written aloud to the researcher. Using the children’s translations for their writing, I examined all of the written retellings using a sociocultural framework as well as a reading comprehension framework.

Sociocultural Connections

Bruner (1990) states that one of the first requirements of a narrative is that it highlight the ability of an individual to exert influence; stories provide a way to give humans agency. This pattern was evident in the written retellings when children used their stories as a way to shock or entertain the reader. Figure 4.1 shows Katherine retelling part of the story with, “The mud jumped on the kid,” and adding a sentence to elicit a reaction with, “I said the mud is poop.”
Lawson responded by retelling the story through drawing and then adding an original story to his retelling. The front of the page (see Figure 4.2) contains four of Lawson’s discrete drawings that he described in four thought units (Gee, 2005) that he read to the researcher. The first drawing on the far left shows a pen with pigs inside and a person by an open gate; he read, “First she went to the pig pen.” The second drawing shows the person at the open gate with a large open mouth; he read, “Hey you stupid pigs! You’re so dumb.” The third drawing is superimposed on the first and shows a very large animal-like creature; he read, “Then there was a pig monster.” The final drawing is of the same animal-like creature with a cloud exiting its hind end; he read, “That farted all over the world.” The original story continues on the back of the page (see Figure 4.3) with a picture of the large creature surrounded by clouds that Lawson read as, “He kept farting all over the world. Fart, fart, fart, fart, fart.” By changing direction in his writing and including words and drawings that are meant to elicit laughter, Lawson exerted his agency. He took control of his writing and used it to change another person’s behavior.
Dante recorded parts of the story by writing “Pigs pee pee,” “Pigs got out, and “Bus trash thrown.” He also exercised his power to engage in self-expression by writing about superheroes “Iron Man,” and “Hulk Smash” as well as adding “shocking” words “Poo poo.” (See figure 4.4)
Another pattern that I found was the dominance of the use of subject/action as a means to retell the story. Many of the children, eight out of twelve, employed the grammatical convention of a subject exerting an action to demonstrate their written comprehension of the text. While this can be interpreted through a literacy comprehension lens, it is also a significant sociocultural benchmark. I submit that this aligns with Vygotsky’s (1978) explanation of the object/meaning and action/meaning ratio as they relate to a child’s development.

Thus, the structure of human perception could be figuratively expressed as a ratio in which the object is the numerator and the meaning is the denominator (object/meaning). This ratio symbolizes the idea that all human perception is made up of generalized rather than isolated perceptions. For the child the object dominates in the object/meaning ratio and meaning is subordinated to it. At the critical moment when a stick becomes the pivot for detaching the meaning of horse from a real horse, this ratio is inverted and meaning predominates, giving meaning/object… the child makes one object influence another semantically (p. 98).

Navaeh (see Figure 4.5) retold the text *Mud Puddle* by writing, “She dropped her into the tub.” Neveah’s writing focused on “she dropped” and applying a Vygotskian lens we might say that for Neveah, the action “dropped” carried the most meaning. While Katherine (see Figure
4.1) remembered the text as, “The mud jumped on the kid.” For Katherine the verb “jumped” is the most important way to understand the story.

Figure 4.5. Navaeh Traditional

Amir (see Figure 4.6) wrote two sentences that followed the subject/action pattern in his written retelling of *Pigs*. He wrote, “All the pigs run away,” and “Megan tried to catch the pigs.” Figure 4.7 shows Patrick’s retelling. He wrote, “The pigs got out of the gate.”

Figure 4.6. Amir Traditional
Presence of Comprehension Signifiers

As described earlier, comprehension signifiers fall into three categories – explicit, implicit, and reading strategies. 92% of the children addressed the storybook in some way in their writing. One student wrote a unique story independent of the book that he read; consequently, he did not represent any of the comprehension signifiers in his writing. Of the categories of comprehension signifiers, explicit signifiers were used most, with 92% of the children including them in their writing. Three children, 25%, utilized implicit signifiers, and only one child employed the reading strategy, connects. Table 4.7 lists all of the students and records their comprehension signifier use.
Table 4.7. Number of Comprehension Signifiers Used by Children Within the Written Retelling of a Traditional Storybook

<table>
<thead>
<tr>
<th>Name</th>
<th>Number of Explicit Signifiers Mentioned out of 5 Total</th>
<th>Number of Implicit Signifiers Mentioned out of 4 Total</th>
<th>Number of Reading Strategies Utilized out of 1 Total (Connects)</th>
<th>Total Number of Comprehension Signifiers Exhibited out of 10 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lawson</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Brayden</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Amir</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Lily</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Keri</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Patrick</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Ava</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Dante</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Nevaeh</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Katherine</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Abigail</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Percentage of children using at least one comprehension signifier</td>
<td>92%</td>
<td>25%</td>
<td>8%</td>
<td></td>
</tr>
</tbody>
</table>

Explicit comprehension signifiers.

All eleven kindergartners that addressed the book in some way demonstrated the use of explicit signifiers. Most of the children combined character with one or two of the other explicit signifiers. For example, Lily and Lawson combined character with initiating event. Lily (see Figure 4.8) relayed the beginning of the story Pigs when she wrote, “Megan opened the pig’s door a little bit.” Lawson (see Figure 4.2) said, “First she went to the pig pen. Hey you stupid pigs! You’re so dumb.”
Abigail (see Figure 4.9) combined character with setting when she wrote, “It was a beautiful day. The mud puddle.” Still others combined character with problem as Katherine, Patrick, Dante, and Amir did. Katherine (see Figure 4.1) wrote directly under the pictures, “The mud jumped on the kid.” Patrick (see Figure 4.7) and Dante (see Figure 4.4) both wrote “pigs got out.” Amir (See Figure 4.6) wrote about the same problem that Patrick and Dante did when he said, “All the pigs run away.”

One child, Ava, used four of the five explicit signifiers in her retelling. Figure 4.10 shows Ava’s story.

The pigs got out of the pen. (character, problem)
The pigs are in the house. (*character, setting*)
The pigs are in the school. (*character, setting*)
The pigs are in the bus. (*character, setting*)
The pigs are in the pen. (*character, outcome resolution*)

Figure 4.10. Ava Traditional

Implicit comprehension signifiers.

Three children, 25%, demonstrated the use of implicit comprehension signifiers when writing about the story they had read. This is in stark contrast to the percentage of groups that included implicit signifiers in their discourse about the stories. While reading the traditional books *feelings* and *dialogue* were employed by 100% of the groups, *prediction* by 67%, and *causal inference* by 33% of the groups in their discourse. In contrast, when writing about the two books, only two children, Lawson and Navaeh, exhibited *dialogue* in their written retellings. Lawson (see Figure 4.2) echoed the language from the text when he included, “Hey you stupid pigs! You’re so dumb.” Navaeh (see Figure 4.5) did the same when she wrote, “Hey mud puddle.” Brooklyn was the only child who included *feelings* in her writing. She wrote (see figure 4.11), “It was funny when she was naked.”
Reading strategies signifier.

Of the four reading strategies that children employed in their discourse while reading the traditional storybook, only one, connects, was represented in the written retelling. The others, repeats, questions, and dramatizes, are actions that can only be observed during the reading process. While reading the traditional storybook, 50% of the groups utilized connects in their discourse (see Table 4.3). Only Katherine (see Figure 4.1) included a connection to herself in her writing. When she wrote, "I said the mud was poop," she was connecting her writing to when she read the story and kept calling the Mud Puddle poop and laughing.

Summing Up Traditional Storybook Written Retellings

I identified two sociocultural patterns in the traditional storybook written retellings. Both patterns mirrored the sociocultural findings of the traditional storybook discourse. The overwhelming theme of the children’s writings was the use of the writings to shock the reader. The second pattern revolved around the use of the grammatical convention subject >verb>object.
The comprehension signifier use was almost exclusively in the explicit area with 92% of the children using *character, setting, initiating event, or problem* in their stories. Many, 7 out of 12, children used only explicit signifiers in their written retellings. Very few children, 25%, utilized implicit signifiers. Only one child applied the reading strategy signifier, *connects*. This contrasts with signifiers used in the discourse by these same students. For instance, 100% of the groups utilized *dialogue* in their discourse, yet only 2 children adopted *dialogue* in their retellings.

**Digital Storybook Written Retellings**

When children’s written retellings of the digital storybooks were analyzed, it was noted that 100% children included some aspects of the digital text in their writings. 75% attempted to retell the story, and 25% wrote for another purpose – one wrote a completely new story, one listed items from the story, and a third child wrote a review of a character. As for retellings based on the traditional storybooks, I analyzed all of the written retellings using a sociocultural lens as well as a reading comprehension framework.

**Sociocultural Connections**

Bruner (1990) considered narrative to be "one of the most ubiquitous and powerful discourse forms in human communication," and he delineated "four crucial grammatical constituents" that must be present for one to be effective (p. 77). He theorized that the urge to create a narrative determines the sequence in which the grammatical structures are developed in young children (Bruner, pp. 78-79). The stages are as follows:

1. The child focuses on human agency and attainment of goals.
2. The child notices and remarks on the unusual.
3. The child follows grammatical sequences like the ordering of subject-verb-object.
4. The child can voice a perspective.

I found patterns suggesting three of the four stages present in the digital storybook's written retellings. Human agency was apparent in the following three writings. Figures 4.12a and 4.12b show that Amir centered his story on the many actions of Jule Ann in Mud Puddle (Munsch, 1992). He relayed, “She was walking outside. She wears some clean shirt and clean pants. And she walked outside. She looked up at the tree. There was a mud puddle….She took off all her clothes. She put her in the tub. She wears some shirt and new pants and outside.”

Figure 4.12a. Amir Digital

Figure 4.12b. Amir Digital
Lawson (see Figure 4.13) also focused on action when he wrote, “My sister went outside and she got splashed by a mud puddle.” In this case, however, Lawson did not refer to a specific character in the text, but instead substituted one of his own family members.

![Figure 4.13. Lawson Digital](image)

Brooklyn wrote about two different subjects exerting an action (see Figure 4.14). First, she announced, “The girl let the elephant out.” She also wrote, “The pigs pee on the shoe.”

![Figure 4.14. Brooklyn Digital](image)
The second stage, noticing novel and unusual subject matter, is represented in the following three retellings by Navaeh, Ava, and Brooklyn. Navaeh used a phrase that proved “controversial” for kindergartners who characterized “dumb” as a “bad word” when she wrote (see Figure 4.15), “Hey you dumb pigs. You look dumber that I thought.” Figures 4.16 and 4.17 show Ava repeatedly informing her audience about the nature of the Mud Puddle when she wrote, “The Mud Puddle is bad,” “The Mud Puddle is rude,” and “The Mud Puddle is rude to people.” Brooklyn (see Figure 4.14) highlighted the astonishing when she wrote, “The pigs pee on the shoe.”
Abigail, Ava, and Patrick offer examples of stage three, when they composed sentences that follow the grammatical sequence subject > verb > object. Abigail (see Figure 4.18) wrote, “The pigs jumped out of the gate.” Ava (see Figure 4.16) wrote, “The Mud Puddle got me,” and
“The Mud Puddle keeps on getting me.” Figure 4.19 shows that Patrick asserted, “The Mud Puddle jumped on the girl.” All three of the children chose the antagonist in their respective stories to serve as the subject of their retelling. They all seem drawn to the action that surround those respective stories to serve as the subject of their retelling. They all seem drawn to the action that surround those characters. Emergent writers appear to follow Bruner’s trajectory as
they develop their ability to write narratives. Self-expression and self-actualization are evident as kindergartners relay their ideas about the story in written form.

**Presence of Comprehension Signifiers**

All twelve of the children, 100%, addressed the digital storybook in some way in their writing. One student listed only one item that was found in the text without mentioning the character, setting, or any plot points; consequently, she did not represent any of the comprehension signifiers in her writing. Of the categories of comprehension signifiers, explicit signifiers were used most frequently, with 75% of the children including them in their writing. Six children, 50%, utilized implicit signifiers, and four children employed the reading strategy *connects*. Table 4.8 displays number comprehension signifiers in each category used by individual students.

**Table 4.8** Number of Comprehension Signifiers Used by Children Within the Written Retelling of a Digital Storybook

<table>
<thead>
<tr>
<th>Name</th>
<th>Number of Explicit Signifiers Mentioned out of 5 Total</th>
<th>Number of Implicit Signifiers Mentioned out of 4 Total</th>
<th>Number of Reading Strategies Utilized out of 1 Total (Connects)</th>
<th>Total Number of Comprehension Signifiers Exhibited out of 10 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lawson</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Brayden</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Amir</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Lily</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Keri</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Patrick</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Ava</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Dante</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Nevaeh</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Katherine</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Abigail</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Percentage of children using at least one comprehension signifier</td>
<td>92%</td>
<td>50%</td>
<td>33%</td>
<td></td>
</tr>
</tbody>
</table>

84
Explicit comprehension signifiers.

Ten children, 92%, included explicit signifiers in their written retellings of the digital storybook, and 67% used two or more explicit signifiers. This high percentage contrasts with the low percentage of children using explicit signifiers in their discourse while reading an eBook. 25% of the kindergartners used only the explicit comprehension signifiers character and problem in their stories. Brayden (see Figure 4.20) talked about "...a kid who got black from monster." Patrick (see Figure 4.19) wrote, "The mud puddle jumped on the girl." Finally, Abigail (see Figure 4.18) scripted, "The pigs jumped out of the gate." The other seven children combined the explicit signifier(s) with implicit signifiers(s) or the reading strategy connects. The retellings that employ a combination of comprehension signifiers are described in the following two subsections.

Figure 4.20. Brayden Digital
**Implicit comprehension signifiers.**

Six children, or 50%, exhibited abstract implicit signifiers in their written retellings—three of the six utilized dialogue in addition to explicit signifiers. Nevaeh (see Figure 4.15) incorporated *character* with *dialogue* when she wrote, "Hey you dumb pigs. You look dumber than I thought. It's the pigs." Katherine (see Figure 4.21) combined *character, initiating event,* and *problem* with *dialogue* when she wrote, "Hey you dumb pig. You look dumb. Open it. You got out. Ran over the gate." Finally, Amir (see Figure 4.12) used *dialogue, character, setting,* and *initiating event* in his retelling,

That’s a mud puddle. She was walking outside. She wears some clean shirt and clean pants. And she walked outside. She looked up at the tree. There was a mud puddle. She shouted, “Mommy there’s a mud puddle on me!” She took off all her clothes. She putted her in the tub. She wears some shirt and new pants and outside.

Ava (see Figure 4.16 & 4.17) combined *dialogue* with *character* and *problem,* and also included the implicit signifier *feelings.* Ava disclosed her feelings when she let the reader know that she takes issue with the mud puddle stating it is "bad" and "rude." Ava wrote:

The mud puddle got me. The mud puddle is muddy. The mud puddle keeps on getting me. The mud puddle is bad. The mud puddle is everywheres (sic). The Mud puddle is rude. The mud puddle is rude to people.
Keri’s writing (see Figure 4.22), while not a conventional retelling, conveyed her feelings about a character in the story, thus combining character and feelings when she wrote, “I do not like that mud puddle.” Finally, Brooklyn (see Figure 4.14) utilized the implicit signifier predicts together with character and problem in her retelling when she said, “The pigs is crazy pigs. The girl let the elephant out. The pigs pee on the shoe.”

Figure 4.22. Keri Digital

Reading strategies signifier.

As was stated earlier, the only reading strategy that lends itself to a written response is connects. Four children employed connects in their retellings. One child, Dante (Figure 4.23), brought his knowledge of other texts into composing his retelling, making a text to text connection (Keene & Zimmerman, 2007). Figure 4.23 shows that Dante wrote the word “mud monster,” he also wrote “Spiderman” (which was accompanied by a drawing), “Robin,” “Batman,” and “Woody Woodpecker.” This is considered a text to text connection because
Dante made the connection between a character in the text he read (mud monster) and characters from other texts (Spiderman).

Three students exhibited what Lysaker (2018b) calls “recontextualization” or “a movement of self-experience into the text” (2018b, p. 75). Ava and Keri inserted themselves into the story as they respond in their writings. Ava (see Figure 4.16) writes, “The Mud Puddle got me,” and, “The Mud Puddle keeps on getting me.” Keri (see Figure 4.22) penned, “I do not like that mud puddle.” Lawson (see Figure 4.13) entered the story by way of a family member when he said, “My sister went outside and she got splashed by a mud puddle.”

![Figure 4.23. Dante Digital](image)

**Summing Up Digital Storybook Written Retellings**

I found patterns in the retellings that suggest the children used three of the four grammatical conventions considered by Bruner to be critical to mastering narrative structure. Those conventions are the child focuses on human agency and goal attainment, notices and
remarks on the unusual, and follows grammatical sequences like the ordering of subject-verb-object. This is very similar to sociocultural patterns present in the traditional storybook retellings.

When engaging in written retelling of a digital picturebook, explicit signifiers were used the most (92%), followed by implicit signifiers (50%), and the reading strategy connects (33%). The digital written retellings exhibited a wider comprehension signifier use with 8 of 12 children using examples from at least 2 different categories. This was in stark contrast to the signifier use in the storybook discourse where there was very little use of explicit signifiers.

**Summary of Findings**

Different facets of reading comprehending are represented in the findings of my study. The first aspect addresses how comprehending manifests as children interact when reading under the two conditions – traditional and digital books. The second perspective involves the demonstration of reading comprehending in children’s retellings.

**Question 1.** What is the nature of reading comprehending, as evidenced in interactions that occur when kindergartners buddy read a traditional and a digital storybook?

The nature of reading comprehending when kindergartners buddy read traditional texts includes children using explicit and implicit comprehension signifiers. Children’s discourse when reading traditional texts reflected the use of explicit signifiers such as character, setting, initiating event, and problem and implicit signifiers such as feelings, predicts and dialogue. The nature of comprehending changed slightly when kindergartners buddy read digital texts. Children’s discourse surrounding digital texts exemplified the use of mostly implicit signifiers (such as feelings and dialogue) and reading strategy comprehension signifiers (such as questions, dramatizes, connects, and repeats).
Question 2. How is reading comprehension expressed in the written retellings of kindergartners when they buddy read traditional and digital storybooks?

Reading comprehension is expressed differently in the written retelling of kindergartners based on text type. Written retellings of traditional books typically reflect the use of mostly explicit comprehension signifiers only (character, setting, initiating event, problem, and outcome resolution). However, written retellings of digital storybooks typically employ the use of at least 2 or the 3 categories of comprehension signifiers – explicit signifiers (listed above), implicit signifiers (feelings, causal inference, dialogue, and prediction), and the reading strategy connects.

Chapter Summary

This chapter detailed how comprehension manifests when emergent readers engaged in buddy reading of a traditional book and a digital book. The first two sections discuss how the discourse of buddy reading groups reflected meaning-making as viewed through sociocultural and reading comprehension lenses. Findings indicate that interacting with both kinds of texts in dyads and triads serves sociocultural purposes, albeit different, that are reflected in the interactions among the children. The discourse that occurred while reading the traditional text saw the children using language as tool to elicit an action from another. Conversely, the discourse associated with the digital text saw the children using action in response to the narrator – dramatizing what he said. Another difference between the discourses is in the grammatical structure of the sentences spoken, which carry different sociocultural meanings. The sentences that were spoken by children reading traditional texts contained a subject and a predicate, where sentences spoken by children reading digital texts contained just the predicate.
Differences existed between the interactions surrounding the two types of texts in the area of comprehension signifiers as well. The comprehension discourse of the groups regarding the traditional text concentrated in the subcategories of explicit signifiers and implicit signifiers. The comprehension discourse of the groups as they read the digital text clustered in the areas of implicit signifiers and reading strategy signifiers.

The last two sections reviewed how comprehension is expressed in writing by individual children after reading a traditional and digital book. The written retellings of the traditional and digital texts were similar in their sociocultural purposes. However, a difference between the retellings was noted in terms of reading comprehension signifiers. Initial findings suggest that children's written retellings of the traditional book were reflective of primarily explicit comprehension signifiers (e.g., character, setting), whereas the digital book's retellings included all explicit, implicit, and reading strategy signifiers. This chapter closed with a summary of findings as they relate to the research questions.
CHAPTER 5. DISCUSSION

Buddy reading a text, whether traditional or digital, is a collaborative act. Much of this collaboration is evidenced in the discourse that occurs as children read together. The discourse among children in this study provided a glimpse as to the comprehending that took place. I choose to use the term comprehending over comprehension because it is clear that making meaning while reading is an active process, while the term comprehension implies an outcome that occurs after reading (Lysaker, 2018a). Video recordings of children’s discourse were analyzed to answer the first research question: What is the nature of reading comprehending, as evidenced in interactions that occur when kindergartners read a traditional and a digital storybook?

In addition to the corporal act of comprehending, children’s comprehending can be observed as they engage in writing about what they have read. The written retellings produced by children provided insight into individual children’s comprehending, answering the second research question: How is reading comprehending expressed in the written retellings of kindergartners when they read traditional and digital storybooks?

As detailed in Chapter 4, differences were identified in the nature of comprehending when children read traditional versus digital books with another child. When reading traditional texts, children’s discourse included both explicit and implicit comprehension signifiers as well as use of dialogue. When reading the digital book together, however, children’s discourse did not include explicit signifiers or dialogue. Rather, they exhibited use of reading strategies and displayed implicit comprehension signifiers.

Differences were also noted between written retellings of the traditional versus the digital storybook. When responding to traditional texts, children included only explicit
comprehension signifiers and did not include any dialogue. When responding in writing to
digital storybooks, however, they used multiple comprehension signifiers and included dialogue
in their written retellings.

This chapter includes discussion of these findings through the lens of sociocultural theory
and the literature related to comprehension and/or comprehending. Implications for further
research and approaches to the assessment and instruction of young children’s literacy are
addressed.

Discussion of Findings

There were four major findings from a sociocultural perspective. First, my study suggests
that traditional and digital texts activate different aspects of the Vygotsky’s (1978) concept of the
speech and action link. Traditional texts seem to encourage children to use language in an
attempt to bring forth a reaction from another person. This correlates with Vygotsky’s (1978)
assertion that speech becomes a way for children to first act on their environment and affect the
behavior of others.

There is also Bruner’s (1990) concept of “cultural psychology” at play. Children compare
new activities to established cultural knowledge. Therefore, the children in the dyads were
exerciting a cultural influence on each other.

Unlike the language exhibited in children’s discourse while reading traditional books, my
study suggests that digital texts discourage the use of language. Perhaps because these texts
supply the language of the story through automatic narration as the book advances through the
illustrated pages, the children are instead enticed to perform actions to accompany the text.
Children’s playful actions in response to the text reflect the sociocultural importance of play as
well as the concept of play as language. When the children are playing and acting out the story,
this “play can be understood as a very complex system of “speech” through gestures that communicate and indicate meaning” (Vygotsky, 1978, p. 108). Flint (2010) found that first graders used play to keep themselves actively engaged during buddy reading time. It is quite likely that the kindergarten children in this sample use play for the same purpose during buddy reading of digital texts.

The second finding involves the way in which the two conditions appeared to affect the relationship between the children. The traditional text engendered the appearance of a more knowledgeable other, in which one child would be the mentor and one would be the mentee. This process exemplifies what Wood, Bruner, and Ross (1974) termed as scaffolding. The more experienced member of the group helped the least experienced member. The relationship between the children while reading the digital text was more egalitarian with both children engaged and responding to the text together.

This finding is different from what Kirova and Jamison (2018) observed when they watched a more capable peer in a prekindergarten class skillfully scaffold her friend’s attempt to use a digital device. In that study, however, children were attempting to master use of the device itself. In the present study, the device was set to automatically read the story aloud to the children as it advanced through the pages. Children’s use of the device was limited to pressing the “play” button on the screen to start the story, and perhaps hitting pause when they wanted to examine a page in more detail. Thus, there was little opportunity for a more knowledgeable child to share information about the device, in this case an iPad, with another child. And because the reading demands were significantly less since children did not have to read the words of the book themselves, they were able to focus solely on following the action and comprehending the story.
The third finding centers around the grammatical conventions employed in the discourse and their sociocultural importance. My findings show that the discourse used while reading traditional texts was made up primarily of sentences using a subject and a predicate, suggesting that children were focused on the characters in the story and their actions during the shared reading of traditional books.

The discourse surrounding digital texts was different. There was a pattern of children repeating just the predicate when the narrator would speak – an indication that the move to inner speech was being activated. Vygotsky (1986) states, “inner speech must be regarded, not as speech minus sound, but as an entirely separate speech function” and that function is inner thought (p.235). His research showed that as children developed inner speech their egocentric speech changed in very specific ways. Egocentric speech is speech used not for communicative purposes with another person, but speech solely for oneself, e.g., “talking to oneself.” Vygotsky found that children would eliminate the subject from the egocentric speech just before transitioning to solely using inner speech.

Finally, my study suggests that the use of subject/action in retelling may be one of the initial ways that emergent writers record their understanding of text. Vygotsky (1978) stated that the concept can be applied to a child’s actions in the same way as it was applied to objects with children beginning at the action/meaning level in play moving to meaning/action. Bruner (1990) calls this “linearizing,” it is the act of recognizing and maintaining the sequence of a language.

Findings in the area of comprehension signifiers indicated that there was a mismatch between the kind of discourse that transpired and the way it translated into the written retellings. When children engaged in discourse as they read the traditional storybook, the discourse exemplified high-frequency use of explicit and implicit comprehension signifiers. However, few
of the written retellings utilized implicit comprehension signifiers. Most of the children, 7 out of 12, used only explicit signifiers in their writings. Another interesting finding is that 100% of the groups used dialogue in their traditional storybook discourse, yet only two students utilized dialogue in their written retelling.

While use of writing to assess children’s comprehension is common, this might not be an appropriate means for assessing comprehension of children as young as kindergarten. The discrepancy between their discourse and the language of their writing can most likely be explained by the lag between children’s development of oral language and their writing development. This study makes clear that children are likely to use more comprehension signifiers in their discourse than in their writing. Researchers have found that creating an effective kindergarten written composition skills assessment is difficult. (Puranik, Duncan, Lin, & Ying, 2020) The unique situation of kindergarten writers reinforces why this type of assessment is problematic for emergent readers and writers.

There was also an incongruency between the discourse that took place while reading the digital text and the writings based on that reading. The discourse surrounding the digital texts consisted mostly of implicit comprehension signifiers and reading strategy signifiers. However, the writing reflected a wider comprehension signifier use. 8 out of 12 children used examples from at least two different subcategories, i.e., Amir used three explicit signifiers and one implicit signifier. It is important to note that it is during this time that the children were exhibiting the signs of what Vygotsky called inner speech. Vygotsky (1986) described the power of inner speech like this, “Inner speech is to a large extent thinking in pure meanings. It is a dynamic, shifting unstable thing, fluttering between word and thought” (p.249). The digital text appears to support young children in way that encourages higher-level writing.
Implications

There are studies that show that traditional books are more effective than digital books (Barnyak, N. C.& McNelly, T. A., 2016; Evans, M. A., Nowak, S., Burek, B., & Willoughby, D., 2017), and studies that show digital books are more effective than traditional books (Altun, D., 2018; Broemmel, A. D., Moran, M.J., Wooten, D. A., 2015). My study shares knowledge that both traditional and digital texts provide important opportunities to enhance young children’s literacy skills. Traditional texts can provide a space for discussion and word play, and digital texts can provide a space for kinesthetic play and writing enhancement. My study also provides research where information is lacking – the addition of writing in response to both types of storybooks, as opposed to the use of questions about traditional and digital texts.

This study has implications for the three groups mentioned in Chapter 1– children, teachers, and parents. My research illuminates the importance for all three groups of providing children the opportunity to read both traditional and digital books together, whether in small groups or with one other buddy. Being able to process texts with peers allows children the space for collaborative learning. As noted in the study’s findings, children also took a playful approach when reading together, sharing jokes, mimicking and dramatizing actions in the story, and using language playfully, often for its shock value. This kind of playful interaction is more likely to occur among children than when they approach the often serious task of reading with an adult, especially in a school setting.

Teachers can glean from this study detailed ways to support emergent readers as they learn reading comprehension skills and strategies. Most specifically, providing students with the time to buddy read traditional and digital texts may provide a level of play and enjoyment to reading in school. Teachers can also use the comprehension signifiers as a springboard for more
direct instruction. They may observe which signifiers are evident as children read, whether with peers, in small teacher-directed groups as in shared reading, or individually with a teacher. They can affirm children’s use of children’s acts of comprehending and model others. This approach to instruction can also extend to small group writing activities. Teachers can encourage children to retell stories to themselves using specific signifiers as a means of writing rehearsal (Calkins, 2020).

Finally, parents can use the information from this study as a tool to aid in choosing engaging activities to support their children’s emerging literacy. This study suggests sharing both digital and traditional picture books with young children. Because different types of texts potentially lead to differing expressions of comprehending, children should benefit differently from interaction with each.

This study also illustrates the power of children being able to approach books playfully with their reading partner. This suggests that when parents share books with children, whether in digital or traditional format, children may do their best comprehending when they are allowed to set the pace for reading and are encouraged to interrupt the actual reading of text to talk about or even act out the action on different pages, even when their talk or dramatizations seem silly. Reading with young children should not just be about getting efficiently through the words on each page. Rather, children should be encouraged to savor the illustrations along with the words and find enjoyment in the overall experience of sharing a book with another person.

Finally, this study suggests that loading children’s digital devices with high-quality picture books may be one of the best investments parents can make when choosing tablet activities for young children. While many apps are designed to explicitly teach children about letters and sounds, or assist them in recognizing basic sight words, digital picture books engage
children in the holistic act of reading and comprehending. As with traditional books, digital books can encourage children to follow a sequence of events, and make inferences and predictions, while their ability to attend to the words on the page is supported by features like highlighting written text as it is read aloud by a narrator. All of these are important literacy skills that will serve children well as they move into structured literacy instruction in primary grades.

Limitations

The first limitation of this study involves the number of participants. Although other studies that examine the same content feature the same number of participants, (Christ, Wang, & Chiu, 2015; Pilonieta, Hathaway, & Casto, 2019), more participants would afford the opportunity to thoroughly establish patterns. Another limitation was the duration of the study. A longer research time would have allowed for more cycles of observation helping to solidify the findings. Finally, the procurement of professional recording equipment would have made for a more efficient study and increased the availability of video recordings with adequate sound quality to facilitate this type of detailed analysis of children’s discourse while reading together.

Recommendations for Future Research

While the findings from my study are interesting, more research comparing digital and traditional tools is warranted. Future studies can investigate the effect of different kinds of eBooks on writing – expanding into different genres like explanatory and informational texts. Another area that would justify further research is comparing writing on digital devices to writing with pencil and paper. This research could build on Bernhard et al. (2008) and D’On Jones (2015) who found that students who received writing instruction made gains in reading. Finally, future research can execute a more in-depth comparative study that examines the relationship between children’s discourse and emergent writing. Comparing transcripts word by word...
word with the pieces written by those particular students would provide a wealth of information about the impact of talk with peers on a child’s writing.

Conclusion

Past studies have investigated the efficacy of buddy reading centering on traditional texts (Christ, Ming Chiu, & Wang, 2014; Flint, 2010). Other studies have examined the effects of peer interaction on digital devices (Christ, Wang, & Erdemir, 2018; Wohlwend, 2015) and writing in the early childhood classroom (Gerde, et al., 2015). My study examines peer interaction in both the traditional and digital context as well as examining the children’s writing stemming from that interaction. Interesting patterns and themes surrounding children’s sociocultural development and reading comprehension emerged from the data suggesting that all three instructional areas have potential to provide a wealth of support. My hope is that young children everywhere are given the opportunity to explore these digital and traditional spaces because it is clear that they both provide fertile ground for comprehending.
APPENDIX A. IRB APPROVAL

ACTION ON EXEMPTION APPROVAL REQUEST

TO: Renee Casbergue
   Education

FROM: Dennis Landin
      Chair, Institutional Review Board

DATE: April 17, 2019

RE: IRB# E11676

TITLE: Investigating the Impact of Digital vs. Traditional Books on Written Responses to Stories


Review Date: 4/3/2019

Approved X Disapproved

Approval Date: 4/16/2019 Approval Expiration Date: 4/15/2022

Exemption Category/Paragraph: 1

Signed Consent Waived?: No

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (# applicable):

By: Dennis Landin, Chairman

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING – Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU’s Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
8. SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.

* All investigators and support staff have access to copies of the Belmont Report, LSU’s Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb
APPENDIX B. PARENT PERMISSION/CHILD ASSENT FORM

Parent Permission Form

1. **Study:** Investigating the Impact of Digital vs. Traditional Books on Written Responses to Stories

2. **Purpose:** This research project is designed to examine the impact of digital vs. traditional books on children’s written responses to stories. A researcher will read aloud either a high-quality digital storybook via hand-held device or its traditional version to two children at a time. The children will then reread the book together without assistance from the researcher. Their interactions with the book will be videotaped to document what aspects of the book they attend to, and gestures and comments while reading that indicate their comprehension of the story. Immediately afterward, each student will be presented with a picture resembling an event in the book and asked to write about it for 5 minutes. Each child’s writing will be evaluated using a scoring protocol adapted from the standardized Test of Early Writing. Within two weeks of the first reading, the pairs of children will repeat the same process for the alternate version of the book (digital or traditional) than was used for the first reading. Only the researchers will have access to data collected (videotapes, children’s writing, and scoring protocols). All data will be stored in a locked file cabinet in the primary researcher’s office at LSU. As noted in #11 below, children’s names will be masked if their written products are used in presentations or publication of the results of this study.

3. **Risks:** There are no known risks associated with participation in this study.

4. **Benefits:** Participating children will receive individualized support as they engage in high-quality literacy interactions with experts in early literacy development. The study may identify benefits or obstacles to the use of widely available digital books in early childhood classrooms.

5. **Investigators:** The following investigators will be available for questions; Dr. Renée Casbergue, School of Education, LSU, (504) 813-4263 and Dr. Karen Burstein, iTether Technologies, Inc., 480.329.0680

6. **Site:** All activities will take place in or just outside the children’s kindergarten classroom at KDHSA.

7. **Number of subjects:** 30 to 40 children will be able to take part in the study.

8. **Inclusion criteria:** Children enrolled in kindergarten who are 5 to 6 years old with no identified intellectual disabilities and who speak English.

9. **Exclusion criteria:** Children who do not meet the age requirement, have an IEP for intellectual challenges, or do not speak English.

10. **Right to refuse:** Participation is voluntary, and a child will become part of the study only if both child and parent agree to the child's participation. At any time, either the child may withdraw from the study or the child’s parent may withdraw him or her from the study without penalty or loss of any benefit to which they might otherwise be entitled. If a child wishes to stop participating in study activities, he or she will immediately return to ongoing classroom activities.

11. **Privacy:** Results of the study may be presented at a research conference and published, but children’s full names or identifying information will not be disclosed. If a child’s writing sample is used, the child’s name will be masked if he or she included it in the writing. In this way, child identity will remain confidential.
12. **Financial Information:** There is no cost for participation in the study, nor is there any compensation to the subjects for participation.

13. **Signatures:** This study has been approved by the LSU IRB. If you have questions about subjects' rights or other concerns, you can contact Dennis Landin, Chairman, Institutional Review Board, (225) 578-8692, irb@lsu.edu, or www.lsu.edu/research.

The study has been discussed with me and all my questions have been answered. I will allow my child to participate in the study described above and acknowledge the investigator's obligation to provide me with a signed copy of this consent form.

Child’s Name: _________________________________________________________

Parent’s Signature: ______________________________ Date: __________________

Parent’s e-mail: _____________________________________________ (please print)

Parent’s phone: _____________________________________________ (optional)

*Reader’s signature (to be completed only if the parent is unable to read)*

The parent/guardian has indicated to me that he/she is unable to read. I certify that I have read this consent form to the parent/guardian and explained that by completing the signature line above he/she has given permission for the child to participate in the study.

Signature of Reader: ____________________________ Date: _____________________

**Child Assent:** (Parents, if you approve of your child’s participation, please read this to your child and have him or her sign to indicate understanding of what he/she will be asked to do. Then sign as a witness.)

I, __________________________________________, agree to be in a study that will look at writing after reading a regular book and a book on an iPad. I will listen to two stories, read the stories again with a friend, and then write for a few minutes about a picture from the story. I will be audio or video recorded. I have to follow all the classroom rules, even when I am working with the researcher. I can decide to stop being in the study at any time without getting in trouble.

Child’s Signature: ______________________________ Age: _____ Date: ________________

Witness* ______________________________ Date: ________________

* (N.B. Parent must witness the child’s assent to participate.)
APPENDIX C. ADMINISTRATOR PERMISSION FORM

Administrator Permission Form

1. **Study: Investigating the Impact of Digital vs. Traditional Books on Written Responses to Stories**

2. **Purpose:** This research project is designed to examine the impact of digital vs. traditional books on children’s written responses to stories. A researcher will read aloud either a high-quality digital storybook via hand-held device or a matched traditional book to two children at a time. The children will then reread the book together without assistance from the researcher. Their interactions with the book will be videotaped to document what aspects of the book they attend to, and gestures and comments while reading that indicate their comprehension of the story. Immediately afterward, each student will be presented with a picture resembling an event in the book and asked to write about it for 5 minutes. Each child’s writing will be evaluated using a scoring protocol adapted from the standardized *Test of Early Written Language*. Within two weeks of the first reading, the pairs of children will repeat the same process for the alternate version of the book (digital or traditional). Only the researchers will have access to data collected (videotapes, children’s writing, and scoring protocols). All data will be stored in a locked file cabinet in the primary researcher’s office at LSU. As noted in #11 below, children’s names will be masked if their written products are used in presentations or publication of the results of this study. The school site will not be publicly identified in any presentations at professional meetings or in any resulting publications.

3. **Risks:** There are no known risks associated with participation in this study.

4. **Benefits:** Participating children will receive individualized support as they engage in high-quality literacy interactions with experts in early literacy development. The study may identify benefits or obstacles to the use of widely available digital books in early childhood classrooms.

5. **Investigators:** The following investigators will be available for questions; Dr. Renée Casbergue, School of Education, LSU, (504) 813-4263 and Dr. Karen Burstein, iTether Technologies, Inc., (480) 329-0680

6. **Site:** All activities will take place in or just outside the children’s kindergarten classroom at KDHSA.

7. **Number of subjects:** 30 to 40 children will be able to take part in the study.

8. **Inclusion criteria:** Children enrolled in kindergarten who are 5 to 6 years old with no identified intellectual disabilities and who speak English.

9. **Exclusion criteria:** Children who do not meet the age requirement, have an IEP for intellectual challenges, or do not speak English.

10. **Right to refuse:** Participation is voluntary, and a child will become part of the study only if both child and parent agree to the child’s participation. At any time, either the child may withdraw from the study or the child’s parent may withdraw the him or her from the study without penalty or loss of any benefit to which they might otherwise be entitled. If a child wishes to stop participating in study activities, he or she will immediately return to ongoing classroom activities.
11. **Privacy:** The name and specific location of the school will be kept anonymous. Results of the study may be presented at a research conference and published, but children’s full names, the name of the school, or identifying information will not be disclosed. If a child’s writing sample is used, the child’s name will be masked if he or she included it in the writing. In this way, school and child identity will remain confidential.

12. **Financial Information:** There is no cost for participation in the study, nor is there any compensation to the subjects or to the school for participation.

13. **Signatures:** This study has been approved by the LSU IRB. If you have questions about subjects’ rights or other concerns, you can contact Dennis Landin, Chairman, Institutional Review Board, (225) 578-8692, irb@lsu.edu, or www.lsu.edu/research. (For all questions related to details of this particular study, please contact one of the researchers specified in number 4 above.)

The study has been discussed with me and all my questions have been answered. I will allow the study described above to take place at Kenner Discovery Health Sciences Academy and acknowledge the investigator’s obligation to provide me with a signed copy of this consent form.

Administrator’s Name and Position: ____________________________________________

Administrator’s Signature: ___________________________ Date: ________________

Administrator’s e-mail: ____________________________ (please print)
REFERENCES


VITA

Julie Parrish has over 25 years of public education experience in Texas. She began her teaching career working with infants and toddlers with special needs in 1988 after graduating from the University of Texas at Austin. Her journey as a teacher has taken her through classrooms that served prekindergarten students with special needs, kindergarten students, 5th grade students, 3rd grade students, and 1st grade students. She received her Master of Education Degree in Reading and then worked as a reading intervention teacher, Education Service Center consultant, and Elementary English Language Arts Coordinator. She anticipates graduating with her Doctor of Philosophy Degree in Curriculum and Instruction in August 2020.