A QUALITATIVE UNDERSTANDING OF TEACHING IN AN
EBOOK EQUIPPED EARLY ELEMENTARY CLASSROOM

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A QUALITATIVE UNDERSTANDING OF TEACHING IN AN
EBOOK EQUIPPED EARLY ELEMENTARY CLASSROOM

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ABSTRACT

The purpose of this investigation will be to describe how, when provided access and instruction, early elementary teachers use ebooks to support learning in the classroom. The teachers in this study represent kindergarten, first and second grade teachers from three suburban districts in the Midwest region of the United States. There is a high likelihood that ebooks will become an integral piece of the early childhood classrooms within the next 3 to 5 years. Currently, there is a limited research that explores their potential impact for curriculum and instruction.

The study will focus on the instructional practices and techniques early elementary teachers use with ebooks to support learning, perceived personal and professional indicators teachers use for selecting high-quality ebooks for use in their classroom, and the challenges and opportunities early elementary teachers experience. These understandings will be pursued through a qualitative basic interpretive process in an effort to describe the experiences of participants in ebook-equipped classrooms. This qualitative approach will use the TPACK framework to investigate the process that occurs as teachers adapt their pedagogical approaches to use ebooks to support learning in the early elementary classroom.
The findings from this study indicated the following three major themes: (a) early elementary teachers using ebooks extend and adapt familiar practices to support learning; (b) early elementary teachers select ebooks for use in their classroom based on genre, content area connections, and digital features that enhance literary content; and (c) the opportunities of ebooks for instruction outweigh challenges they present. This study has the potential to impact the nature of illustrating the methods and techniques used by the three participants as they merge technology, pedagogy, and content knowledge and set in motion classroom practices that integrate ebooks into the early elementary classroom to support student learning.
# TABLE OF CONTENTS

| LIST OF TABLES | xi |
| LIST OF FIGURES | xii |

## CHAPTER

### I. STATEMENT OF THE PROBLEM

- Introduction
- Statement of the Problem
- Purpose of the Study
- Research Questions
- Conceptual Framework
- Significance of the Study
- Summary

### II. REVIEW OF THE LITERATURE

- Introduction
- A Brief History of Children’s Literature
- Benefits of Children’s Literature
- Benefits of Children’s Literature in Teaching Reading
- Facilitating Language Development
Increasing Reading Skills, Strategies and Achievement .......................... 19
Enhancing Writing Skills ........................................................................ 19
Encouraging Higher-Level Thinking ...................................................... 20
Reading Motivation ................................................................................ 21
Encouraging Learner Involvement ........................................................... 21
Ebooks .................................................................................................... 22
Ebook Features ....................................................................................... 24
Ebooks in Support of Literacy Development ........................................... 26
Ebooks Engage ......................................................................................... 28
Ebooks Provide Scaffolding ..................................................................... 28
Ebooks to Support Comprehension and Vocabulary ............................... 29
Ebooks in the Classroom .......................................................................... 30
Technological Pedagogical Content Knowledge (TPACK) ....................... 30
Research on TPACK and Literacy Teaching and Learning ...................... 34
Conclusion .............................................................................................. 35

III. METHODOLOGY .................................................................................. 37
A Qualitative Approach to Research ...................................................... 37
Research Questions ................................................................................... 39
Researcher Role and Ethics ..................................................................... 40
Epistemology – Constructivism ............................................................... 42
Methodology – Interpretive Qualitative Research .................................... 43
The Digital Text Initiative ......................................................................... 44
APPENDIX H: SAMPLE LESSON PLAN – DAWN .................................................. 178

APPENDIX I: EBOOK QUALITY RATING TOOL CRITERIA................................. 180
LIST OF TABLES

Table                                             Page

1. Types of Children’s Ebooks................................................................. 26
2. TPACK Constructs................................................................................. 34
3. DigiTXT Participants............................................................................. 47
4. Teacher Participants............................................................................... 49
5. Key Characteristics of Children’s Ebook Quality ..................................... 51
6. Data Collection Points............................................................................. 53
7. Teacher Participant Profiles................................................................. 76
8. Code Instance Criteria for Knowledge Domain Circle Size....................... 78
9. Code Instance Criteria for Knowledge Domain Overlap Size..................... 78
10. Summary of Key Before, During, After Reading Strategies .......................... 91
11. Summary of Key Characteristics of Digital Features for Selecting Ebooks ...... 105
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>TPACK framework (Mishra &amp; Koehler, 2006)</td>
<td>32</td>
</tr>
<tr>
<td>2.</td>
<td>DigiTXT Model</td>
<td>45</td>
</tr>
<tr>
<td>3.</td>
<td>DigiTXT Touch Points</td>
<td>46</td>
</tr>
<tr>
<td>4.</td>
<td>Screenshot of Online Tutorial</td>
<td>50</td>
</tr>
<tr>
<td>5.</td>
<td>Sample of the Ebook Quality-Rating Tool, Version 4</td>
<td>64</td>
</tr>
<tr>
<td>6.</td>
<td>Katie’s TPACK Profile</td>
<td>80</td>
</tr>
<tr>
<td>7.</td>
<td>Denise’s TPACK Profile</td>
<td>83</td>
</tr>
<tr>
<td>8.</td>
<td>Dawn’s TPACK Profile</td>
<td>86</td>
</tr>
<tr>
<td>9.</td>
<td>Oral Reading Strategies by Grade Level</td>
<td>93</td>
</tr>
<tr>
<td>10.</td>
<td>Ebook Selection by Grade Level</td>
<td>99</td>
</tr>
<tr>
<td>11.</td>
<td>Content Area Connections by Grade Level</td>
<td>102</td>
</tr>
<tr>
<td>12.</td>
<td>Engagement Features by Grade Level</td>
<td>111</td>
</tr>
<tr>
<td>13.</td>
<td>Digital Book Handling Challenges by Grade Level</td>
<td>118</td>
</tr>
<tr>
<td>14.</td>
<td>Recommendations for Standardized Digital Book Handling Icons</td>
<td>143</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

It is a cool and crisp fall morning in a second grade classroom in the Midwest United States. Students are scurrying about, readying themselves for the day. The teacher tends to routine tasks such as attendance and lunch count.

“Friends, if you get yourself organized and ready before the announcements come on, how can you be using your time,” she asks her class.

“Play on the iPads,” chimes in a young boy with more than a hint of excitement in his voice.

“We’re not playing, Matthew! We’re reading our ebooks,” scolds the little girl next to him.

“I know,” replies Matthew, “but it’s so fun it doesn’t seem like reading some old book.”

In the suburban Midwest, armed with Touchscreen PCs, mobile devices like iPad and iPod Touch, as well as a collection of ebooks in their classroom libraries, a small group of dedicated teachers begin blazing a trail to the new frontier in literacy instruction: teaching in the ebook-equipped classroom.

Literature is a term that is commonly used to describe written or print material. The function of literature varies between different people and in different cultures (Hernadi, 2001, pp. 55-71). Across cultures and civilizations, ideas about
what is considered literature have changed and evolved over time, but at the heart of literature lies the human condition. With this in mind, we can consider literature as the shaping of the human condition into the forms and conventions of language. No matter what the language, to tell our stories, we blend words as well as pictures, fiction along with nonfiction, printed and digital materials, in an attempt to help the reader perceive relationships, feelings and a vivid recreation of experience. The aesthetic experience of literature illuminates our life by shaping our insights and has two constants; book and reader.

Literature for adult audiences has a long history, but prior to the 19th century, very few books were written for the enjoyment of children. By this time, most books were printed using the codex format, our familiar form of book with folded leaves and cover bound together. Ranging from fiction to drama to poetry, children are often captivated by the stories found in the pages of a good book. So then what is a children’s book? Long considered one of the original theorists of children’s literature, Charlotte Huck said, “Children’s books are books that have the child’s eye at the center” (Huck, Kiefer, Hepler, & Hickman, 2004, p. 5).

While so many children take delight in books, they can do much more than entertain. In 1996, the National Assessment of Educational reported that children who read for enjoyment out of school regularly are better readers. Other researchers have concluded that the more time children spend reading literature, the better their reading and writing skills become (Cohen, 1968; Fox & Allen, 1983; Loban, 1963). Within the literature base, storybook reading or reading aloud to
children appears as a key factor in assisting early literacy acquisition (Hiebert, 1988; Mason & Allen, 1986; Morrow et al., 1990; Teale & Sulzby, 1987). As a outcome of being read to from an early age, either at home or in school, substantial growths have been discovered in children's comprehension and vocabulary skills (Cohen, 1968), phonological awareness (Irwin, 1960), story structure concepts (Applebee, 1978), expository text structure (Pappas & Brown, 1987), and understanding of interactional patterns (Snow & Goldfield, 1983).

In practice, teachers use children's literature, books, poems, magazines, and other print materials within the context of the curriculum to support, scaffold and nurture important emergent literacy concepts like alphabet knowledge, rhyming, concepts about print, vocabulary acquisition and comprehension. Storybooks have traditionally been the genre of choice for sharing with young children. Anderson, Wilson, and Fielding (1988) determined teachers who afford time for sustained silent reading, share books with children during the school day positively influence those children's reading outside of school.

The digital equivalent to the storybook, ebooks for young children are proliferating, and increasingly viewed as an appropriate source for literacy exposure to books and reading. Microsoft and Adobe were some of the first companies to develop an ebook format that could be easily downloaded to computer-based devices. As with traditional literature, the market for ebooks was initially aimed at adults. These simple ebooks were essentially digital copies of printed codex books and were typically accessed on an “eReader,” a type of small
handheld device used for storing and accessing ebook titles. As digital technologies and devices have continued to evolve and improve, we are beginning to see a larger market for ebooks aimed at children, or children’s e-literature. In 2011-12, for example, ebooks made up 17.5% of the children trade segment and net sales revenue from ebooks has surpassed hardcover books in the first quarter of 2012 (Boog, 2012).

Still, as ebooks surge in popularity, we know relatively little about what makes an ebook a good ebook for the early elementary classroom, particularly in relation to new common core state standards (e.g., text complexity, close reading) (Boyles, 2013; Shanahan, Fisher, & Frey, 2012). With the electronic book a rapidly growing alternative to the traditional book in reading programs, there is an increasing need for classroom-based tools that support ebook selection and use in reading education and instruction.

Ebooks for young children are like storybooks we know and love in many ways. But they are also different in ways that profoundly change the storybook as a source of early literacy experiences. As educators consider adopting ebooks as instructional resources, the social and literacy affordances of educational technologies should be considered to inform the use of ebooks. For example, Gunn and Simmons (1995) synthesize that exposure to print, phonological awareness and letter identification all promote emergent literacy development and can be taught using traditional books. All of these instructional approaches can not only be incorporated into a storybook reading experience, but also integrated into ebook
reading with young children. Moody (2010) seems to support these claims by pointing to two theoretical perspectives, reading engagement and scaffolding, that provide momentum for the use of ebooks to support children’s emergent literacy development. As education practitioners evaluate potential instructional resources to support students emerging literacy skills in the classroom, these criteria should be used to inform the use of ebooks in the curriculum.

**Statement of the Problem**

Ebook literacy research efforts are in their infancy, however early studies suggest that multimedia features can improve inference skills in story reading and that game-like interactivity can stimulate story comprehension and word learning, especially when children’s attention is guided to these purposes (De Jong & Bus, 2002). In many ways, ebooks are beginning to transform reading instruction. Whether this transformation is positive or negative may be unknown, but we do know that ebooks seem to be here to stay.

So how does an ebook fit into the early childhood classroom where teachers and children often like to gather around a good storybook on a rug or in the book corner? Truth be told, we know relatively little about how to choose and use “good” ebooks in early elementary classroom. Research on what this evolution means for early literacy learning is young, but pioneer studies are promising and point to the potential of these new digital features for supporting children’s emerging literacy skills. At this time, more research is needed to not only to understand how ebooks
impact early literacy development and learning processes, but also to understand how to use them well in early elementary classroom.

**Purpose of the Study**

The purpose of this investigation will be to describe how, when provided access and instruction (i.e., professional development on technology and an ebook instructional model), early elementary teachers use ebooks to support learning in the classroom. The study will focus on the instructional practices and techniques early elementary teachers use with ebooks to support learning, perceived personal and professional indicators teachers use for selecting high-quality ebooks for use in their classroom, and the challenges and opportunities early elementary teachers experience. These understandings will be pursued through a qualitative basic interpretive process in an effort to describe the experiences of participants in ebook-equipped classrooms. This qualitative approach will use the technological pedagogical content knowledge (TPACK) framework to investigate the process that occurs as teachers adapt their pedagogical approaches to use ebooks to support learning in the early elementary classroom.

**Research Questions**

There is a high likelihood that ebooks will become an integral piece of the early childhood classrooms within the next 3 to 5 years. Currently, there is a limited research that explores their potential impact for curriculum and instruction. The study was guided by the following questions:
1. In what ways do early elementary teachers use ebooks to support learning in the classroom?

2. What kinds of criteria do early elementary teachers use to select ebooks for use in their classroom?

3. What challenges and opportunities do early elementary teachers encounter when using ebooks in the classroom?

**Conceptual Framework**

A “conceptual framework is the underlying structure...that sets forth a vision...and provides a theoretical and empirical foundation” for the direction of a study, as defined by the National Council for Accreditation of Teacher Education’s (NCATE) Professional Standards for the Accreditation of Schools, Colleges, and Departments of Education (2001, pp. 8-9). Smyth (2004) contributed, “When clearly articulated, a conceptual framework has potential usefulness as a tool to scaffold research and, therefore, to assist a researcher to make meaning of subsequent findings” (para. 2). Thus, I relied upon the work developed by Shulman (1986) and expanded upon by Mishra and Koehler (2006) and their studies in relation to technology, pedagogy, and content knowledge (Figure 1) in order to better position the principle foci of this study. TPACK is a theoretical framework which became the basis for conducting this study and established the context from which emerged the study’s design and theoretical perspective of socially constructed knowledge as it related to developing an understanding of how, when provided access and instruction (i.e., PD on technology and an ebook instructional
model), early elementary teachers used ebooks to support learning in their classroom.

As the gap between what we know about effective pedagogical approaches for integrating information and communication technologies (ICT) in the classroom and the emerging technologies widens, it is vital that researchers cultivate an applicable methodology for measuring and affecting change in professional development that will ultimately lead to evolution in pedagogy. The origins of this methodology come from the work of Koehler, Mishra and Yahya (2007), who developed the TPACK framework (Figure 1). Since the inception of TPACK, other researchers (Archambeault, Wetzer, Foulger & Williams, 2010; Harris & Hofer, 2011; Ward, Lampner, & Savery, 2009; Williams, Foulger, & Wetzel, 2009) have used the framework as a parameter for investigating teacher professional learning. The TPACK framework centers researchers on the connection between teachers’ technological knowledge, knowledge of teaching, and the necessities for their content areas. When used as a guide for professional development for teachers, the TPACK framework may help support teachers as they adjust their pedagogy to include the tools, such as ebooks, widely accessible to today’s learners. A more detailed review of the TPACK model and components can be found in Chapter II.

While teachers have been using children’s literature and picture books as a part of reading instruction for years, there is little research that documents instructional strategies incorporating digital text, i.e., ebooks, to support learning in the early elementary classroom. Additionally, there was little research describing
the nature of the experiences of early elementary teachers as they attempt to develop adaptable methods for selecting high-quality ebooks for use in their classroom. The research that has been done on ebooks focused mainly on the internal instructional design of the ebook as a literacy learning resource for young children (Anderson-Inman and Horney, 1997; Labbo and Kuhn, 2000; Roskos & Brueck, 2009) while others examined how ebooks may support emergent literacy development through engagement and scaffolding (Moody, Justice & Cabell, 2010) as well as vocabulary development and comprehension (Roskos, Burstein & You, 2012). Thus, research that focused on the pedagogical approaches and experiences of early elementary teachers and their students is still underrepresented. This study sought to situate literacy instruction with children’s ebooks within the broader spectrum of literacy categories currently in place as well as describe the experiences of early elementary teachers as they cultivate the emergent skills necessary to fully integrate technology into their classroom and meet the literacy needs of kindergarten through grade two students at public elementary schools.

Describing the experiences of early elementary teachers as they interact with technology and also with students, may offer a more robust understanding of how teachers and students construct knowledge in a digital networked world. Investigating the teaching experiences of early elementary teachers in an ebook-equipped classroom, as they interact with technology and students, may also render rich data about “the complexity of views” held by early elementary teachers
and the potential “subjective meanings of their [literacy instruction] experiences” (Creswell, 2009, p. 8).

In a digital-age society, there is a vast need to position technology use within an educational framework that includes access to technology and provides direction regarding how to best use it in a learning environment. Educational entities struggle to understand the kinds of criteria early elementary teachers should use to select ebooks for use in their classroom and ways in which to integrate ebooks as a component of teaching in order to construct meaning within various literacy contexts and meaningful experiences in the classroom.

**Significance of the Study**

Participants in this study were invited to participate in an eTech Ohio Teacher Planning Grant (DigiTXT) through referrals from school administrators. The participants were selected by their school administration based upon high levels of proficiency in utilizing technology for instruction. The participants were asked to incorporate ebooks, iPod Touches and a touchscreen computer for teaching literacy in kindergarten through second grade (K-2). During the DigiTXT program, participants provided written reflections and ebook quality ratings that they used to plan, implement, and modify their ebook instructional techniques. These reflections and ebook ratings served as the catalyst for a series of ongoing interviews with the participants throughout a 9-month period. These data sets provided insight into the nature and essence of teaching in an ebook-equipped classroom, developing the significance of this study on three planes.
First, this study is significant in the domain of early literacy education because of its emphasis on the emerging role of the ebook as a curricular resource in the early elementary grades. Second, this study is significant to the educational technology world because of its emphasis on using information and communication technologies (ICT) as an integrated piece of classroom instruction. This shift to digital resources reflects the synthesized nature of ICT-based experiences and underscores the viability of such experiences. Finally, this study is significant to the world of curriculum theorization because of the transformative decision-making capacity of such an experience. Teachers participating in such an experience are exposed to multiple perspectives and provided opportunities to make decisions based on current need, as opposed to overarching doctrine.

Summary

The goal of this study was to describe ways early elementary teachers use ebooks to support learning as they integrate ebook technology in their pedagogy. Chapter I provided a general introduction situating the issues surrounding the challenges I identified and posed the research questions. Chapter II reviews the literature around early literacy instruction and ebooks for young children. Chapter III presents the research design employed, emphasizing the rationale for selecting a qualitative approach, constructivist theory, and basic interpretive qualitative methodology through the use of semi-structured interviews, surveys, written reflections, video recordings of reading instruction, lesson plans and ebook quality ratings for collecting data. Chapter IV describes the findings through the lens of the
TPACK framework. Chapter V provides discussion, cites implications and recommendations for early literacy instruction and offers suggestions for further research. The chapter concludes with my reflexivity statement on this research.
CHAPTER II

REVIEW OF THE LITERATURE

Introduction

Today’s tech savvy young learners are often equipped with a new form of children’s literature, the ebook. Just like a favorite picture book, toy or puzzle, it is something they’ve always known and read. Many may even think of the ebook first when they think of reading. However, teachers who received their teacher training before the advent of the ebook may be intimidated by the medium, unfamiliar with it, or not interested in ebooks at all. Regardless, eBooks are here to stay. This chapter will provide a survey of published works in the area of reading and literature, literature for children, benefits of children’s literature, benefits of book reading in the classroom, emergence of ebooks as a new medium, and finally, the affordances of ebooks. The chapter concludes with an investigation of instruction in an ebook-equipped classroom within the contextual framework of TPACK components and technology’s influence on teaching early elementary students.

A Brief History of Children’s Literature

Over time society’s ideas about what is considered literature have evolved. From the early cave paintings of prehistoric people to the advanced technologies of today, literature has had a long and varied life, but, at the heart of literature, lies the
human condition. With this in mind, one can consider literature as the shaping of the human condition into the forms and conventions of language. No matter what the language, to tell our stories, we blend words as well as pictures, fiction along with nonfiction, printed and digital materials, in an attempt to help the reader perceive relationships, feelings and a vivid recreation of experience. The aesthetic experience of literature illuminates our life by shaping our insights and has two constants; book and reader.

While defining literature is a murky task, so to is pinpointing precisely when books began to be written with children as their intended audience. However, there is some agreement among educators that children’s books mirror the historic times and viewpoints of children during the time in which they were published. For example, during the 16th and 17th centuries, didactic stories with religious and moral implications were popular. Hornbooks with religious verses, myths, legends and books such as John Bunyan’s *Pilgrim’s Progress* were the children’s literature of the time. As people began to travel, explore and discover new lands in the 18th and 19th centuries, travel and adventure stories became more abundant. Books such as *Gulliver's Travels* and Grimm’s *Fairy Tales* appear during this time. The first known publishing house to cater to a child audience, John Newbery’s, emerges during this time as well. Newbery wrote one of the first books for children, an alphabet book titled *A Little Pretty Pocket Book*. The 19th century also saw the appearance of magazines for children. *St. Nicholas Magazine*, the most famous, started publication in 1872 and continued into the 20th century.
While some books and magazines were produced for a child audience, it was not until the late 20th century that children’s books became widely available. By this time, most books were printed using the codex format, the present day familiar form with folded leaves and covers bound together. In previous decades, folk and fairy tales were the mainstay of children’s books. However in the late 20th century, divisions of genres of children’s literature as we know them today began to develop, ranging from fiction, including realistic and historical fiction, to drama to poetry, picture books to fantasy and science fiction, and so on. Additionally during this time, books began to be written explicitly as teaching aids for children, with the purpose of motivating them to read and learn about the world. In a dramatic shift from being seen simply as entertainment, children’s literature started to play a significant role in schools and classrooms.

**Benefits of Children’s Literature**

Children’s literature can serve several purposes, including aesthetic, psychosocial, and instructional. Rosenblatt (1995) categorized readers' involvement in a text along a continuum. Aesthetic reading, at one end of the continuum, is reading for entertainment in which the person is pulled into the story and partakes by identifying with the characters. With aesthetic reading, the primary goal is reading for pleasure or entertainment. Good children’s literature provides enjoyment for the reader. To master the skills of reading, a child must first enjoy books. According to Nell (1988), reading for enjoyment is a form of play that allows children to experience other roles and worldviews in their imagination.
Reading for enjoyment has positive impacts on the development of literacy skills and knowledge such as phonics, fluency and comprehension. It also leads students to “acquire an increased vocabulary, develop the ability to understand and use complex grammatical constructions, develop a good writing style, and become good spellers” (Krashen, 1993). At the opposite side of the continuum is efferent reading. Here, the reader is primarily reading to gain information. Young children tend to operate along various points on Rosenblatt’s continuum, interacting with books for both enjoyment and learning.

There are several psychosocial uses for literature with young children. First, children can identify with characters and events that good literature can provide. This allows children to investigate their own emotions, actions and beliefs. Another important characteristic of good children's literature, according to Temple, Martinez, Yokota, and Naylor (1998), is the degree to which it “tells the truth” about the human experience (p. 10). Good literature develops children’s imagination and helps them consider people and ideas in new ways. Hancock (2000) suggested that children's literature is a powerful tool to teach children about the world, themselves, and others. Through their reflection of life, children’s books can also provide insight into life and human behavior by “offering multiple perspectives, current information, engaging writing style, personal voice, options for varied reading levels, rich language, and interesting formats and structures” (Tunnell & Jacobs, 2000).
While children take delight in books, they can do much more than entertain and socialize. They can be used for instruction that benefits language and literacy development. This language and literacy development presents one of the most persuasive rationales for sharing literature with young children. The value of reading to children has been recognized for years by researchers, educators, and parents. The beneficial effects of reading to preschool children have been documented in numerous studies (Scarborough & Dobrich, 1994). Wells’ (1985) correlational study on the effects of picture book reading found that the frequency of listening to stories between the ages of 1 and 3 years was significantly associated with literacy and oral language skills as measured at age 5 by the children’s teachers. There is a wide body of research that supports the importance of children’s literature in teaching young children to read.

**Benefits of Children’s Literature in Teaching Reading**

Research findings confirming the benefits of using children’s literature for teaching reading have led to more prevalent use in the classroom. A review of the literature indicates a number of advantages to using children’s literature including:

(a) facilitating the development of language (Chomsky, 1972; Cullinan, 1987; Cullinan et al., 1974; Fuhler, 1990; Funk & Funk, 1992; Giddings, 1990; Huck et al., 1987; Kolczynski, 1989); (b) increasing reading achievement and enhancing reading skills and strategies (Bader et al., 1987; Cohen, 1968; Cullinan et al., 1974; D’Alessandro, 1990; Eldredge & Butterfield, 1986; Feitelson, Kita, & Goldstein, 1986; Freppon, 1991; Fuhler, 1990; Funk & Funk, 1992; Goodman, 1989; Huck et
Facilitating Language Development

Psycholinguistic research has shown that language is not learned via formal instruction, but rather acquired. Children learn from the language that they hear in their environment. According to Kolczynski (1989), children’s literature exposes children to language, both oral and written. It also provides strong language models (Cullinan, 1987; Fuhler, 1990; Funk & Funk, 1992; Huck et al., 1987). Chomsky’s (1972) work has shown high correlation between children’s stages in linguistic development and their previous exposure to literature in children aged five to ten.

In addition to providing language models, children’s literature develops and enhances language skills and understanding. Kolczynski (1989) and Giddings (1990) stated that the natural language used in children’s books encompasses a rich vocabulary, sentence structure, and literary form, superior to the controlled vocabulary and syntax seen in basal readers. Reading comprehension and
vocabulary both can be taught in context through the use of children’s books (Funk & Funk, 1992; Kolczynski, 1989).

**Increasing Reading Skills, Strategies and Achievement**

Children’s literature is effective for enhancing reading skills and strategies (Fuhler, 1990; Funk & Funk, 1992; Goodman, 1986; Huck et al., 1987; MacGlashan, 1989; Rosaen & Cantlon, 1991). Students who are taught with literature use varied, more balanced reading strategies (Freppon, 1991). In addition, Freppon reports that students taught with literature associate reading with meaning making and language, as opposed to simply pronouncing words correctly.

Using children’s literature has shown to significantly increase reading achievement, as Bader et al. (1987) and Eldredge and Butterfield (1986) have shown that the use of children’s literature has significantly positive effects on reading achievement. Furthermore, Bader et al. (1987) conclude success in reading and the development of reading habits is largely dependent on literary exposure throughout preschool years at home and during the first few years of school. The work of Tunnell and Jacobs (1989) showed that when literature-based instruction is used, significant increases in overall reading achievement and reading comprehension were realized in reading disabled fifth-grade students.

**Enhancing Writing Skills**

Reading and writing are complimentary, interrelated processes that are used to construct meaning (Funk & Funk, 1992; Tierny & Pearson, 1983), and another advantage of children’s literature is that it enhances writing skills and
styles. Woodfin (1968) in a study examining relationships between gender, intelligence, reading level, language, socioeconomic status, and free writing, notes that the best predictors of writing ability are language ability and reading level. Thus, Funk and Funk (1992) and Kolczynski (1989) suggested that if language is enhanced by reading and by listening to children's literature, this language growth will be revealed in students' writing as well. Additionally, children learn structure from reading and they use these structures in their writing. DeFord (1981) and Eckhoff (1983) reported that a child's writing and linguistic structure matches the structure of the text he or she uses. Children's literature exposes students to good models of writing that provide a variety of literary forms and structures, as well as a wide range of literary elements and children exposed to literature tend to use complex sentences and elaborate structures.

**Encouraging Higher-Level Thinking**

Children's literature can facilitate in the teaching of higher-level thinking skills (Cullinan, 1987; Felsenthal, 1989; Pearson, 1985). Pearson (1985) emphasizes that the questions asked in basal readers often are low-level, literal questions. Focus should be on higher-level thinking and critical reading skills and the use of children's literature can assist teachers in achieving these goals. According to Fisher and Hiebert (1990), students who are taught with literature spend more time in learning tasks with higher cognitive complexity. Teacher use of children's books can guide questioning and discussion into a higher level of
taxonomy, enabling children to compare and contrast, synthesize, and evaluate within and between different pieces of literature.

**Reading Motivation**

Yet another benefit to utilizing children's literature in the classroom is that it motivates students to read. Larrick (1987) noted, "With our children we seem to stick to mechanistic skill-and-drill, which appeals neither to the intellect nor to the emotions" (p. 187). Children's literature makes reading both meaningful and enjoyable, which in turn motivates students to read. Literature has the power to evoke emotions and meaning is heightened when the literature relates to important matters in children's lives (Giddings, 1990). Finally, literature provides a mechanism to explore values, attitudes, morals, and ethical considerations, more than any other area of the curriculum (Somers & Worthington, 1979).

**Encouraging Learner Involvement**

When interesting children's books are used, learner involvement increases. Studies by both Eldredge and Butterfield (1986) and Tunnell and Jacobs (1989) cited a significant increase in positive attitudes towards reading when children's literature is used. This is significant because as Yetta Goodman (1989) noted, content is understood only when learners are actively involved in their own learning. Passive participation in what should be an interactive process contributes to many problems experienced by poor readers (Johnson & Winograd, 1985). For them, reading is not meaningful. The use of literature allows students to become more actively involved in shaping their learning tasks (Fisher & Hiebert, 1990).
When reading is meaningful, it becomes enjoyable (Funk & Funk, 1992; Huck et al., 1987; Tunnell & Jacobs, 1989).

While, there are numerous research findings confirming the benefits of using children’s literature for teaching reading over the last 40 years or more, an emerging new form of children’s literature is appearing in early elementary classrooms, the ebook. Educators are interested in the use of new reading technologies, such as the ebook, to support young emergent readers, especially those who are at risk for reading failure.

**Ebooks**

An ebook, sometimes called an e-textbook or an e-text (Pace, 2001), is a copy of a book or text in a digital file format designed to be read on a screen of a mobile or handheld electronic device (Annand, 2008; Buzzetto-More, Sweat-Guy, & Elobaid, 2007). Michael Hart is widely credited with originating the concept of ebooks, when he founded the Gutenberg Project in 1971 and shared his plan to create an extensive source for books in plain text format and make them widely available to the public (Godwin-Jones, 2003).

Since about 2000, the market for ebooks has been steadily increasing (Lebert, 2009). Microsoft and Adobe were some of the first companies to develop an ebook format that could be easily downloaded to computer-based devices. As with traditional literature, the market for ebooks was initially aimed at adults. These simple ebooks were essentially digital copies of printed codex books and were typically accessed on an “eReader,” a type of small handheld device used for
storing and accessing ebook titles. As digital technologies and devices have continued to evolve and improve, we are beginning to see a larger market for ebooks aimed at children, or children’s e-literature (Vassilou, 2008).

In their most basic form, children's ebooks are computer files that act much like a book. They have traditional conventions like a title, pages, and chapters. However, they also can contain illustrations and hotspots that provide a navigation mechanism for the reader. A deeper look at children’s ebooks reveals a more complex form, a type of software that includes animations, sounds, videos, and a read-aloud function. Various terms have been used to refer to the spectrum of children's ebooks, including living books, talking books and CD-ROM books. For the purposes of this study, the researcher defines an ebook as information- or narrative-driven interactive text-based media intended for use by children.

Compared to their print counterparts, ebooks are portable, facilitating the easy transport of sizeable libraries with little physical effort. The mobility of ebooks allows them to be used in any place at any time via handheld or mobile devices. This portability provides learners with knowledge building that had been limited to what was physically portable (Felvegi & Matthew, 2012; Godwin-Jones, 2007). Accessible via wireless connections from a number of online sources (iBooks Store, Google Play, Amazon.com, Barnes & Noble), the ebook format has eroded the need for learners to rely on a printed copy of a text (Cumaoglu, Esra, & Torun, 2013).

There is an increasing integration and adoption of digital texts and ebooks in school libraries and classrooms across the United States. OverDrive, a leading
provider of ebooks to schools reported in October 2013 that school digital library website visits increased 252% over the preceding year (“Schools adopt,” n.d.).

Teachers are interested in using a variety of technologies to support young readers, especially students who are at risk, but there is sparse research to indicate what features in children’s ebooks represent quality literature.

**Ebook Features**

The investigation into what makes a good, workable, instructive, enjoyable ebook for young children is in its infancy, and little work has been done to catalogue the current body of children’s ebooks, let alone evaluate the quality. Pioneers in ebook research have been focusing on two main areas as they describe ebooks; literary content and digital features.

Certainly the established criteria of quality children’s literature apply to ebook texts. Strong features of good storybooks over the ages are similarly the features of enduring ebooks into the future: age-appropriate material that interests children (Kurkjian & Livingston, 2005), strong plots (Lukens, 2013), and rich characterizations of the human condition (Brown, 1995), are most likely the types of features we’d hope to find in a high-quality ebook. In this way, ebooks are very much like traditional books, and their literary or informational content can be judged by the same general criteria.

Several attempts have been made to describe ebook digital design and construction from a literacy learning perspective. Pioneers in this effort, Anderson-Inman and Horney (1997) proposed four criteria that distinguish the eBook from
other media: text presented visually on screen; presence of a book metaphor, i.e., a
table of contents, chapters, pages; an organizing theme or topic; multi-media to
support or enhance on-screen text. Focusing on the impact of eBooks on literacy
development, Labbo and Kuhn (2000) described ebook design and construction
from a considerate/inconsiderate text perspective. They observed that online
considerate text – true to the story line – supported literacy skills, such as word
recognition. From a squarely technical design perspective of ebooks for young
children, De Jong and Bus (2003) developed an analytic method that specified
digital elements of ebook construction. They coded a body of 55 commercial
eBooks for features of multimedia, interactivity, print quality, and quality of
*hotspots* (click locations for audio, images or animation). Their analysis revealed
generally weak designs in this set with many ebooks containing low quality
multimedia additions, limited interactivity between child and text, and,
unfortunately, hotspots irrelevant to the story line.

In a look across the wide spectrum of ebooks available for children, Roskos
and Burstein (2012) categorized ebooks into three categories: static ebooks (pdf
and epub files), media ebooks (web and mobile applications with audio and/or
video), and interactive ebooks (predominately mobile apps). For the purposes of
this study, the term ebook is meant to refer to any of the ebook types identified in
Table 1.
Table 1. Types of Children’s Ebooks

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>Static Ebooks</td>
<td>Often referred to as <em>eReaders</em>. Static ebooks are digital copies of traditional texts. Readers access the text using an eReader like the iPad, Nook or Kindle. eReader software sometimes provides enhancements like a search feature, highlighting &amp; notes option.</td>
</tr>
<tr>
<td>Media Ebooks</td>
<td>Encompassing a rather wide spectrum, Media ebooks can range from audio versions of a story to more of a movie-type presentation. Features may include narration, basic animations and print highlighting. These ebooks may be accessible through a web-browser or as a mobile app or file, and in some cases are limited to <em>video player</em> functionality. FWD/BCK, PLAY/PAUSE</td>
</tr>
<tr>
<td>Interactive Ebooks</td>
<td>These ebooks require varying levels of interaction between reader and book. Features range widely but can include user-controlled animations, tap-to-hear word pronunciations, built-in dictionaries/definitions, games and puzzles</td>
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</table>

**Ebooks in Support of Literacy Development**

Few studies have directly examined the instructional design and quality of the ebook as a curriculum resource in reading instruction (Roskos & Brueck, 2009), although studies focused on literacy development have peripherally observed design quality problems. Labbo and Kuhn (2000), for example, commented on the need for better-designed digital conventions, such as hotspots or pop-ups, to produce more considerate texts that support comprehension. Shamir and Korat
(2009) identified several high level design features beneficial for young learners, such as (a) oral reading with text highlights that illuminate the nature of print (e.g., word boundaries); (b) hotspot activation aligned with text; (c) a dictionary option that allows repeated action by the child; and (d) a game mode separate from text mode.

Early studies suggest that multimedia features in ebooks can improve inference skills in story reading (Trabasso & Van den Broeck, 1985) and that game-like interactivity can stimulate story comprehension (De Jong & Bus, 2003; Labbo & Kuhn, 2000, Korat & Shamir 2008) and word learning, especially when children’s attention is guided to these purposes (McKenna, 1998; Shamir & Korat, 2006). Ebooks have also been shown to motivate children to be active readers. When using ebooks, children tend to more naturally investigate words, images and interactives in the reading environment. It seems the ebook may invite play, and Gee (2003) indicates this is a powerful motivator for engaging with print.

The current body of research indicates that ebooks may support emergent literacy development through engagement and scaffolding (Moody, 2010). However, there is still a lack of empirical evidence that explains the extent to which ebooks support children’s emergent literacy development. Additionally, there is some evidence that indicates children’s ebooks may support comprehension and vocabulary development (Korat, 2010) and comprehension.
Ebooks Engage

Ebooks offer an engaging medium for young struggling readers, ease of implementation for classroom teachers, and opportunities for individual practice for all students. In a 2007 study, Moody found significantly higher levels of persistence favoring the e-storybook condition over the traditional storybook condition when measuring reading engagement in 3- to 6-year-old children from economically disadvantaged homes. More recently, findings by Roskos, Burstein and You (2012) indicate that preschool children were engaged and motivated with ebook use because of the multimedia interactivity within the text. Additionally, Wright, Fugett, and Caputa (2013) compared print and electronic books, and found that grade two students were more inclined to utilize reading resources when digital text was the medium rather than conventional print. Similar findings are seen in grade one students, where Ciampa (2012b) found that using ebooks in conjunction with a constructivist approach could increase motivation in beginning readers.

Ebooks Provide Scaffolding

Numerous theories of reading development recommend scaffolding as a foundational means to promote literacy development (Chall, 1996; Ehri, 1995). In addition to features found in a print book, ebooks provide scaffolding through narrations, animations and interactive media, which support young children who are developing emergent literacy skills. Scaffolds in ebooks include searching capacity, hyperlinks, audio and visual enhancements, and in some cases, hot-spot
pop-up definitions for words (Annand, 2008; Buzzetto-More, Sweat-Guy, & Eloaid, 2007). For users with learning difficulties or disabilities, ebooks offer text-to-speech capabilities and print highlighting, as well as allowing changes in font size (Ciampa, 2012a; Felvegi & Matthew, 2012), features which are not possible in print books. Moody (2010) found that early readers and students with learning disabilities benefit from the use of ebooks through due to the ability to explore literature with digital scaffolding supports. The digital scaffolds found in ebooks provide additional opportunities for independent practice and interactive exploration of a text, available even when an adult is not present to read with a child (Roskos, Brueck, & Widman, 2009).

**Ebooks to Support Comprehension and Vocabulary**

While the volume of research surrounding the benefits of ebooks on student motivation and scaffolding is growing, we know less about the extent to which ebooks can support comprehension and aid in vocabulary development. In a study by Korat (2010), it was found that oral reading of ebooks that include multimedia visuals might have a positive effect on word reading ability. Reading ebooks may also increase children’s phonological awareness (Chera & Wood, 2003) and story comprehension (Grimshaw, Dungworth, McKnight, & Morris, 2007). Additionally, Moody (2010) indicates the digital features of ebooks may play a role in providing scaffolding, which supports vocabulary development, engagement, and comprehension. Smeets and Bus (2012) found that the strategic positioning of
questions about word meanings—embedded instructional moments—improved learning of target words.

**Ebooks in the Classroom**

Ebooks for young children are like storybooks we know and love in some ways. While features of ebooks mirror those we see in traditional children's literature, ebooks add new, digital features. These digital additions to print are different in a manner that is profoundly changing the storybook as a piece of early literacy learning (Roskos et al., 2012). It is still uncertain the role that ebooks play or can play in enhancing early literacy instruction. What will teachers do with ebooks in the classroom? What instructional techniques and decisions will be made as teachers begin to incorporate these digital storybooks into their classroom curriculum. How will teachers know when their literacy instruction with an ebook is effective? Further research is needed to understand how early adopters of ebooks in the classroom use them to support learning.

**Technological Pedagogical Content Knowledge (TPACK)**

While information and communication technologies (ICT), such as ebooks, are becoming more widespread in schools, how teachers use ICT for teaching and learning remain a concern for teachers (Jimoyiannia, 2010; Polly, Mims, Shepherd & Inan, 2010). The work of Brush and Saye (2009) and Kramarski and Michalsky (2010) suggests teachers consider themselves insufficiently equipped for subject-specific use of ICT and a strong theoretical framework is lacking. To address these
challenges, technological pedagogical content knowledge (TPACK) has emerged as an important theoretical framework to guide research in teacher’s use of ICTs.

Koehler and Mishra (2005) introduced the term technological pedagogical content knowledge (TPCK) to describe the knowledge base for teachers to effectively teach with technology. They were not the first to use the term, as Pierson (2001) used TPCK to define teacher’s technology integration. Other researchers used comparable terms, such as information and communication technology (ICT)-related PCK (Angelini & Valanides, 2005) and technology-enhanced PCK (Niess, 2005). All of these terms are derived from Schulman’s (1986, 1987) work on PCK. PCK is considered a unique feature that qualifies the teacher’s profession. Schulman reasons that teachers are able to assimilate domain knowledge with appropriate pedagogical approaches so that learners are able to understand the subject at stake. TPCK adds technological knowledge as an indispensible part of the teacher’s profession.

To better understand the pieces of the TPACK framework, it was imperative to understand TPACK’s beginnings. Pedagogical Content Knowledge (PCK), the original concept, is attributed to Shulman (1986) when he stated that:

the emphases on teachers subject knowledge and pedagogy were being treated as mutually exclusive domains in research concerned with these domains The practical consequence of such exclusion was production of teacher education programs in which a focus on either subject matter or pedagogy dominated. To address this dichotomy, he proposed to consider the necessary relationship between the two by introducing the notion of PCK (p. 6).
Pedagogy and content knowledge are often regarded as discrete entities that are linked in a broad educational sense but addressed in isolation. Shulman (1986) considered “pedagogical content knowledge” as the content knowledge that relates to the teaching process. He went on to propose that teachers and teacher preparation should place an emphasis on “the aspects of content most germane to its teachability” (Shulman, 1986, p. 9).

Mishra and Koehler (2006) augmented Shulman’s concept to include two other aspects, Technological Content Knowledge and Technological Pedagogical Knowledge, which merged to form the model framework (TPACK) seen in Figure 1.

Figure 1. TPACK framework (Mishra & Koehler, 2006). Reproduced by permission of the publisher, © 2012 by tpack.org
While originally given the acronym TPCK, the term has been updated to TPACK to aid in pronunciation (Thompson & Mishra, 2007). According to Mishra and Koehler (2006):

the TPACK approach goes beyond seeing these three knowledge bases in isolation. On the other hand, it emphasizes the new kinds of knowledge that lie at the intersections between them. Considering P and C together we get Pedagogical Content Knowledge (PCK), Shulman’s idea of knowledge of pedagogy that is applicable to the teaching of specific content. Similarly, considering T and C taken together, we get Technological Content Knowledge (TCK), the knowledge of the relationship between technology and content. At the intersection of T and P, is Technological Pedagogical Knowledge (TPK), which emphasizes the existence, components and capabilities of various technologies as they are used in the settings of teaching and learning. (para. 2-3)

The TPACK framework requires researchers and teachers to develop understanding of the dynamic, transactional relationship between all three components (see Table 2). Specifically, TPACK frames effective technology integration for pedagogy around specific subject matter.

There is a great need to situate ebook use to support student learning within an educational framework as emerging technologies continue to impact our daily lives on a wide scale. This educational framework must not only allow for access to technology, but also offer direction regarding how to best use technology in a learning environment. This basic interpretive study will use the TPACK framework to investigate the process that occurs as teachers adapt their pedagogical approaches to use ebooks to support learning in the early elementary classroom.
Table 2. TPACK Constructs

<table>
<thead>
<tr>
<th>TPACK Constructs</th>
<th>Definition</th>
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<tbody>
<tr>
<td>TK</td>
<td>Knowledge about how to use ICT hardware and software and associated peripherals</td>
</tr>
<tr>
<td>PK</td>
<td>Knowledge about the students’ learning, instructional methods, different educational theories, and learning assessment to teach a subject matter without references towards content</td>
</tr>
<tr>
<td>CK</td>
<td>Knowledge of the subject matter without consideration about teaching the subject matter</td>
</tr>
<tr>
<td>PCK</td>
<td>Knowledge of representing content knowledge and adopting pedagogical strategies to make the specific content/topic more understandable for the learners</td>
</tr>
<tr>
<td>TPK</td>
<td>Knowledge of the existence and specifications of various technologies to enable teaching approaches without reference towards subject matter</td>
</tr>
<tr>
<td>TCK</td>
<td>Knowledge about how to use technology to represent/research and create the content in different ways without consideration about teaching</td>
</tr>
<tr>
<td>TPACK</td>
<td>Knowledge of using various technologies to teach and/represent and/ facilitate knowledge creation of specific subject content</td>
</tr>
</tbody>
</table>


**Research on TPACK and Literacy Teaching and Learning**

Koehler and Mishra (2008) contend that the development of TPCK by teachers is crucial to successful teaching with technology. Their view of the teacher
“as an autonomous agent with the power to significantly influence the appropriate (or inappropriate) integration of technology in teaching” (p. 3), places an importance on teacher knowledge. While Mishra and Koehler (2006) argued a teacher's grasp of content is dependent on the "interweaving of all three key sources of knowledge," there is a limited base of literature pertaining to the experiences literacy teachers need for developing TPACK (p. 1029). A 2008 publication edited by the American Association of Colleges for Teacher Education focused on the implementation of TPACK-informed instruction in the content areas (AACTE Committee on Innovation and Technology, 2008). While not based on empirical evidence, one chapter about literacy (Schmidt & Gurbo, 2008), provided examples of TPACK in elementary literacy classrooms. The authors provided a thorough justification for TPACK, situated in the evolving definition of literacy:

Technology's presence in our lives, in schools and society as a whole, dictates the necessity to accommodate the influence electronic environments and digital media have had on literacy development and instruction (Schmidt & Gurbo, 2008, p. 62).

Schmidt and Gurbo (2008) addressed five regions of literacy content knowledge, including language, vocabulary, comprehension, fluency, and composition. The authors also provided examples of TPACK infused instruction in each region, for example, incorporating digital storytelling throughout literature circles.

**Conclusion**

This chapter provided an overview of the literature relevant to questions children's literature and ebooks. These concepts were positioned within an
historical context laying a foundation for an understanding of the unique opportunities ebooks offer to support learning in the classroom. Research specific to the concepts of children’s literature, using children’s literature in the teaching of reading, the origins of ebooks and their specific features was explored with the intent to widen the scope of children’s literature and bring the term up to date with current research and technology trends. The final section details the theoretical framework, TPACK, which guided the study. The conceptual framework of TPACK allows the researcher to view teacher knowledge concepts within a structure that can be applied to teacher practice. The following chapter will present the methods and methodology for the study as well as address the rationale behind methodological decisions contained within.
CHAPTER III
METHODOLOGY

Introduction

The purpose of this study was to develop an understanding of how, when provided access and instruction (i.e., professional development on technology and an ebook instructional model), early elementary teachers incorporate ebooks into their classroom curriculum. This chapter provides information on the philosophical assumptions of the research design, the qualitative research approach, information about the participant selection and sample, data collection and analysis procedures, limitations, delimitations, and ethical considerations of the study.

A Qualitative Approach to Research

This study sought to understand the experiences of a group of public school educators who teach students in kindergarten through Grade 2 in order to better understand and “investigate the quality of relationships, activities, situations, or materials” found within those experiences (Fraenkel & Wallen, 2006, p. 430). Use of this qualitative lens enabled the researcher to “place emphasis on the process of research as flowing from philosophical assumptions, to worldviews and through a theoretical lens, and on to the procedures involved in studying social or human problems” (Creswell, 2009, p. 37, emphasis in original) integral to teaching early
literacy skills. Most qualitative research studies (Fraenkel & Wallen 2006) aim to consider:

1. The quality of relationships, activities, situations, or materials.
2. The natural setting as a direct source of data, and the researcher as an integral part of the process.
3. Data are collected in the form or words or pictures rather than numbers and content analysis is the primary method of data analysis.
4. Researchers are attentive to how things occur and the viewpoints of the subjects.
5. Researchers permit the hypothesis to emerge as the study develops.
6. Research is how people make sense out of their lives. (p. 444)

In search of a more holistic worldview, qualitative research offers researchers certain perspectives from the participants. Qualitative research, as described by Creswell (2009) is “a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem” or phenomenon (p. 4). Guided by this approach, the researcher sought to understand the meanings early elementary teachers make of their experiences with integrating ebooks in their reading instruction. A qualitative approach allowed the elements of the research design to come together and guide study procedures. Those elements encompassed epistemology, (ways of knowing), theoretical perspective (a framework that describes a point of view), and methodology, which “governs our choice and use of methods” (Crotty, 1998, p. 2). Those methods are the “techniques and procedures used to gather and analyze data” (Crotty, 1998, p. 3).

To address the research questions, the researcher will employ an interpretive qualitative approach that will place the meaning-making practices of human actors at the heart of empirical explanation. Interpretive qualitative
research methods go by many names and in some cases common features are
blended together according to individual researchers’ preferences. Current
variations include, but are not limited to, empirical phenomenology (Giorgi, 1975;
Wertz, 1983), hermeneutic-interpretive research (Packer & Addison, 1989),
interpretative phenomenological analysis (Smith, Jarman, & Osborn, 1999),
grounded theory (Henwood & Pigeon, 1992; Strauss & Corbin, 1998), and
Consensual Qualitative Research (Hill, Thompson, & Williams, 1997). The emphasis
on these various names or brands of interpretive qualitative research is unclear and
exclusive, and the researcher will take a generic approach that emphasizes
common methodological practices rather than relatively negligible variances. By
employing this approach, the researcher hopes to develop an individualized mix of
methods that lend themselves to the examination of teaching in an early
elementary ebook-equipped classroom and the researchers’ particular preferences
and style of collecting and analyzing qualitative data.

Research Questions

There is a high likelihood that ebooks will become an integral piece of the
early childhood classrooms within the next 3 to 5 years. Currently, there is a limited
research that explores their potential impact for curriculum and instruction. The
study was guided by the following questions:

1. In what ways do early elementary teachers use ebooks to support
   learning in the classroom?
2. What kinds of criteria do early elementary teachers use to select eBooks for use in their classroom?

3. What challenges and opportunities do early elementary teachers encounter when using eBooks in the classroom?

**Researcher’s Role and Ethics**

As part of this qualitative study, the researchers role was to gather, record, interpret, and reflect on the data collected. The researchers role was the primary research instrument for data collection and analysis. Because understanding the experiences of the participants was the goal of the study, Merriam (2002) suggested that the human instrument affords the best means for collecting and analyzing data (p. 5). Merriam emphasized a “critical self-reflection by the researcher regarding assumptions, worldview, biases, theoretical orientation, and relationship to the study that may affect the investigation (p. 31).

The researcher began this study with a unique position and perspective. The researcher has been a curriculum and technology specialist since 2002 at the early elementary level. The researcher currently works in a position in which the main role is to provide support and instruction for teachers who using technology to support literacy in the classroom. Previously, the researcher served as an early elementary teacher for 6 years at various levels and has been involved with digital technologies since the early 1990s. This prior knowledge spurred the researchers interest in the perspectives and experiences of others in a similar position.
As the primary investigator of the Digital Text Initiative (DigiTXT), the researcher was actively involved in the general facilitation of the curriculum, group discussion, and activity debriefing. This active participation allowed the researcher to interact with the participants, develop a climate of trust, and situate them within the context of the experience. This position enabled the researcher to collect data as a participant observer. Any additional personal information was not withheld, and participants were made aware of the researchers presence as an educational researcher prior to their decision to participant of the DigiTXT program.

The researcher established written agreements with all of the participants to take part in this study. Participants in the program had the choice of participating in the study, but had no obligation to do so, and were able to end their participation at any time. Due to the researcher's experience with curriculum and technology integration, the researcher was open to follow an observer's path and focus on the participants and their experiences as opposed to my own processing as a participant.

The researcher's experience integrating technology seamlessly in the early elementary curriculum also served as a resource for the participants, many of who had never previously participated in ebook-equipped learning environment before. After the experience, the reciprocal relationship between researcher and participant reached its apex via assisting participants in developing their understanding of the experience, preserving the integrity of their voices throughout
the structuring of the phenomenon, and the participants’ role to serve as a co-constructor throughout the entire research process.

**Epistemology - Constructivism**

There are several reasons the selection of constructivism as an epistemology was appropriate for this study. The constructivist approach allowed for the need to “explain how people are experiencing a phenomenon” (Creswell, 2007, p. 66) and lies within the interpretive qualitative research framework. Therefore, through the experience of a phenomenon, “meaning [comes] from the views of the participants” (Creswell, 2009, p. 16) and that meaning “is not discovered, but constructed” (Crotty, 1998, p. 7) about that experience. Crotty (1998) suggested that constructivism places importance on “the meaning-making of the individual mind” (p. 58). Consequentially, learning takes place by putting new information together with what is already known. By positioning the research within this epistemological frame, meaning was constructed and shared within the context of interviews by the researcher and the early elementary teachers who mentally constructed meaning through their experiences as teachers of K-2 students in an ebook-equipped classroom.

According to Salthouse (1991), most researchers “rely on some kind of organizational scheme to provide a framework within which results” may be interpreted. In this study, interpretivism was used to “interpret the meanings and actions of [participants] according to their own subjective frame of reference” (Williams, 2000, p. 210). Crotty (1998) helped explain how my “philosophical
stance lies behind [my] chosen methodology,” as it provided a context for the process and grounds its logic and criteria (p. 7). As a theoretical perspective, interpretivism supported this study since participants’ knowledge and meaning were logically constructed through the interpretations of their experiences as teachers of K-2 students in an ebook-equipped classroom.

**Methodology – Interpretive Qualitative Research**

Basic interpretive research “begins with the experience of the individual and develops this in a reflexive form” (Flick, von Kardorff, & Steinke, 2004, p. 68) and includes “collecting data from several persons who have experienced the phenomenon” (Creswell, 2007, p. 60). For these reasons, this study’s guiding methodology is phenomenology. Since the reflective thinking and ascribed meaning to the experiences of the participants were essential in understanding what it is like to be an early elementary teacher in an ebook-equipped classroom, this methodology was regarded as an appropriate means to “gain some insight into the world of [the] participants and to describe their perceptions and reactions” (Fraenkel & Wallen, 2006, p. 436).

Fraenkel and Wallen, (2006) suggested that when utilizing a qualitative approach, researchers ought to “search for the essence of an experience” which, is “the defining characteristic—of phenomenological research” and when conducting a phenomenological study, researchers should “search for the ‘essential structure’ of a single phenomenon by interviewing, in depth, a number of individuals who have experience the phenomenon” (p. 437). In order to better understand the early
elementary teacher participant roles and these experiences, the researcher utilized personal semi-structured interviews, in addition to questionnaires, written reflections, video recordings of reading instruction, lesson plans and ebook quality ratings. As explained by Gall, Borg, and Gall (1996), the “major advantage of interviews is their adaptability,” (p. 289) which permitted me to extract “the meanings that participants in the . . . process assigned to themselves and what they were doing” (LeCompte, Millroy, & Preissle, 1992, p. 850).

The approach to qualitative research presented in this study will begin with the formulation of a research problem. Next, issues related to qualitative data collection and samplings will be discussed. This will be followed by a presentation of research strategies of data analysis. This study will investigate the experiences of early elementary teachers in ebook-equipped classrooms who participated in the DigiTXT program. Through an analysis of the data, the researcher will become familiar with their experiences dealing with integration of ebooks in their reading instruction. Through interviews, questionnaires, written reflections, video recordings of reading instruction, lesson plans and ebook quality ratings, the researcher will be able to gain insight into the participants’ reflective nature, pedagogical judgments, educational objectives, and personal experiences.

**The Digital Text Initiative**

The Center for Literacy in a College of Education at a Midwest public university used funds from a state educational technology agency to form stronger connections to local school districts through the Digital Text Initiative (DigiTXT)
Teacher Planning Grant. With foundations rooted in a successful Early Reading First program, DigiTXT sought to expand an evidence-based preschool language and literacy program into the kindergarten thru grade two levels. DigiTXT consists of four components: (a) science-based practice (b) in core early literacy skills implemented by (c) well-prepared, knowledgeable practicing teachers in a (d) supportive learning environment. Figure 2 illustrates the model.

Figure 2. DigiTXT model. Note. This figure illustrates the core components of the DigiTX project.

At the center of the grant program (see Figure 3) was DigiTXT, an effort to: (a) build an evidence base around ebooks for “edutainment” and early education; and (b) offer principles and methods for ebook pedagogy in early childhood classrooms. DigiTXT ensures science-based practice; develops the essential language and literacy skills for learning to read in K-2; provides professional
development to pre-service teachers, practicing teachers and administrators (staff) in early literacy instruction; and ensures supportive learning environments in the classroom.

Working outward from the center, the next ring comprised pre-service teachers enrolled in the Midwest university’s College of Education. Their roles were to observe the implementation of DigiTXT in the classroom, then use Web-based tools in an online community of practice to digitally document and reflect upon progress throughout the academic year.

In the outermost circle were their professors in the Midwest university’s College of Education, who used similar tools to communicate with the pre-service teachers and review their work.

Figure 3. DigiTXT touch points. This figure illustrates the manner in which DigiTXT participants utilized information and communication technologies.
The grant envisioned that DigiTXT would serve to increase technology usage among approximately 250 K-2 students, 40 pre-service teachers, and 20 practicing teachers and administrators. Table 3 reflects the actual number of participants in the DigiTXT project.

Table 3. DigiTXT Participants

<table>
<thead>
<tr>
<th>District</th>
<th>Teachers</th>
<th>Administrators</th>
<th>Pre-Service Teachers</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>District A</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>District B</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>District C</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwest University</td>
<td>51</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Participant Selection**

The researcher explored the nature of reading instruction with ebooks within the boundaries of the personal, pedagogical, and professional experiences of early elementary educators currently teaching kindergarten through grade two students at two of the public elementary schools participating in DigiTXT. After receiving permission from the Midwest university’s Institutional Review Board (IRB), the researcher contacted potential participants through referrals from each teacher’s school administration. Principal referrals were based upon perceived proficiencies in utilizing technology for instruction. This purposive sample consisted of three early elementary school teachers who were invited to participate in the DigiTXT Teacher Planning Grant. These teachers had a reputation for
promoting classroom environments conducive to computer-based learning and technology integration. Bloomberg and Volpe (2008) stated that the “logic of purposeful sampling lies in selecting information-rich cases, with the understanding of the phenomenon under investigation [and] the participants’ ability to provide information about themselves and their setting” (p. 69).

Participants were made aware of research procedures and confidentiality procedures to ensure they understood their rights as participants prior to the first interview session (Appendix A). The first interview started with a set of pre-planned questions (Appendix B) designed to “build upon and explore . . . participants’ responses” in order to have each participant “reconstruct his or her experience with the topic under study” (Seidman, 1998, p. 9). The third and final interview was a member check interview conducted via email. As cited in Seidman, (1998), Dolbeare and Schuman (1982,) suggested a three interview series that “allows the interviewer and participant to plumb the experience and place it in context” (p. 11).

With this in mind, three female educators – ranging from late 20s to late 40s – who participated in the DigiTXT Teacher Planning Grant were selected as participants in this study, which took place during the 2011-2012 school year. Participant teaching experience included a novice with only 4 years experience, and two veteran teachers with 10 or more years of experience. Table 4 summarizes the teacher participants for this study.
Table 4. Teacher Participants

<table>
<thead>
<tr>
<th></th>
<th>Ethnicity</th>
<th>Age</th>
<th>Years Teaching</th>
<th>Grade</th>
<th>Education level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katie</td>
<td>White/Non-Hispanic</td>
<td>27</td>
<td>4</td>
<td>K</td>
<td>M.A. Reading and Literacy</td>
</tr>
<tr>
<td>Denise</td>
<td>White/Non-Hispanic</td>
<td>44</td>
<td>15</td>
<td>2</td>
<td>M.A. Reading and Literacy</td>
</tr>
<tr>
<td>Dawn</td>
<td>White/Non-Hispanic</td>
<td>35</td>
<td>11</td>
<td>1</td>
<td>M.A. Elem. Ed. Specialization in Literacy</td>
</tr>
</tbody>
</table>

**Building Rapport and Participant Support**

Prior to collecting any data, the researcher met with the participants on multiple occasions to discuss the DigiTXT program, advise them of the data sources and interview protocol to be used, confirm that “they possessed the desired information and [were] willing to answer the questions” (Fraenkel & Wallen, 2006, pp. 402-403), as well as to provide professional development critical to achieving project goals and deliverables.

Participating teachers were provided instruction in design strategies and skills that enrich environments with language, literacy and content through face-to-face professional development and online tutorials (Figure 4) that provided examples and design skill practice. The focus of the teacher instruction was on the development of procedural knowledge based on a set of design principles (Roskos & Vukelich, 2008) and included program introduction, an overview of ebooks for young children, accessing and sharing ebooks, identifying quality ebook resources,
completing an ebook quality rating using the Ebook Quality Rating Tool (EQRT), developing classroom spaces for ebook reading and vocabulary instruction. A web-based portal was developed to serve as a repository for all professional development materials and is located at http://digitxt.ning.com/.

Figure 4. Screenshot of online tutorial. Note. This figure illustrates the type of online professional development materials teachers were provided in the DigiTXT program. Source: http://youtu.be/XynmlyGa268

As part of teacher training, quality indicators of children’s ebooks were provided and examples were shared (see Table 4). Developing a shared understanding of high-quality and low-quality ebooks between teacher raters was considered crucial road towards ensuring consistency, triangulation of the data and
trustworthiness in the study. Based on the work of Roskos, Brueck & Widman (2011), key characteristics in three ebook quality indicator categories were shared with the teacher raters (see Table 5).

Table 5. Key Characteristics of Children’s Ebook Quality

<table>
<thead>
<tr>
<th>Category</th>
<th>Key Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of Use</td>
<td>The digital book should be easy to navigate and use; it should employ conventions appropriate to books (e.g., a cover page), yet include adaptations best suited to the electronic environment in terms of physical interaction (e.g., touching, orienting to print, scrolling, locating and adjusting).</td>
</tr>
<tr>
<td>Multimedia</td>
<td>The multimedia characteristics of digital books should enhance the reading experience. Audio, video, and image assets should be well integrated with the content and support the construction of meaning. Visuals should incorporate quality images that inform the message.</td>
</tr>
<tr>
<td>Interactivity</td>
<td>The digital medium should be fully utilized to allow readers choice and participation; it should support the flow of text from one screen page to the next. It should allow for augmentations that reach beyond the immediate display of the screen page.</td>
</tr>
</tbody>
</table>

This series of meetings provided the participants with some background on the study and established some degree of rapport. The rapport building process was critical to the interview, debrief, questionnaire and written reflection procedures in order to establish trust and collect the most robust information possible. Creswell (2007) recommended that interviewers “stay to the questions, complete the interview within the time specified . . . be respectful and courteous, and offer few questions and advice [and to remember that] “a good interviewer is a good listener” (p. 134). The researchers educational technology background helped
to deepen the understanding of the phenomenon, building rapport and credibility with the participants.

**Data Collection**

Data were collected using semi-structured interviews, surveys, written reflections, video recordings of reading instruction, lesson plans and ebook quality ratings. The researchers experience as a curriculum and technology resource teacher proved useful in building and sustaining rapport with the participants and allowed for richer more in-depth exchanges during the interviews, subsequent follow-up questionnaires and data collection experiences. Data collection began in September 2011 at the DigiTXT kick-off meeting. During this event, teachers were presented with an overview of the project including goals, participant expectations and project procedures. At the conclusion of the kick-off meeting, teachers took the Concerns-Based Adoption Model questionnaire, which initiated the data collection process. Additional data was collected over the course of the project, culminating with the member-checking interview, which took place in May 2012. Table 6 summarizes the data sources and their collection points.

**Teacher Semi-Structured Interviews**

To acquire the in-depth data needed to adequately examine the experiences of the participants, each participant took part in three semi-structured interviews. The initial two interviews were conducted face-to-face and on-site at the participants’ respective school. The first interview took place within the first four weeks of the DigiTXT program, during November of 2011. The second set of
Table 6. Data Collection Points

<table>
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<tbody>
<tr>
<td>Interviews</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Concerns-Based Adoption Model (CBAM) Questionnaire</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Efficacy Survey</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Ebook Quality Ratings</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lesson Plans</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Videos</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debrief Interviews</td>
<td>X</td>
<td>X</td>
<td></td>
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</tr>
</tbody>
</table>

Interviews was situated towards the conclusion of DigiTXT, with all six interviews taking place in April 2012. Gall, Borg, and Gall (1996) suggested that the “major advantage of interviews is their adaptability” (p. 289) and affordance for the type of probing questions required to investigate participant responses more deeply and get the opinions and feelings of the participants. Seidman (1998) considered “[i]nterviewing … [as] a basic mode of inquiry” (p. 2) and, the purposeful use of interviews for this study allows the interviewer to grasp the “experience of other people and the meaning they make of that experience” (p. 3). Seidman (1998) endorsed interviews that are spaced three days to a week apart, but acknowledged that this is not always feasible and the schedule often depends on the amount of time each participant had available. As long participants have time to reconstruct
and reflect on their experience within the context of their lives, adjustments to the spacing of interviews are flexible (pp. 14-15).

The goal for each interview follows:

- **Interview 1**: Professional history, reading instruction and experience with technology – the researcher pursued information regarding the participants’ past and present teaching experiences related to the topic. This entailed questions about the participants’ professional, educational, and personal experiences related to their use and familiarity with ebooks and technology. These interviews took place at the beginning of the DigiTXT project, during November 2011 (Appendix B).

- **Interview 2**: Details of experience – The purpose of this interview was to center in on explicit details of the participants’ present teaching experiences related to the shared ebook reading. Interviews sought information regarding their daily professional experiences and the researcher requested copies of lesson plans and other curricular materials related to instructional planning. These interviews took place near the conclusion of the DigiTXT project, during April 2012 (Appendix C).

- **Interview 3**: Member check – Reflection on the use of ebooks in the classroom - In the final meeting, participants were asked to reflect on their teaching experiences and use of ebooks as part of their reading
instruction. These interviews took at the conclusion of the DigiTXT project, during May 2012 (Appendix C).

During the three interviews, participants were asked to present detailed accounts of their experiences teaching in an ebook-equipped environment. The researcher developed an interview guide for each set of interviews to help ensure focus during each teacher interview without imposing too much structure. As recommended by Hill et al. (1997), teachers were provided with a list of questions before the interview so that they could prepare to provide as much rich description of their experiences teaching with ebooks as possible.

**Document Analysis**

In this study, interviews served as the primary source of data collection, however there were a variety of forms of supplemental data. This data provided an opportunity to compare emergent findings between the data sources to ensure internal validity. According to Merriam (2002), collecting multiple forms of data permits the researcher to check what is said in the interview against “what you observe in a field visit or what you read or see in documents or artifacts relevant to the investigation” (p. 25). As part of the DigiTXT project, the researcher requested and received several supplemental data documents such as: surveys, written reflections, video recordings of reading instruction, lesson plans and ebook quality ratings.

Collecting this type of data allowed greater insight into the types of prior knowledge and experiences early elementary teachers had with technology and
reading instruction to use as a guide for formulating interview questions. Collection of this sort of data “goes beyond typical observation and interviews . . . [to] create reader interest . . . and can capture useful information that observations and interviews may miss” (Creswell, 2009, p. 181). The purpose for collecting this data was to gain additional perspective from the teachers related to their goals for student learning and purposes for selecting ebooks, as well as gain insight into the types of grouping methods and classroom management techniques they employed in an ebook-equipped environment. The following sections provide more detail regarding these data.

**Concerns-Based Adoption Model (CBAM) Survey**

As part of the DigiTXT program, teachers were asked to complete a Concerns-Based Adoption Model (CBAM) (Hall, 1979) questionnaire prior to starting the program and then again at the conclusion of the program (Appendix E). The CBAM is used to understand change in terms of technology and provide a perspective on facilitating adoption of that technology. Based on the work of Fuller (1969) in the area of teacher change and classification of their concerns, the CBAM was designed as a diagnostic tool to help inform the change facilitator as to how to best facilitate the adoption of an innovation. The CBAM measure approaches adoption through the eyes of the adoptees to provide a developmental perspective on how an individual’s concerns influence their integration of an innovation. It does not describe the reasons for adoption, but instead focuses on how understanding the concerns of a population can facilitate innovation adoption.
The CBAM model assumes that change is a process, not an event, and its concern-based model consists of three main components: Stages of concern (SoC), Levels of use (LoU) and Innovation configuration (IC). The CBAM has been used to understand teacher change in curriculum change (Christou, Eliophotou-Menon, & Phillippou, 2004), adoption of a consulting teacher model (Pedron & Evans, 1990) and technology change and adoption (Davis & Roblyer, 2005; Dobbs, 2004).

A major strength of the CBAM is its application of cognitive concerns through the context of an educational setting. It provides a conceptual and diagnostic framework for understanding the dynamics of change. Since it addresses teacher concern from a developmental perspective, it can provide administrators with an idea of how teachers will adapt to change and provide a framework to anticipate future needs. While CBAM has been used for many years in educational settings, it is not without criticism. CBAM is limited because of its disregard for teachers’ positive perceptions of an innovation. Additionally, the CBAM generally approaches change from a mandate standpoint, where a principal or administrator is instituting the adoption of an innovation and it then diffuses to the teachers as the end-user.

**Teacher Efficacy Surveys**

The theoretical underpinning of self-efficacy originates in social cognitive theory, developed by Albert Bandura (1977, 1997). Social cognitive theory posits that individuals are capable of the intentional pursuit of courses of action, known as human agency. According to social cognitive theory, such agency functions in a
process called triadic reciprocal causation. A multi-directional model, reciprocal causation proposes that three interrelated forces, resulting in future behaviors, impact our agency; environmental impacts, our behavior, and internal personal influences including biological, cognitive, and affective processes. Due to its predictive power and application, self-efficacy theory is a reoccurring theme in work around motivation (Graham & Weiner, 1996).

A simple idea with significant implications, teacher efficacy is a teacher’s judgment of his or her capacity to bring about preferred results of student engagement and learning, even with those students who may be unengaged or unmotivated (Armor et al., 1976; Bandura, 1977). As part of the DigiTXT program, teachers were asked to complete the teacher efficacy survey prior to starting the program and then again at the conclusion of the program (Appendix D). Tschannen-Moran and Woolfolk Hoy (in press) described teacher efficacy as a teacher’s “judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated.” This view is consistent with the overall construct of self-efficacy.

Research and studies into teacher efficacy began in the mid 1970’s when the RAND researchers’ began examining whether teachers thought they could regulate the reinforcement of their actions (Armor et al., 1976). Founded on Rotter’s (1966) locus of control theory, this work assumed that student learning and motivation were the pertinent supports of teaching action. Researchers have established only a limited number of consistent relationships between the learning of students and
characteristics of teachers, however, Woolfolk and Hoy (1990) noted, “Teachers’ sense of efficacy . . . is an exception to this general rule” (p. 81). Student outcomes such as achievement have been related to teacher efficacy (Armor et al., 1976; Moore & Esselman, 1992; Ross, 1992), as has motivation (Midgley, Feldlaufer, & Eccles, 1989), and students’ own feelings of efficacy (Anderson, Greene & Lowen, 1988).

While the study of teacher efficacy has produced abundant research, however, this work is not without debate concerning its meaning and measure (Tschannen-Moran et al., 1998). There are two main issues surrounding the teacher efficacy dialogue. Researchers have contended that self-efficacy is most suitably measured within context concerning specific behaviors (Pajares, 1996), based on self-efficacy theory as outlined by Bandura (1977, 1997). Additionally, the construct validity of scores from the principal instruments intending to measure teacher efficacy has been called into question (Coladarci & Fink, 1995; Guskey & Passaro, 1994). Still, teacher efficacy surveys help to contribute to a thick description of teacher practice and serve as one data source that can offer insight into how teachers use ebooks to support student learning.

**Shared Reading Videos, Debriefs and Lesson Plans**

During the study, video observations were captured from two devices. An external USB webcam/microphone (Blue Microphones Eyeball 2.0 HD Audio and Video Webcam with Microphone) was used to capture video of the shared reading session at the touchscreen. Digital cameras with built-in microphones were used to
capture teacher instructional behaviors. Cameras were mounted on tripods and positioned in the rear of the ebook reading area, allowing a detailed captures of instruction and mobile device reading. The teacher or researcher would set the webcam up to record, starting and stopping the recording through software on the touch screen computer; the researcher would set-up the rear camera and record from that view.

These shared reading sessions included a set of video files for each teacher: Two files from the instructional sequence; one file from the iPod or iPad browsing/reading. In some cases, time constraints limited the iPod or iPad browsing and videos were not able to be collected. This data was collected during March 2012 and April 2012. For the purposes of this study, the video capture generated a total of 63 video files. An external hard drive was used to collect and store the source video from the Asus Touchscreen PCs and from the digital cameras; files were transferred to an encrypted storage space for access by the researcher for coding purposes.

Teachers regularly used a one-page lesson plan form to record weekly planning for the ebook shared reading sessions. Copies of these lesson plans and other curricular materials related to instructional planning were also collected for analysis by the researcher during April 2012 and May 2012. In total, 27 planning documents were collected on an external hard drive; files were transferred to an encrypted storage space for access by the researcher for coding purposes (Appendix F, G, and H).
**Ebook Quality Ratings**

Building on earlier work by Roskos, Burstein, You, Brueck, and O’Brien (2011), an ebook instructional model was implemented in the ebook nook area of the six early elementary classrooms, with multiple small groups of three to four children. The six early elementary teachers self-selected ebooks from the TumbleBooks and Scholastic Book Flix corpus of media ebooks and shared them with their students over a four-month period. Following each ebook shared reading classroom session, the teachers completed the Ebook Quality-Rating Tool (EQRT).

The existing research base for the EQRT provides potential content items for rating ebook qualities, but does not offer design information relevant to formatting a tool for general use. Available examples, such as the CD-ROM evaluation tool developed by Shamir and Korat (2006) and the extensive *Children’s Technology Review* checklist 5-star rating system (Buckleitner, 2011), indicate that a well-formatted tool is organized into salient categories; it describes items in clear terms; it provides easy-to-understand directions and rating scales; it automates calculations; it offers an overall quality rating. Considering these features the online tool used for the purposes of this study consists of three categories: Ease of Use, Multimedia and Interactivity (Appendix I).

Few studies have directly examined the instructional design and quality of the ebook as a curriculum resource in reading instruction (Roskos & Brueck, 2009), although studies focused on literacy development have peripherally observed design quality problems. Labbo and Kuhn (2000), for example, commented on the
need for better designed digital conventions (e.g., pop-ups) to produce more considerate texts that support comprehension. Shamir and Korat (2009) identified several high level design features beneficial for young learners, such as (a) oral reading with text highlights that illuminate the nature of print (e.g., word boundaries); (b) hotspot activation aligned with text; (c) a dictionary option that allows repeated action by the child; and (d) a game mode separate from text mode. Based on their analysis of a corpus of 55 Dutch ebooks, De Jong and Bus (2003) concluded that most ebooks were of mediocre quality—an observation corroborated by McKenna and Zucker (2009) who found research results to be mixed on the benefits of signature features of ebooks, such as narration, animation, music and hotspots for developing reading skill.

Building on this early design work, Roskos, Brueck, and Widman (2009) identified and tested several analytic tools on a corpus of 50 mixed genre ebooks from popular online sites. The researchers looked at the technical adequacy and usability of these analytic tools along three dimensions: multimedia design (how words and pictures are presented); interface design (conventions of use, format and controls); and learning design (basic features of instruction or the learn about loop of purpose, content, and feedback). Different analytic tools revealed different design features of an ebook, and Roskos et al. (2009) concluded that to judge ebook quality may require a multi-purpose tool that examines both the e (electronic features) and the book (text features) of an ebook.
Drawing on the design research, Roskos et al. (2009) developed a prototype tool and observed its effectiveness and usability on a sample of 43 preschool level ebooks rated by eight early childhood educators in Head Start classrooms. Results showed that the prototype tool performed moderately in terms of reliability, and with some further adjustments in directions and item clarity is ready for wider scale testing toward the goal of a reliable, valid measure of early childhood ebook quality.

The mechanics of the Ebook Quality-Rating Tool are powered by Google Docs. The Google Forms tool was used to create the browser-based front end of the tool, publically available at http://bit.ly/eQRTv4public. The back-end of the tool, where user data is submitted and stored, is a private Google Spreadsheet document. To use the quality-rating tool, the teacher accesses the matrix via URL and then uses the web form to provide element ratings and text comments (see Figure 5). The online tool is comprised of a short set of directions, an area to provide ebook and rater information including title, genre, source (provider), rater name and also indicate reasons for selecting the ebook that will be rated. Each category and all its elements make up one page of the quality-rating tool. The teacher-rater completes each data entry point using a combination of text, paragraph text and radial buttons. A total of 76 data entry points are present in the quality-rating tool.

For the purposes of this study, the EQRT was applied and piloted on a sample of teacher-selected ebooks from a catalogue of 638 ebooks drawn from a

Figure 5. Sample of the Ebook Quality-Rating Tool, Version 4. Note. This figure illustrates a page of the EQRT used in the study.

The three early elementary teachers self-selected ebooks from the TumbleBooks and Scholastic Book Flix ebook libraries and shared them with their students over a 4-month period. Following each ebook shared reading session; the teachers completed the Ebook Quality-Rating Tool. These ratings were collected from November 2011 through April 2012. An external hard drive was used to
collect and store the rating data; files were transferred to an encrypted storage space for access by the researcher for coding purposes.

**Data Analysis**

To remain true to the qualitative underpinnings of this study, analysis of data sought to institute “some commonality to the perceptions that human beings have” and determine the “essence” of the shared experience by “studying multiple perceptions of the phenomenon” (Fraenkel & Wallen, 2006, p. 437). Kvale (1996) notes there is a “unity of content and method, [where] both the interview and the conception of learning [experienced by the participants] were based on a phenomenological understanding of the phenomenon investigated as an intentional meaningful activity in the daily life of the subject” (p. 196). Analysis of information collected from the semi-structured interviews, as well as documents such as surveys, written reflections, video recordings of reading instruction, lesson plans and ebook quality ratings, assisted in describing the shared phenomena of the participants.

For the purposes of this study, content analysis procedures as defined by Gall, Borg, and Gall (1996) were used to examine frequency, types, patterns, trends, and themes of ebook integration and use. Analysis of the data yielded patterns, trends, and themes of the participants’ developmental experiences in an ebook-equipped classroom, selection and use of ebooks in their reading instruction, the type of lessons developed and practices employed. Emergent patterns and themes were coded to assist in identifying the shared experiences. Data triangulation was
employed through the use of multiple data sources to increase the validity of the study.

Creswell (2007) proposes researchers initiate the process with open coding, “coding the data or its major categories of information” (p. 64). During the coding process in this study, data were analyzed for patterns, organized into meaningful groups, and then coded as trends and themes emerged. Open coding, “reading the data line-by-line without using predetermined codes” (Esterberg, 2002, p. 158) allows the researcher to look at the data in a more natural state and recognize “major categories of information” from which major themes should emerge (Creswell, 2007, p. 64). Following the open coding process, the researcher conducted focused coding in which the open codes were further reduced and situated into themes (Esterberg, 2002). The researcher came to understand the major emergent themes representing the shared experiences of the participants through this process of data analysis. After analysis, coding, and organizing the data, multiple themes surfaced and those findings are presented in Chapter V.

**Trustworthiness**

As a means to insure appropriate levels of quality and rigor in this phenomenological study, the constructs of validity and reliability were addressed by looking to Lincoln and Guba (1985, as cited in Marshall & Rossman, 2011), who propose that for:

- validity/credibility, they urge qualitative researchers to be in the setting for a long period of time (prolonged engagement); share data and interpretations with participants (member checks); triangulate by gathering data from multiple sources, through multiple methods,
and using multiple theoretical lenses; and discuss their emergent findings with critical friends to endure that analyses are grounded in the data (peer debriefing). (p. 40)

Additionally, Merriam (2002) noted that a trustworthy study incorporates “triangulation, member checks, [and] the use of rich, thick description” (p. 30). The following sections describe strategies used to ensure a valid and reliable study (Lincoln & Guba, 1985; Merriam, 2002).

**Data Triangulation**

Trustworthiness is supported through the collection of multiple data sources such as semi-structured interviews, surveys, written reflections, video recordings of reading instruction, debriefing interviews, lesson plans and ebook quality ratings; for example, “what someone tells you in an interview can be checked against what you observe in a field visit or what you read or see in documents or artifacts” (Merriam, 2002, p. 25). Collecting data from a variety of sources (triangulation) is “a principle strategy to ensure for validity and reliability” (Merriam, 2002, p. 26).

In this study, the primary source of data was from the transcripts acquired from one-on-one interviews with participants as well as transcripts from video recordings of reading instruction. Additionally, four forms of document types for analysis (surveys, debriefing interviews, lesson plans and ebook quality ratings), helped to provide context for questions, and follow-up interviews. These robust data also afforded a deeper, richer understanding of the participants’ experiences and the phenomena under study.
**Member Checking**

Member checks are another method to be used to confirm a qualitative study. Creswell (2009) noted that member checks are used to “determine the accuracy of the qualitative findings through taking the final report or specific descriptions or themes back to participants and determining whether these participants feel that they are accurate” (p. 191). For the purposes of this study, member checks are accomplished by sending each participant interview and video transcripts, copies of written reflections as well as interpreted information (surveys, lesson plans and ebook quality ratings). Participants were given access to these materials and asked to provide commentary and approval on the items. Participant access to the materials assisted in providing more accurate representation of the participants’ experiences “and better capture their perspectives” (Merriam, 2002, p. 26).

**Audit Trail**

An audit trail was used as another mechanism to improve the reliability of the study. Merriam (2002) depicted an audit trail as the “explanation of the methods of the study, how the sample was selected, how the data were collected and analyzed, and how validity and reliability were addressed” (p. 21). Taking notes from the audio and video recordings and listen for any nuances or tones from the participants was one method used in the audit trail. As part of this process, the researcher would annotate the transcripts to highlight pertinent and irrelevant information, start the coding process and begin the categorization of information.
The audit trail also encompassed divergent questions and notations during the interview process. The audit trail helped the researcher unwrap the layers of data to expose the emergent themes and reflect on the notes and ideas gathered during the data collection.

**Delimitations of the Study**

Creswell (2009) proposed that delimitations in a qualitative study “help to further define the parameters of the research study” (p. 113). This study investigated the experience of how, when provided access and instruction (i.e., PD on technology and an ebook instructional model), early elementary teachers incorporate ebooks into their classroom curriculum. The sample was delimited to elementary schools participating in a DigiTXT Teacher Planning Grant program. Another consideration was the early elementary teachers selected. Only teachers in kindergarten, first and second grade were considered for this study. Further boundaries were established by selecting only teachers who were referred by their school administration, based upon proficiencies in utilizing technology for instruction. Because each school community is unique, teachers may have instructional experiences that differ from other school organizations, and each grade level has its own culture as well as other unknown factors; it is not known if findings or subsequent results would be applicable to other, similar early elementary educators.
Ethical Considerations

In order to produce a tangible qualitative study and further insure the validity and reliability, ethical considerations were taken into account “and lies with the individual investigator” (Merriam, 2002, p. 30). Ethical considerations started with human subjects approval from the Institutional Review Board (IRB) at the Midwest University. After approval was granted, the researcher contacted potential participants through a recruitment email, which briefly outlined the intent of the study and sought consent for participation in the study. Other ethical considerations included:

- Information obtained and used in the research study will be shared with the participants
- Confidentiality will be maintained throughout the study
- Participation was voluntary and participants were able to withdraw at any time and data would have been returned to the participant upon request
- Participants will receive a copy of the final study
- Social and professional risk factors were very low

Howe and Moses (1999) stated, "to be truly ethical, educational researchers must be prepared to defend what their research is for" (pp. 56). The role of the researcher in this study was to work with teachers to improve the learning experiences for their students. Since this study is likely to lead to the improvement
of the quality of learning experiences for students without harming other participants, the study remains true to the ethical codes of practice.

**Conclusion**

This chapter presented the methods and methodology for the study as well as addressed the rationale behind methodological decisions contained within. The following chapter makes use of the TPACK framework to provide in-depth descriptions of participant profiles required for a basic interpretive study.
CHAPTER IV

FINDINGS

The purpose of this study was to describe how, when provided access and instruction (i.e., PD on technology and an ebook instructional model), early elementary teachers use ebooks to support learning in the classroom. A basic interpretive qualitative approach was used to study this phenomenon, which, according to Moustakas (1994) “is concerned with wholeness, with examining entities from many sides, angles, and perspectives until a unified vision of the essences of a phenomenon or experience is achieved.” (p. 58); The researchers’ “aim is to determine what an experience means...and to provide a comprehensive description of it” (Moustakas, 1994, p 13). To achieve this, a basic interpretive qualitative approach was used to study participants who all experienced teaching in an ebook-equipped classroom. Capturing the essence of how teachers used ebooks to support learning in their classroom was the topic of study.

A series of themes emerged from the data to answer the following research questions:

1. In what ways do early elementary teachers use ebooks to support learning in the classroom?
2. What kinds of criteria do early elementary teachers use to select eBooks for use in their classroom?

3. What challenges and opportunities do early elementary teachers encounter when using eBooks in the classroom?

For the purposes of this study, data sources were imported into a secure software application designed to facilitate qualitative and mixed method research. The software contained features that made it possible to implement all the tasks and data analyses related to the management, processing, analysis, auditing and presentation of data. Each data source was reviewed and coded multiple times using the software application. Through coding, themes and concepts emerged that would become the framework used to organize and communicate the findings of the study. This framework evolved and was represented in a code tree as the researcher gained a deeper understanding of the data and how the themes and concepts were related to each other.

The data was initially coded and used to generate categories, key concepts, and major topics which were grouped to form primary themes; one theme to address each research question. A secondary coding followed, wherein all applicable initial data excerpts were coded using one or more of the seven TPACK constructs. A tertiary coding was used to generate secondary themes to develop a critical understanding of the shared experience of the participants. Follow-up cycles of recoding were employed to further manage, filter, and focus on the salient features identified during initial and secondary coding.
In this chapter, participant profiles are presented grounded in the Technological Pedagogical Content Knowledge (TPACK) framework developed by Mishra and Koehler (2006) and presented in the TPACK teacher profile format developed by Kushner-Benson and Ward (2013). The TPACK teacher profiles serve as a mechanism to interpret how each participant’s degree of Technology, Pedagogy and Content knowledge levels interact as they individually experience teaching in an ebook-equipped classroom.

The three primary themes will be presented through the findings from the semi-structured interviews, surveys, written reflections, video recordings of reading instruction, lesson plans, debrief interviews and ebook quality ratings. Under each primary theme, a detailed analysis of secondary and tertiary themes will be included where applicable.

Setting

The setting for this study focused on three early elementary classrooms at two suburban public school districts located outside the fifth largest city in a Midwestern state. Data was collected and interviews were conducted at one public elementary school from each of the two school districts. Following is a brief description of each school.

Orange Elementary School

Orange Elementary School serves grades PreK-2 in a suburban school district serving approximately 2,400 students. The school is located in a township on the urban fringe of a mid-size city. Average Daily Student Enrollment of Orange
Elementary is 387, with 93% of the population in the white, non-Hispanic demographic. Fifty percent of the population is considered economically disadvantaged. Students with disabilities make up 16.8% of Orange Elementary’s student population.

**Raleigh Primary School**

Raleigh Primary School serves Grades 1-3 in a suburban school district serving approximately 4,200 students. The school is situated in a suburban area just south of a large Midwestern city. Average Daily Student Enrollment of Raleigh Primary is 634, with 91.7% of the population in the white, non-Hispanic demographic. Nearly 25% of the population is considered economically disadvantaged. Students with disabilities make up 9.8% of Raleigh Primary’s student population.

**Composite Profile of Participants**

Participants were selected through referrals from each teacher’s school administration. Principal referrals were based upon perceived proficiencies in utilizing technology for instruction. This purposive sample consisted of three early elementary school teachers who were invited to participate in a teacher planning grant. Three female educators – ranging from late 20s to late 40s – participated in the grant program, which took place during the 2011-2012 school year. Table 7 outlines the basic demographics of each participant with corresponding information about their teaching positions and educational background.
Table 7. Teacher Participant Profiles

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Age</th>
<th>Years Teaching</th>
<th>Grade</th>
<th>Education level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katie</td>
<td>White/Non-Hispanic</td>
<td>27</td>
<td>4</td>
<td>K</td>
</tr>
<tr>
<td>Denise</td>
<td>White/Non-Hispanic</td>
<td>44</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Dawn</td>
<td>White/Non-Hispanic</td>
<td>35</td>
<td>11</td>
<td>1</td>
</tr>
</tbody>
</table>

Near the beginning of the teacher planning grant, all participants participated in a semi-structured interview during which they all reported having instructional access to information and communication technologies for teacher and student use; although they did not all indicate that they felt fluent in using information and communication technologies and resources in their professional practice for student learning. All participants indicated they either supported or implemented one or more facet of a learner-centered curriculum. Participants cited attributes such as use of multiple assessment strategies, a focus on higher-order thinking skills, and the development of a problem-based learning environment. Detailed descriptions of each participant will be presented in the findings, which follow.

Findings

The findings from this basic interpretive research study were achieved through a phenomenological data analysis (Moustakas, 1994 & Fraenkel & Wallen,
2006). When referencing participant statements in backing up the selected themes, a representative sample of responses was utilized.

**TPACK Teacher Profiles**

Using the TPACK teacher profile format developed by Kushner Benson and Ward (2013), participant profiles were developed to contribute to the thick description of early elementary teacher practice in the ebook-equipped classroom. Following Kushner-Benson and Ward’s model, the three main domains (Content, Pedagogy, and Technology) and 4 intersecting domains (Pedagogical Content Knowledge, Technological Pedagogical Knowledge, Technological Content Knowledge, and Technological Pedagogical Content Knowledge) of the TPACK model were utilized as a priori coding categories. First, the semi-structured interview transcripts, surveys, written reflections, video recordings of reading instruction, lesson plans, debrief interviews and ebook quality ratings were coded for instances of the three broad knowledge domains. For example, “introduce vocabulary words and ask students if they have heard it before” was coded as evidence of a teacher’s pedagogical knowledge because it provided clear documentation of a teaching strategy that the teacher consciously put into place in their classroom. Next, “holistic judgments about the relative size of the knowledge domains” (Kushner Benson & Ward, 2013, p. 159) were made to determine and classify them as large, moderate or small and then knowledge domain circles were created for each participant. Decisions about the size of the circles were based on
patterns identified in the data. Table 8 outlines the knowledge domain circle size criteria used for the purposes of this study.

Table 8. Code Instance Criteria for Knowledge Domain Circle Size

<table>
<thead>
<tr>
<th>Knowledge Domain</th>
<th>Small</th>
<th>Moderate</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Knowledge</td>
<td>&lt; 10</td>
<td>10-25</td>
<td>&gt; 25</td>
</tr>
<tr>
<td>Pedagogical Knowledge</td>
<td>&lt; 10</td>
<td>10-25</td>
<td>&gt; 25</td>
</tr>
<tr>
<td>Technological Knowledge</td>
<td>&lt; 10</td>
<td>10-25</td>
<td>&gt; 25</td>
</tr>
</tbody>
</table>

The same process was implemented for creating models for the areas where the knowledge domains overlap and the main knowledge domain circles were arranged to represent the extent of interaction between domains. For the purposes of this study, the determination of the extent of overlap between the domains “depended heavily on the instructors’ ability to intentionally articulate their instructional decisions” (Kushner Benson & Ward, 2013, p. 159). Criteria utilized for the purposes of classifying knowledge domain overlap size are presented in Table 9.

Table 9. Code Instance Criteria for Knowledge Domain Overlap Size

<table>
<thead>
<tr>
<th>Knowledge Domain</th>
<th>Small</th>
<th>Moderate</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Content Knowledge</td>
<td>&lt; 8</td>
<td>8-16</td>
<td>&gt; 16</td>
</tr>
<tr>
<td>Technological Content Knowledge</td>
<td>&lt; 8</td>
<td>8-16</td>
<td>&gt; 16</td>
</tr>
<tr>
<td>Technological Pedagogical Knowledge</td>
<td>&lt; 8</td>
<td>8-16</td>
<td>&gt; 16</td>
</tr>
<tr>
<td>Technological Pedagogical Content Knowledge</td>
<td>&lt; 5</td>
<td>5-10</td>
<td>&gt; 10</td>
</tr>
</tbody>
</table>
The TPACK teacher profiles discuss the particular patterns of knowledge domains and how the patterns have impacted the teacher’s teaching in an ebook-equipped classroom. The three broad knowledge domains of Content, Pedagogy and Technology knowledge are first described, followed by discussion of the intersecting areas, presented in the following order: PCK, TCK, TPK, and TPCK. Following are TPACK profiles of the participants and their respective schools: Katie is at Orange Elementary, Denise and Dawn at Raleigh Primary.

**Katie**

Katie’s degrees include a Bachelor of Science in Elementary Education and Master of Arts in Reading and Literacy. A novice teacher, Katie has four years of teaching experience, all of them at the kindergarten level at Orange Elementary School. Katie’s TPACK profile is illustrated in Figure 6.

Katie’s knowledge domains are shown on the left portion of Figure 6. Each of Katie’s knowledge domains is moderate in size. Katie primarily discussed the content of her literacy classroom instruction as directly aligned to Common Core State Standards in English-Language Arts. For example, she shared the following about selecting an ebook:

Identifying words that rhyme is one area of our kindergarten standards. We were discussing rhyming in word work and this ebook contains sets of rhyming words; therefore, I decided to use it so that students could focus on pulling out sets of rhyming words.
During the first semi-structured interview, Katie shared that her instructional practices lean toward a learner-based approach and indicated that she uses a variety of teaching strategies and assessment techniques. During her undergraduate and graduate studies, Katie took two technology courses, although she shared that her prior exposure to ebooks was for personal use only and that she does not own an eReader or tablet device. Classroom management functions and instructional presentations are the main uses of information and communication technologies (ICTs) for Katie.
Another area of interest in Katie’s profile is in the manner in which her knowledge domains overlap. This is illustrated on the right side of Figure 6, and for the purposes on this study, interpreted in the following narrative.

*PCK:* Although moderately knowledgeable about her subject area, Katie displayed a small degree of PCK. The Common Core State Standards in English Language Arts primarily drove her pedagogical choices, with additional consideration given to Ohio’s Learning Standards in Science and Social Studies:

I had the students participate in a story impression before each shared reading. I would give the students 5 vocabulary words along with 5 other words that I chose from the text to set up some context.

*TCK:* Similar to the PCK domain, Katie displayed a small degree of TCK. While Katie displays a moderate degree of technological and content knowledge, she rarely differentiated the manner in which she provided exposure to ebook content, with most opportunities being teacher-directed presentations of an ebook.

*TPK:* TPK is another domain in which Katie demonstrated a small overlap on the TPACK profile. While Katie displays a moderate degree of technological and pedagogical knowledge, she rarely differentiated ebook instruction from the Read-Aloud and Shared Reading strategies. Pedagogical approaches with technology were often repetitive, with limited opportunities for student-directed learning.

*TPCK:* During the course of the debriefing interview, Katie articulated an understanding of the dynamic relationship between the three main knowledge domains:

I found that when I was using an ebook with animations and illustrations that connected to the text as part of a shared reading, my lower readers had
a new and effective support to visualize more effectively when they were answering more complex inferential and reflective questions.

Katie’s profile shows a trace overlap of the three knowledge domains as she exhibited a small degree of TPCK.

Denise

Holding a Bachelor of Science in Elementary Education and Master of Arts in Reading and Literacy, Denise has been teaching for 15 years. She currently teaches second grade, and has been at that grade level for 3 consecutive years at Raleigh Primary. Her prior teaching experience includes pre-kindergarten and kindergarten. Denise’s TPACK profile is illustrated in Figure 7.

The left portion of Figure 7 shows Denise’s knowledge domains, which are all large in size. Denise discussed the content of her literacy classroom instruction as directly aligned to Common Core State Standards in English-Language Arts and Mathematics, Ohio’s Learning Standards for Science and Social Studies as well as making indirect curricular ties to Raleigh Primary’s local curriculum.

Denise articulated that her instructional practices are consistent with a learner-based approach and indicated that student inquiry and self-directed problem solving influence the content and context of her instruction. While she had no technology courses during her undergraduate and graduate studies, Denise shared that her prior exposure to ebooks was for professional and personal use. She also owns an iPad, an iPhone and a Kindle.

Another area of interest in Denise’s profile is in the manner in which her knowledge domains overlap. This is illustrated on the right side of Figure 7, and for the purposes on this study, interpreted in the following narrative.

**PCK:** Although extremely knowledgeable about her subject area, Denise displayed a moderate degree of PCK. Her pedagogical choices were primarily driven by the Common Core State Standards in English Language Arts, which additional consideration given to the Common Core State Standards for Mathematics, Ohio’s Learning Standards for Science and Social Studies and her
school's local curriculum. Denise shared the following experience illustrating her understanding of PCK:

I provided my kids with small vocabulary cards that each student could use during their independent reading. I posted this combination of word, picture and definition so students could refer to them as they read in the ebook nook area.

_TCK:_ Denise displayed a small degree of TCK. While she shows a large degree of technological and content knowledge, there were only two occasions in which Denise differentiated the manner in which she provided exposure to ebook content. On those two occasions, Denise provided opportunities for student-initiated ebook learning experiences, however based on the criteria outlined in Table 9, Denise’s TCK overlap area was judged to be small.

_TPK:_ With a large degree of technological and pedagogical knowledge, TPK is another area in which Denise demonstrated a large degree of overlap. During an interview she explained how she adjusted her pedagogy to support the use of Before, During, and After (B/D/A) reading strategies when using ebooks as instructional tools:

Before any guided ebook activity, I always planned a B/D/A activity. I feel it is important to give them a focus before we read or listened to the ebook. During the reading, the students enjoyed identifying and connecting the vocabulary between the ebooks and the vocabulary cards I created for them to use.

Denise frequently differentiated ebook instruction through the use of the B/D/A framework using a variety of strategies during ebook instruction. Strategies were utilized to assist students in activating existing knowledge, create a mental framework, and connect new vocabulary, ideas and concepts to what they had read.
This framework was initiated before reading begins, bolstered as students interact with text during reading, and used reflectively after reading when students connect what they have read to existing knowledge schema. Conversation, writing and reading are the key processes used during B/D/A strategy implementation. In addition, Denise frequently augmented four guided oral reading strategies to incorporate in to the ebook reading experience. Analysis of lesson plan data shows Denise applied four guided oral reading strategies to her ebook pedagogical approach, including read aloud, shared reading, choral reading and Reader’s Theatre strategies.

TPCK: Denise demonstrated the integration of Content, Pedagogical and Technological knowledge domains. Interview transcripts, lesson plans, ebook quality ratings and video of classroom instruction revealed technological decisions with foundations in differentiated pedagogies and content:

I kept experimenting with different teaching formats and student groups when integrating the ebooks in my literacy block. I found that using the touchscreen to share the ebook with small groups initially followed by multiple days using the iPods for independent or paired reading seemed to really work. That allowed me to create flexible groups based on student needs that I could pull in and work on discrete skills I had previously identified. I think pointing out tricky words prior to reading the ebook really sets kids up to be successful when they come across them in the text. I liked how the ebook allowed me to pause the narration when we encountered the words in the text so we could talk about the context clues. This really helps students understand important vocabulary more in depth.

Denise exhibited an ability to assimilate TPCK in distinctive ways around ebook instruction that foster her students’ learning thereby demonstrated a
moderate understanding of the dynamic relationship between the three main knowledge domains.

**Dawn**

Dawn’s degrees include a Bachelor of Arts in Elementary Education and Master of Science in Elementary Education. She has 11 years of experience in the early elementary classroom; all of which have been spent teaching first grade in Raleigh Primary. Dawn’s TPACK profile is illustrated in Figure 8.

![Figure 8. Dawn’s TPACK profile. Adapted from “Teaching with Technology: Using TPACK to Understand Teaching Expertise in Online Higher Education,” by S. N. Benson and C. L. Ward, 2013, Journal of Educational Computing Research, p. 160. Copyright 2013 by the Baywood Publishing Co., Inc. Adapted with permission.](image-url)
The left portion of Figure 8 illustrates Dawn’s knowledge domains. Dawn possesses a large domain in pedagogical and technological knowledge, as determined by frequency of codes outlined in Table 8. Her content knowledge domain is moderate in size. Dawn discussed the content of her literacy classroom instruction as directly aligned to Common Core State Standards in English-Language Arts.

During the first semi-structured interview, Dawn shared that her instructional practices lean toward a learner-based approach and indicated that she uses a variety of teaching strategies and assessment techniques. She received no courses in technology during her post-secondary studies. Dawn’s owns an iPad and her prior exposure to ebooks was for professional and personal use.

Another area of interest in Dawn’s profile is in the manner in which her knowledge domains overlap. This is illustrated on the right side of Figure 8, and for the purposes of this study, interpreted in the following narrative.

**PCK:** Moderately knowledgeable about her subject area, Dawn also displayed a moderate degree of PCK. The Common Core State Standards in English Language Arts primarily drove her pedagogical choices, with additional consideration given to Ohio’s Learning Standards in Science and Social Studies.

**TCK:** While Dawn displays a large degree of technological knowledge and a moderate degree of content knowledge, her TCK overlap was limited in size. Dawn only occasionally differentiated the manner in which she provided exposure to
ebook content, with most opportunities being teacher-directed presentations of an ebook.

**TPK:** TPK is one domain in which Dawn demonstrated a large overlap on the TPACK profile. Dawn displays a large degree of technological and pedagogical knowledge, and on multiple points in the data articulated a differentiated approach to ebook instruction. Pedagogical approaches with technology were often repetitive, with limited opportunities for student-directed learning.

**TPCK:** Dawn minimally articulated an understanding of the dynamic relationship between Content, Pedagogical and Technological knowledge. This is exemplified in an excerpt from an interview transcript in which she is describes how she incorporates the shared ebook reading into her literacy block:

I conduct my mini lesson for writing first and send my students off to write independently. I then call my guided reading groups over to the carpeted area to engage in the shared ebook experience at the touchscreen. It is easy to set up, presents minimal interruption and distraction to the other students and takes about 20 minutes when I follow a B/D/A format. After they finish their writing, students can re-read the ebook again on an iPad or iPod.

Dawn's TPACK profile shows a small overlap of the three knowledge domains as she exhibited a small degree of TPCK.

**Summary: TPACK Teacher Profiles**

The purpose of this section was to acquaint the reader with the educational background and experiences of the three participants through the lens of the TPACK model in order to discuss the unique patterns of knowledge domains and describe the experience of how the patterns have impacted the teacher’s selection
of ebooks and their instruction using ebooks in the early elementary classroom. All three shared some collective ties that extended beyond teaching in the early elementary setting at their respective schools.

The participants' own educational backgrounds had their foundations in traditional print-based literacy; consequently, they did not grow up with technology but cultivated technology skills during their teaching careers. Although two of the participants were not formally educated using digital technologies, data collected from the interviews showed a repeated theme of early interest in and aspiration to use information and communication technologies in the classroom.

While the two veteran teacher participants did not have an instructional technology course as part of their teacher education program, their interest in technology started during their careers and has proven to be a significant part of their teaching practice. Data analysis bears out moderate to large degrees of technological, pedagogical and content knowledge across the participants; however, the development of domain overlap depends on many factors and is a different process for each participant.

**Theme Analysis**

Thematic analysis was employed as a categorizing strategy for the qualitative data collected in this study. According to Boyatzis (1998), thematic analysis is a process of "encoding qualitative information" (p. vii). This encoding led to the emergence of three primary themes, each theme addressing a single overarching research question listed below:
1. In what ways do early elementary teachers use ebooks to support learning in the classroom?

2. What kinds of criteria do early elementary teachers use to select eBooks for use in their classroom?

3. What challenges and opportunities do early elementary teachers encounter when using eBooks in the classroom?

Thematic analysis was used to move data analysis from a broad reading of the data, to the development of the TPACK teacher profiles and finally towards discovering patterns and developing themes that emerged across the cases. The three primary themes that emerged across the cases are presented in this section. Under each primary theme, a detailed analysis of secondary and tertiary themes will be included where applicable.

**Theme 1: Teachers use ebooks to adapt and extend traditional comprehension and oral reading practices in the classroom to support learning.**

The presence of traditional comprehension strategies was a common theme that emerged across the cases. Before, During, and After (B/D/A) reading strategies were utilized by teachers in the ebook-equipped classroom to aid students in activating existing knowledge and help students to create a mental framework to which new text, vocabulary, concepts, ideas, etc. could be attached. During analysis of the transcripts and lesson plans, it became evident that teachers using ebooks to support learning seek to activate prior knowledge before ebook reading begins,
continue to bolster it as students interact with the text during ebook reading, and further reinforce after ebook reading when students integrate what they have read into their pre-existing knowledge. Table 10 presents a summary of key B/D/A reading strategies employed by the participants.

Table 10. Summary of Key Before, During, After Reading Strategies

<table>
<thead>
<tr>
<th>Before / Build Background Information</th>
<th>During / Identify Supporting Details</th>
<th>After / Retell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activate Prior Knowledge</td>
<td>Main Idea</td>
<td>Summarize</td>
</tr>
<tr>
<td>Build Background Information</td>
<td>Identify Supporting Details</td>
<td>Retell</td>
</tr>
<tr>
<td>Connect to Self/Personal Lives</td>
<td>Connect to Self/Personal Lives</td>
<td>Connect to Self/Personal Lives</td>
</tr>
<tr>
<td>Introduce Vocabulary</td>
<td>Identify Vocabulary</td>
<td>Review Vocabulary</td>
</tr>
<tr>
<td>Make Predictions</td>
<td>Confirm/Disprove Predictions</td>
<td>Confirm/Disprove Predictions</td>
</tr>
<tr>
<td>KWL Graphic Organizer</td>
<td>KWL Graphic Organizer</td>
<td>KWL Graphic Organizer</td>
</tr>
<tr>
<td>Story Impression</td>
<td>Story Event Sequencing</td>
<td>Respond through Writing</td>
</tr>
<tr>
<td></td>
<td>Connect to other Texts</td>
<td>Connect to other Texts</td>
</tr>
<tr>
<td></td>
<td>Compare/Contrast</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ask Questions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Draw Conclusions</td>
<td></td>
</tr>
</tbody>
</table>

“Before sharing an ebook with students, I usually ask them look at the homepage, pictures, and titles,” said Katie. She went on to further explain additional Before reading strategies she used, which focus on building comprehension and vocabulary:
A few times I had the students participate in a story impression before an ebook shared reading. Other times, I would give the students 5 vocabulary words along with 5 other interesting words that I chose from the text to set up some context. We would discuss the word and definition before we read the ebook.

The prevalence of B/D/A strategy use emerged across all three cases. Dawn shared a specific pedagogical approach she used when introducing vocabulary to her students before reading:

Another strategy I used was to ask the students to hold up fingers as they were introduced to words. One finger indicates “I have no idea what this word means,” two fingers is “I kind of know what this word means, but I cannot use it in a sentence or describe the definition,” and three fingers means “I know this word, I can use it in a sentence and give a 1st grade version of the definition.” After reading, I have the students use the new words in Writing Journals by making up sentence or using one from the story.

When sharing her B/D/A strategies and experiences, Denise said she asked “students to write down thoughts, discuss with partner, and share meaningful ideas with class. This forces interaction and uncovers various perspectives and prior knowledge.” She also added:

I think pointing out tricky words prior to reading really sets kids up to be successful when they come across them in the text. I liked stopping when we encountered the words in the text and talking about the context clues to help us understand the words more in depth. My after reading strategies mainly focused on discussion of the book and then some written response to the texts. For example, after Hoover’s Bride we wrote about the changes in Hoover’s character. When we finished Dinosaurs Roar, Butterflies Soar, we worked on making pictures of the new vocabulary words, and after an independent reading of A Platypus, Probably each child wrote four new things that they learned.

While B/D/A strategies, such as the ones explained by Denise, were the most common occurrence across the cases, the data shows all three teachers also
adapted traditional oral reading strategies to support learning in the classroom. Guided repeated oral reading is one pedagogical approach that can assist students in expanding a variety of reading skills, including fluency. In particular, the read-aloud and shared reading experiences are bedrocks of literacy instruction for young children. In these early literacy learning experiences, the primary responsibility of processing printed text is teacher-centered, rather than student-centered. (Block & Pressley, pp. 256-257).

Throughout the participant lesson plans and confirmed through video and interview transcript data, participants consistently described a variety of guided oral reading practices that they adapted to use during their instruction with ebooks (Figure 9).

![Figure 9. Oral reading strategies by grade level](image-url)
Data analysis across cases revealed that teachers used the shared reading experience most frequently in the ebook-equipped classroom, with references to shared reading occurring in 35 of the lesson plans. The read aloud strategy was also common across cases, with six occurrences accounted for in the lesson plan data. Other oral reading strategies used by participants included choral reading and Readers’ Theatre, although the data shows these were rarely used in conjunction with ebooks to support learning in the classroom. A more detailed analysis of each oral reading strategy augmented for use in the ebook-equipped classroom follows.

**Shared Reading**

An interactive reading experience, shared reading is a common practice that is initiated by the teacher, who provides guidance and support for students as they join in or share the reading of a text. In shared reading, children take part in reading and learn important concepts of how print works as the teacher clearly models the foundational skills of proficient readers (Fountas & Pinnell, 1996). The shared reading experience was the most predominant oral reading strategy utilized by the participants. Participant lesson plan data reflected 48 instructional days, with a shared ebook reading activity for 35 of those days. All three participants described incorporating another effective oral guided reading strategy, shared reading, into their instruction with ebooks.

During the second semi-structured interview, Denise explained her rationale for adapting the shared reading experience for use with ebooks in her classroom:

I liked exposing the children to something different with the ebooks, and I thought it would be nice to have a familiar routine to use during guided
reading. Mix a little something old with a little something new...that way the kids aren't totally unfamiliar with everything that is going on.

She went on to explain:

I’ve been using shared reading in my room since the first week of school, so my students definitely know what to expect and we have built routines around it...I thought it was easy to use the shared reading structure with ebooks...The biggest change was working with the narration to share the text rather than me reading. I would switch it up sometimes and turn the audio off so I could read and share the story with them.

Denise cited issues with classroom space and technical difficulties with the ebooks adapting the shared reading experience for use with ebooks, stating, “It’s hard for four kids to fit comfortably around the touchscreen and the narrator's volume wasn’t loud enough for a few sessions...I would recommend a maximum of three students, but two would be even better.”

When asked what worked during her shared reading experiences, Dawn stated, “The ebook shared reading session allowed students to become familiar with ebooks. They were very fast, so it didn’t require a huge amount of time. The kids were excited because they enjoy anything that involves technology.” Dawn also shared her preference on the number of students participating in the ebook shared reading, commenting, “It was hard for all four kids to see and interact with the computer. After the first few shared readings I limited the number of students to two or three.”

Reading texts aloud to students as they follow along, or the “Read-Aloud,” was another oral reading strategy utilized by all three participants.
Read Aloud

According to Senechal, Thomas, and Monker (1995), the read-aloud benefits all learners with language acquisition by providing opportunities to become accustomed to the academic or literary language required for school success. Participants noted that they often conducted ebook read alouds with their entire class, most often projecting the ebook on a screen or interactive whiteboard. Participant lesson plan data reflected 48 instructional days, with an ebook read aloud activity for 11 of those days. All three participants described incorporating the read aloud strategy into their instruction with ebooks.

Dawn shared, “it’s easiest to have all the kids on the carpet in front of the whiteboard. We have a speaker system in our classroom, so the kids can all see the book and can hear it with no difficulty.” She also noted that in most cases, she did not actually read the text aloud to students, citing the ebook narration as “very engaging for the students” and “captivating.”

Katie shared a similar read aloud experience:

Most of the ebooks include a “Read To Me” option that I like to take advantage of the first time I introduce a text to my students. If possible, I try to find a text that is available as an ebook and also printed book, that way I can give them exposure to different forms of the book after we read it aloud the first time. We gather as a class by the SMARTBoard and read the ebook there. The quality of the narration is usually good and my students are attentive and seemed engaged with the story.

While shared reading and the read aloud where common oral reading strategies across all participants, one participant shared her experience adapting choral reading and Readers’ Theatre for use with ebooks.


**Choral Reading and Readers’ Theatre**

In a choral reading, students read along in unison with a group that includes the teacher. According to Hasbrouck (2006), choral reading assists in building students’ fluency, self-confidence, and motivation. Of the 48 instructional days reflected in participant lesson plan data, choral reading was implemented on 2 of those days while Readers’ Theatre was used just once. Only one participant incorporated these oral reading practices into their instruction with ebooks. Denise describes how she incorporated this strategy:

> Since it is important that all the students can see the text for a choral reading, I most often use a big book or individual copies of a text. The ebook on the touchscreen provided a new way to share the text with my small groups...I would gather them around the touchscreen and we would read together...You have to make sure you choose the “Read By Myself” setting so the narration is off. In some ebooks, it is just too fast...I usually use a choral reading a day or two after our initial read-aloud.

> Another oral reading strategy that helps build fluency, is Readers’ Theatre, where students perform using scripts derived from the dialogue in a book. Keehn (2003) indicates that Readers’ Theatre presents readers with an authentic reason to reread text and to practice fluency. Again, Denise shares her experience:

> This group of kids really loves to perform and Readers’ Theatre is one of their favorite activities. I actually found a blank script graphic organizer that they can use during our writing block. I usually have my students’ partner to work on a script the covers their favorite part of the story. I’d send the pair to the touchscreen and they would use the ebook controls to toggle through the story as they were writing...We learned the hard way about turning the narration off for this activity...The first time it came on really loud and disrupted the other students in the room. After that, the kids almost always remembered to use the manual reading mode...It worked really well and the kids were really engaged in the writing process.
Data analysis around this theme revealed that while ebooks present new opportunities to support learning in the early elementary classroom, participants felt most comfortable using ebooks in their classroom by adapting well-known comprehension and oral reading instructional practices and applying them to instruction in the ebook-equipped classroom. While all participants used shared reading and read aloud approaches, the integration of choral reading and Readers’ Theatre into the ebook-equipped classroom by Denise contributed to a higher frequency of code occurrence in knowledge domain overlap, leading to a higher level of TPCK adeptness in her TPACK teacher profile.

**Theme 2: Teachers make ebook selections based on genre, content area connections and digital features that enhance literary content.**

Building on the work of Roskos, Brueck and Widman (2009) the Ebook Quality Rating Tool (EQRT) was used to collect data related to ebook quality, teacher selection criteria and instructional approaches used by teachers (Appendix I). Data was collected from October 2011 until May 2012. A total of 134 ratings were collected during that time. Of the 134 total ratings, the three early elementary teachers rated 84 unique titles. A snapshot of ebook rating data is can be found in Figure 10.
The largest amount of ebook rating data came from the second grade level. Ebooks from the Tumblebook collection accounted for 59 of the total ratings while 75 Scholastic BookFlix titles were rated. Literary ebooks made up 45 of the total ratings while 89 informational ebooks were rated. EQRT data was analyzed to gain a better understanding of the selection criteria early elementary teachers use when teaching in an ebook-equipped classroom and three secondary themes emerged across cases.

**Genre**

The three early elementary teachers consistently indicated their preference for informational texts, especially those from the Bookflix collection, when selecting ebooks. For example, Denise shared, "I'm always looking for a non-fiction story to share with the children." She went on to add, “I loved the non-fiction content"
available on BookFlix. I like how they pair a fiction with a non-fiction ebook.”

Denise further described her preference for selecting informational ebooks as well as highlighting her technological content knowledge (TCK) when she explained, “We are working on using schema and this ebook is paired with a fictional book about butterflies that my students have already read, so it is a great fit for my classroom.”

Dawn echoed that sentiment when she stated her reason for selecting an ebook, “It was a pair/share partner text that supported the fiction text we read the previous day.” She went on to elaborate, “the students have been exploring the differences between fictional and non-fiction texts. This ebook was a great way to show non-fiction text.”

The predominant genre choice at the kindergarten level was informational text (Figure 10), and Katie noted selecting an ebook based on genre on several occasions. In one instance, she explained, “It goes with our Farm Theme and we also read Pigs [emphasis added] which is a good comparison of non-fiction and fiction.”

The Common Core State Standards (CCSS) adopted by 43 states, the District of Columbia, and four territories include an increase in the amount of informational text that students will hear, read, and write. Whereas previous standards have focused on skills and strategies, the CCSS emphasize text types. The standards suggest that kindergarten through Grade 5 students spend half of their reading
time with informational text, with the anticipation that there will be an increased focus on informational text in later grades.

Informational texts play a vital role in building students’ content knowledge. Students often struggle to comprehend informational texts because of their lack of exposure to them, due in part to limited exposure through classroom libraries, basal reading programs, and teacher practices. Data analysis across all cases indicates that early elementary teachers are aware of the increased focus on informational texts in the CCSS and select ebooks that can provide their students additional exposure to informational text. Similarly, early elementary teachers are looking for ebooks that have content area connections when selecting instructional materials for their students.

**Content Area Connections**

While the participants’ preferred informational ebooks, the data also shows that content area connections were desirable to early elementary teachers (See Figure 11). An underlying concept that was bracketed out in the Ebook Quality Rating Tool (EQRT) data, and further explored in semi-structured interviews, was the idea that early elementary teachers are seeking to teach content area curriculum as a part of their integration of ebooks to support learning.
Katie stated, “We were learning about map concepts in Social Studies. I choose this ebook because it contained a lot of the vocabulary I wanted to introduce to my students.” This kindergarten teacher went on to explain during a follow-up interview how a literary ebook reinforced her content area tie-in. “We learned about maps last week,” she said. “This ebook was about the United States and contained a nice interactive map activity that allowed students to navigate using cardinal directions.”

Denise also noted content area connections. “I selected this ebook in order to correspond to our social studies theme,” she shared in an EQRT rating. When asked to expand on this statement, she offered, “this ebook correlates to the second grade social studies standards and at the time, we were covering similar concepts in class.” She concluded with a statement that demonstrated a facet of her
pedagogical content knowledge (PCK), “I’m always searching for ways to bring content area materials into my Daily Five block. The kids enjoy the ebooks and it is great when I can find ones that relate to the standards in science or social studies.”

Direct curricular ties to standards as reason for selecting ebooks was also seen from Dawn, who said, “This ebook covers standards about light and sound. We are covering the subject in science.” She further explained, “I’m finding that ebooks can provide great content for curriculum connections, although I wish I could more easily search for specific science topics in Bookflix and Tumblebooks.”

With a primary focus on the teaching of reading in the early elementary years, teachers often search for instructional materials that can weave content area learning into their reading instructional block. Data analysis across cases shows that early elementary teachers most commonly select ebooks that support science, technology and mathematics (STEM) content, with social studies connections also seen as desirable. When informational ebooks with content area connections also contain digital features that support literacy instruction, early elementary teachers are more likely to select them for use in their classrooms. Three key categories of the digital features teachers are looking for in ebooks include emerged across the participant cases.

**Supporting Literary Content through Digital Features**

Another subtheme to emerge from the data broadens understanding of the key characteristics of digital features in ebooks that the participants looked for when selecting an ebook for instruction. These understandings where developed
from semi-structured interviews, written reflections, and ebook quality ratings and focus on three categories of ebook design; ease of use, multimedia and interactivity. The key characteristics of each category that emerged from the data can be found in Table 11.

**Ease of Use.** When selecting ebooks that were easy for students to use, participants looked for some well-known features of traditional books, such as a cover page, page numbers and a clear way to return to the beginning of the ebook. “I prefer ebooks where students do not have to do a lot of scrolling down to find things and they are all on the screen at once,” said Dawn. When asked to clarify what things she preferred on the screen, she followed up with, “When we read a book together, especially for the first time, I always ask my kiddos to located the title, author and illustrator. I’m looking for these same things, all in one place, when using an ebook.”

Participants seemed to think Tumblebooks were easier for children to navigate than ebooks from Scholastic BookFlix, with Katie sharing, “I like how TumbleBooks consistently has flip ahead on the right and flip back on the left in all their ebooks. This makes it easy to use for young students. The buttons are clearly marked and large enough for students to see. Once I figured out how the buttons worked, I was able to play around with what worked for each particular story.”
Table 11. Summary of Key Characteristics of Digital Features for Selecting Ebooks

<table>
<thead>
<tr>
<th>Category</th>
<th>Key Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of Use</td>
<td>The digital book should be easy to navigate and use; it should employ conventions appropriate to books (e.g., a cover page), yet include adaptations best suited to the electronic environment in terms of physical interaction (e.g., touching, orienting to print, scrolling, locating and adjusting).</td>
</tr>
<tr>
<td>Multimedia</td>
<td>The multimedia characteristics of digital books should enhance the reading experience. Audio, video, and image assets should be well integrated with the content and support the construction of meaning. Visuals should incorporate quality images that inform the message.</td>
</tr>
<tr>
<td>Interactivity</td>
<td>The digital medium should be fully utilized to allow readers choice and participation; it should support the flow of text from one screen page to the next. It should allow for augmentations that reach beyond the immediate display of the screen page.</td>
</tr>
</tbody>
</table>

The presence of a button or hotspot to take the reader back to the beginning of the ebook was also identified as a key characteristic when selecting ebooks. “A few ebooks wouldn’t allow the reader to go back a page if needed, or it wouldn’t go straight back to the beginning,” explained Denise. “Unless there was a really good connection to the standards, I would not choose these ebooks for use in my classroom.” Katie also commented, “I would definitely have a way to return to the start of every ebook with one button/click.”

A look across grade levels shows that kindergarten teachers rated the ease of use of self-selected ebooks lower than first and second grade teachers. In general, the data indicates that teachers of younger children think there is a need
for simpler and consistent ebook controls, or what software developers would refer to as user interface (UI).

**Multimedia.** Analysis of the multimedia selection criteria produced several cross-participant characteristics, including the desire for engaging narration that wasn’t too quick for students to follow along with the text, illustrations that supported details from the text, and audio that did not distract students from the story.

During analysis of the EQRT data, it became evident that participants preferred ebooks with narration that was engaging, fluent and appropriately paced. “The reader of the ebooks made the pages come alive with their voice and my students were drawn in to the story, which made me happy I selected it,” explained Dawn. A similar citation was provided by Katie who said, “The narrator voice was VERY [emphasis in original] engaging for the students. There were many times when I decided to allow the narration to play instead of having the children listen to me read...sometimes it was much more captivating and sillier than my voice.” Denise noted, “the ebook text reads fast and does not allow for repeating of the page, rather, it quickly speeds to the next page. I prefer using ebooks that have a moderate pace to the narration. It would be awesome if there was a way to adjust the speed of the narration in the ebook settings.”

The data also shows that participants prefer to use ebooks in which the illustrations supported details in the text. Dawn highlighted this point when she shared her experience with an informational title from BookFlix, “...illustrations are
adequate in relaying a connection between text and illustration, but lack any luster or deep comprehension opportunities." When asked if she’d use the ebook again during a follow-up interview she replied, “Most likely not. I’ll keep searching for an ebook with more supportive illustrations that covers the same topic.” Katie shared a similar experience, citing:

The illustrations were captivating but not distracting and they provide support for the text. We focus on making predictions based on the illustrations and confirming or disproving our predictions using the text regularly. We talk about how this is something good readers do, so I’m always happy to find an ebook with great illustrations to use with my students.

Across the cases, participants all also shared experiences with distracting audio in ebooks they had selected. Dawn made it very clear in her comments, “The audio was absolutely obnoxious. It was just a loud song playing in the background the entire time. I will not be using that ebook again.” When asked what adjustments she makes when she knows ebooks may contain loud or distracting audio, Dawn highlighted her technological pedagogical knowledge (TPK) when she shared, “I have a headphone splitter that allows 4 or 5 sets of headphones to share the reading experience. It can be distracting for others in the classroom when kids are in the ebook nook and the audio is loud. The headphone splitter has been helpful.”

**Interactivity.** Interactions that were engaging for students were commonly cited in the EQRT data across participants. Dawn noted on several occasions, “the animations made it highly engaging for students,” and “everything from the font, to the animated illustrations, to the voices reading the text made it highly engaging for students.” Denise’s experience was similar, sharing, “The children enjoyed the
animation and sound effects,” and also noting the interactive features also “provides support for the text.” When asked to clarify what type of support for the text the ebook provided during a semi-structured interview, she said, “I don’t recall that title specifically, but most often I look for games or animations that support vocabulary and story comprehension.”

While animations and interactivity can be engaging for students, the data indicates that teachers select ebooks with these features most frequently when the digital features support literacy content. Ebooks with digital features that early elementary teachers consider loud or distracting are most often found undesirable and are generally not used for instructional purposes.

Data analysis around this theme revealed that early elementary teachers select ebooks based on genre, content area connections and the presence of digital features that support literacy content. The preference across cases of informational texts with content area connections corresponds to the large overlap areas in both Denise and Dawn’s technological pedagogical knowledge (TPK). Ebook selection criteria used by early elementary teachers indicates that ebook ease of use, multimedia and interactivity can present new instructional opportunities in the ebook-equipped classroom as well as a new set of challenges teachers must overcome in order to provide a supportive learning environment.
Theme 3: Teachers encounter challenges when using ebooks but the opportunities outweigh them.

Analysis of data indicated that the instructional opportunities presented by ebooks outweigh the challenges that teachers face when incorporating them in the early elementary classroom. Of the 134 ebook quality ratings that were submitted by the participants, 68 contained a comment that highlighted new and exciting opportunities present for students. The most common opportunity cited by early elementary teachers dealt with engagement. Teachers repeatedly voiced their pleasure with how engaged students were during ebook reading, with this opportunity appearing in 42 ebook quality ratings. Participants also found the scaffolding mechanisms, such as dictionary definitions of words, illustrations that supported the text and the narration feature present in ebooks to be beneficial to their students. While opportunities to increase engagement or provide additional literacy scaffolding were abundant, all three participants also identified challenges. However, analysis of EQRT data and semi-structured interview transcripts revealed only 21 instances of challenges cited, a much lower rate than seen in opportunities.

Data analysis indicates that the opportunities that emerged across the cases and presented below far outweigh the challenges teachers encountered when teaching in an ebook-equipped classroom.

Engagement: The Wow Factor Opportunity

Findings indicate that teachers think ebooks can engage young readers. Key features of ebooks identified by participants as engaging to students include
animations, audio, illustrations and narrations (Figure 12). Across the participants, illustrations and narrations where consistently identified as the most engaging digital features offered by ebooks.

When sharing her student engagement experiences, Dawn's technological pedagogical knowledge (TPK) was evident when she shared, “I liked the technology portion because it pulled in my reluctant readers – making them excited to read books online.” She also shared, “I love that I am giving my children opportunities to engage with books in a digital format. They are super engaging and it gives a nice balance to printed texts and digital texts. It worked great to open up the digital books on our classroom computers as part of the Daily 5 block. They support the listening center choice. They are extremely engaging to my students with autism.”

Denise shared a similar experience stating, “...the thing that was the most obvious was how engaged and enticing the ebooks are for the children. Reading them is motivating for the students and something different.” When asked to describe what features of the ebooks were most engaging, she added, “Narrator voice was very engaging for the students.”

“The shared reading sessions were easily integrated into my everyday routine with my students. I did not look at it as 'something else to do in my day'. I feel these lessons gave my teaching an edge and made my students want to come read with me,” said Katie.
When asked to reflect on teaching with ebooks, she shared the following about her students:

Their motivation and engagement were high throughout the course of this project. I like the use of the touchscreen and noticed a significant improvement in my students’ attention level during the reading.

While engagement was found to be the most commonly identified opportunity presented by ebooks, it was not the only positive feature identified by participants.

**Opportunities to Scaffold Ebook Readers**

Participants were in agreement that ebooks can help teach children early literacy skills, such as phonological awareness and vocabulary in the second opportunity that emerged from data analysis. Across the cases, findings show that ebooks provide mini-tutorials through hotspots, hyperlinks and virtual assistants who instruct and explain on the spot. These scaffolding mechanisms are seen as
beneficial to supporting learning by the early elementary teachers in three common areas; print awareness, phonological awareness and comprehension.

Analysis of the EQRT data revealed that Katie found that ebooks helped to scaffold print awareness. She shared her technological pedagogical knowledge (TPK) when she said, “...the highlighted text allowed students to follow along at an appropriate level for my emergent readers.” She also commented, “I like to let the students turn the pages,” and the “flip ahead is on the right and flip back is on the left which makes it easy to use for young students. The buttons are clearly marked and large enough for students to see easily.”

Phonological awareness supports, in the form of the ebook offering word pronunciation, where highlighted in an interview with Dawn:

Some of my favorite Tumblebooks to use are the ones that allow you to click or tap on a word and hear it pronounced. Unfortunately, not all the Tumblebooks have this feature. After I showed the students how to use the pronunciation feature when they came to an unfamiliar word, they were disappointed when it was not available...I think it is good for them to have access to and it became one of our strategies to try when encountering an unfamiliar word...I think it is just as helpful to for students when they are reading as our Word Wall is when they are writing.

Denise highlighted two comprehension scaffolds provided in ebooks that she found helpful to support student learning. First, she shared how the ebook animations support the text:

The children enjoyed the animation and sound effects. The word by word text highlighting is nice and the multimedia is very engaging in a manner that helps students understand story events.

An additional comprehension scaffold shared by Denise related to the ebook providing vocabulary definitions for the reader. She explained:
I liked being able to show my students how the vocabulary is highlighted and explained in the ebook. By clicking on a word, like wolf, a picture of a wolf would appear on the screen. For more difficult words, a short definition was provided...This provided a nice opportunity for students to easily go back through the ebook after reading it to locate important words used in the story and then write vocabulary definitions in their journals.

Evidence-based instruction scaffolds were commonly identified in ebook quality ratings and semi-structured interviews and were viewed as opportunities by all the participants. While engagement and scaffolds were the two primary opportunities identified by across the cases, an additional opportunity presented by ebooks and related to writing was described participants.

**Read-Write Connect Opportunities**

The final opportunity that emerged from the data pertained to connecting writing experiences to ebooks. All three participants shared experiences when a writing activity was integrated into the ebook reading experience, although none of the participants elaborated in much detail during follow-up interviews. Dawn shared, “I ask students to use new words from the ebook in their Writing Journals. After the finish reading, students make up a sentence that includes the word or use one from the story.”

The participants’ interest integrating writing opportunities did not stop with after reading activities. Denise shared her next steps with students:

The DigiTXT project has really shown me how engaged around ebooks my students are. They particularly enjoy using the iPods and the iPads we have in my room. Since our success with writing scripts for Readers’ Theatre, I want to explore how I can have students create and share their own ebooks. I’ve already found a few free apps that let you make simple ebooks and publish them to the iBooks library on our devices.
Moving forward, I plan to make some of my own ebooks to share with my students and also ask them to create ebooks to share with their friends and family. I can’t wait to get started!

While not identified as frequently as the previous opportunities, opportunities to connect ebooks to the writing process exist and are appealing to early elementary teachers. The participants view the possibility of writing ebooks with or for young children as an opportunity to support literacy skills and creative thinking. However, along with the opportunities using ebooks to support learning provide, it is highly likely that teachers will encounter some challenges along the way.

**Technical Challenges**

Emerging primarily from the EQRT data, technical difficulties were a common experience across all the participants. Katie noted problems with the touchscreen interface, sharing “the touchscreen was extremely touchy and students would waste time having to click again to fix the screen. Also, the volume was lower and we actually used headphones with some stories.” Dawn shared similar technical problems, commenting, “the touchscreen computer needs calibrated, it is difficult to get it to open the right selections on drop-down menus.” Dawn also discussed technical issues with ebook audio, but offered up a solution that highlighted a significant understanding of technological knowledge (TK) saying, “Speakers were another issue as well…It was difficult to hear the stories being read aloud. I solved this by adding speakers to the touchscreen computer” Another
A technical issue that emerged across all participants dealt with data connectivity and internet bandwidth. It is best exemplified by Denise’s statement:

“The Tumblebooks site experienced occasional difficulty loading the ebooks. There were some occasions where we had to wait to start the lesson while the ebook loaded. This presented a minor management issue for me with a few students losing interest before we even began reading.

During a follow-up interview, Denise expanded on this challenge, sharing how she solved this problem and also highlighting her technological pedagogical knowledge (TPK):

“Our reading block begins right after morning announcements. During the time before school starts, my students are doing a variety of morning work tasks. This gives me a chance to pull the ebook for the day up on the touchscreen and get it loaded in before I begin working with my small groups.

With almost any emerging technology, there is a high likelihood that teachers will encounter some type of technical challenge. Across the cases, teachers often shared the technical problems they experienced teaching in the ebook-equipped classroom, but it should be noted that in all but one instance, they identified a solution to the problem and found a way to work around the technical issue. However, participants also indicated other areas where challenges to using ebooks in the early elementary classroom exist.

**The Attention Grabbers versus Attention Splitters Challenge**

As themes emerged from the analysis of the data, specifically the EQRT and interview transcripts, it became clear that all the participants agreed that ebooks are very appealing to young children. One touch and something happens—sounds,
animations, changing colors and moving illustrations. As a result, data analysis shows that participants think that students were often engaged, however, they also think that students were distracted by the interactive and multimedia content in ebooks on occasion. For example, Denise commented, “the animations made it highly engaging for students, but there was a moving border that could be very distracting.” Katie also shared a similar experience, stating, “animated pages...took away from the text...the students were focused on the pictures and not the words as they were read.”

Dawn described an instance in which the interactive nature of the ebook diminished the literacy learning opportunity, sharing, “The print highlighting is way to fast for a child to cross check picture to text.” When asked in a follow-up interview how she managed situations in which she feels the ebook content distracts from the learning opportunity, Dawn highlighted her technological pedagogical (TPK) knowledge when she responded, “I don’t use those ebooks for group reading activities with my students. Instead, I make them available for students to read independently on the iPad with headphones.”

Participants were in agreement that digital features found in ebooks could distract students in some instances. However, much like the technical challenges outlined above, the distraction factor of ebooks was something teachers indicated they could often work around. The solutions to these challenges highlight instances where participants showed an understanding of technological pedagogical
knowledge (TPK) as they found ways to adapt their instructional approaches to using ebooks in the early elementary classroom.

**Digital Book Handling Challenges**

The final challenge that emerged from data analysis across all participants focused on digital book handling conventions. Book handling encompasses skills such as knowing how to hold a book properly, how to turn pages, how to locate the top and bottom of the page, identifying the cover and back of the book as well as knowing that reading progresses from left to right. Participants frequently shared challenges related to these skills when working within the digital domain of the ebook.

Figure 13 provides an overview of the three main digital book handling challenges participants identified as barriers to effectively using ebooks to support learning: (a) lack of a cover containing title, author and illustrator information at the beginning of the ebook; (b) lack of a way to return to the beginning of an ebook, commonly referred to by participants as the start page; and (c) page turning difficulties, most often identified as a lack for forward and back navigation buttons.
Dawn expressed frustration in returning to the beginning of an ebook, sharing, “...there is not a go back button from page 1 to the cover ...I would definitely have a way to return to the start of the book with one button/click.” This challenge was also identified by Katie, who shared, “A few ebooks wouldn’t allow me to go back a page if needed, or it wouldn’t go straight back to the beginning.”

Denise pointed out difficulties with page turning:

In some ebooks, the place in which to go back is not clearly defined visually. As we are reading a book or an ebook, I often like to go back a page or two to help students make a connection to something that happened earlier in the text. When there is not a clearly marked forward and back button in the ebook, it seems to make it difficult for students to confirm their connections.

Asked what impact this digital book handling challenge has on her instructional practice during a semi-structured interview, Denise shared a solution that demonstrates why her TPACK teacher profile reflects moderate size overlap in the technological pedagogical content knowledge (TPCK) domain:
I’ve started creating my own graphic organizers for ebooks that don’t allow you to page forward or back through the text. I take screenshots of various points in the story and put them into a PowerPoint slideshow. When we are reading an ebook and we get to a point in the story where we want to talk about an earlier part of the story, I can minimize the ebook and toggle to the slideshow. The students can review the story sequence and events easily in PowerPoint. After a few times, the kids picked up on this procedure and now they can stop the ebook when they want and move to the screenshots on their own. It is a little bit of extra work, but my students really benefit from it.

When ebooks lack common book handling features, teachers struggle to adequately support key literacy practices. Unlike technical challenges and digital media distractions, where solutions to the challenges were found to correspond to a moderate to large overlap in the TPK domain, only Denise, an early elementary teacher with a moderate understanding of the dynamic relationship between the three main knowledge domains (TPCK), shared an experience when she was able to effectively use an ebook with less than ideal digital book handling conventions to support learning.

**Conclusion**

This chapter presented the findings from the data analysis of the shared experiences of the three participants and yielded the following three primary themes that respond to the three overarching research questions:

*Theme 1: Teachers use ebooks to adapt and extend traditional comprehension and oral reading practices in the classroom to support learning* described how the participants focused ebook instruction to support comprehension, specifically through the application of Before, During and After reading activities. It also
described the guided oral reading strategies participants augmented for use in an ebook-equipped classroom.

*Theme 2: Teachers make ebook selections based on genre, content area connections and digital features that enhance literary content* described the criteria participants used to select ebooks for use in the early elementary classroom.

*Theme 3: Teachers encounter challenges when using ebooks but the opportunities outweigh them* explored the challenges faced by participants teaching in an ebook-equipped classroom and discussed the potential ebooks possess for engaging young readers, scaffolding early literacy learning experiences and connecting the writing process.

Chapter V provides a discussion and recommendations of the three primary themes as they relate to the research questions. It will also explore implications and suggestions for further research.
CHAPTER V
DISCUSSION

This chapter is devoted to a discussion of the findings as they address the overarching research questions guiding and prior literature discussed in Chapter II. Implications of the study as well as its limitations are presented. The chapter closes with recommendations for future research.

The purpose of this study was to describe how, when provided access, early elementary teachers use ebooks to support learning in the classroom. A basic interpretive qualitative approach was used to study three participants who taught in an ebook-equipped classroom. Capturing the essence of how they adapt their pedagogical approaches to use ebooks to support learning in the early elementary classroom was the focus of the study. Mishra and Koehler's (2006) TPACK framework was used to discuss the unique patterns of content, pedagogical and technological knowledge domains and how the patterns impacted the teacher’s instructional decisions.

The qualitative nature of the study proved enlightening and produced rich data for analysis. Prior to this study, there had been little research in the area of using ebooks to support learning in the early elementary classroom; the main emphasis of prior research focused on the internal instructional design of the
ebook as a literacy learning resource for the preschool-age child (Anderson-Inman & Horney, 1997; Labbo & Kuhn, 2000; Roskos & Brueck, 2009). Others examined how ebooks may support emergent literacy development through engagement and scaffolding (Moody, Justice & Cabell, 2010). Thus, research that focused on the pedagogical approaches and experiences of early elementary teachers and their students is still limited. This study sought to situate literacy instruction with children’s ebooks within the broader spectrum of literacy categories currently in place as well as describe the experiences of early elementary teachers as they cultivate the emergent skills necessary to fully integrate technology into their classroom and meet the literacy needs of kindergarten through grade two students at public elementary schools.

The literature review in Chapter II offered a review of the history and benefits of literature in teaching reading. The literature review sought to explain how literature is used to support reading in all forms leading up to and including ebooks and how present research views the emerging role of the ebook as a curricular resource in the early elementary classroom. The literature review included research about the instructional design of ebooks as well as the use of ebooks to support literacy development. The literature review also included an explanation of the TPACK model (Mishra & Koehler, 2006), which was instrumental in establishing a pedagogical framework guiding the study and narrowing its focus.

Chapter III presented the basic interpretive methodology employed to gain an understanding of the participants’ used ebooks to support student learning and
to explain how the participants experienced this shared phenomenon (Creswell, 2007, p. 66). The participants all experienced comparable teaching situations (phenomenon) and the study sought to seek out the specific “meaning-making of the individual mind” (Crotty, 1998, p. 58) from each participant’s perspective.

Chapter IV began by describing the three individuals who were selected from two elementary schools in the Midwest. Each of the participants taught in an early elementary classroom, and had been invited to participate in a teacher planning grant through referrals from school administrators. Based upon the school administrators’ perception of high levels of proficiency in utilizing technology for instruction, these three people were “purposefully selected” (Creswell, 2009, p. 179) to relate their shared experiences.

Each of the three participants were involved in three semi-structured interviews, all of which occurred at their respective schools. Data were collected using interview transcripts, surveys, written reflections, video recordings of reading instruction and associated transcripts, lesson plans and ebook quality ratings. Participant profiles were presented through the TPACK teacher profile (Kushner Benson & Ward, 2013) and the primary, secondary and tertiary themes that emerged were presented to conclude Chapter IV.

After coding and analyzing the data, three themes emerged illustrating the practices of the participants:

1. Teachers use ebooks to adapt and extend traditional comprehension and oral reading practices in the classroom to support learning.
2. Teachers make ebook selections based on genre, content area connections and digital features that enhance literary content.

3. Teachers encounter challenges when using ebooks but the opportunities outweigh them.

In the following section, each theme is articulated under the corresponding research question. A review of prior research is presented followed by a discussion of how the present study expands that body of knowledge.

**Research Question One**

The first research question of this study was: *In what ways do early elementary teachers use ebooks to support learning in the classroom?* The data analysis showed teachers use ebooks to adapt and extend traditional comprehension and oral reading practices in the classroom to support learning. This theme is summarized below.

Teachers used ebook instruction to support comprehension through the use of Before, During and After (B/D/A) reading strategies. Literature pertaining to ebook instructional approaches that are effective in supporting student learning is in its infancy. Prior research addressed pedagogical approaches at the preschool level. Roskos, Burstein, You, Brueck and O'Brien’s (2011) formative study investigated the potential functionality and usability of a prototype 4-component ebook instructional model. In a follow-up study, Roskos and Burstein (2014) examined the implementation of ebook shared reading in eight preschool classrooms. Their results suggest a relatively easy transition from traditional to
ebook shared reading that may support children’s word learning, but may not maximize the potential of ebooks for instruction and independent reading. Additionally, Liu, Tseng and Wu (2013) proposed a participatory learning framework to design reading activities with ebook readers. Their findings also show that an ebook collaborative storytelling activity may afford a variety of forms of interaction between adults and young children.

This study revealed that while ebooks present new opportunities to support learning in the early elementary classroom, participants felt most comfortable using ebooks in their classroom by adapting well-known comprehension and oral reading instructional practices and applying them to instruction in the ebook-equipped classroom. Although the participants consistently indicated ebooks contained features and enhancements not available in traditional books, they consistently failed to articulate an understanding of how these technological advantages impacted their content and pedagogical knowledge, point out the enhancements to their students, or develop new instructional approaches that leveraged the digital features and enhancements. Across the cases, early elementary teachers consistently implemented approaches that were not ebook specific, but instead sought to activate prior knowledge before ebook reading begins, continue to bolster it as students interact with the text during ebook reading, and further reinforce after ebook reading when students integrate what they have read into their pre-existing knowledge, a strategy often used with traditional books. Participants also consistently described a variety of guided oral
reading practices that they adapted to use during their instruction with ebooks. Teachers used the shared reading experience most frequently in the ebook-equipped classroom, with the read aloud format also used across cases. One teacher used the choral reading and Readers’ Theatre strategies in her ebook-equipped classroom.

The TPACK Teacher Profiles show that all participants fall within the moderate to large content knowledge (CK) domain. Additionally, each teacher had earned a M.A. in Reading or Literacy. They had been recommended for participation in the Teacher Planning Grant by their principals, who had identified them as excellent teachers. The participants understood that comprehension is the impetus for reading and is a cognitive activity dependent on outstanding fluency, vocabulary, and prior knowledge (National Reading Panel, p. 11, section 4). These knowledgeable teachers also knew that reading for comprehension entails connecting new text to prior knowledge. Both Cook (1989) and Liontas (2001) asserted that activation of learners’ prior knowledge and schema will facilitate reading. Additionally, research tells us that students learn best when teachers make use of an assortment of strategies to model and demonstrate reading knowledge, strategy, and skills (Braunger & Lewis, p. 94).

The application of a wide variety of B/D/A activities and oral reading strategies when teaching with ebooks indicates that teachers treat ebooks just as they do any other curricular material that has traditionally been used to support literacy learning in the classroom, such as a basal reader, children’s literature, big
books or magazines and newspapers. When the ebook is seen as a native part of classroom curricular materials, early elementary teachers are quick to fall in to familiar practice and use ebooks to help support student comprehension. The B/D/A activities and oral reading strategies demonstrated across the cases shows that the infusion of ebooks into a good teachers classroom can be a relatively easy transition to make.

Using ebooks to support learning in the early elementary classroom is much like teaching with traditional books, a practice that is familiar to all early elementary teachers. Teachers can use a number of familiar shared book reading activities with ebooks—the application of the B/D/A framework, for example, and the introduction to the title, author, and illustrator on the initial screen page of the ebook. Evidence-based instructional techniques are retained, such as making predictions, asking/answering questions, learning new words, linking to prior experience, and discussing print and picture. There are also some notable augmentations that are important in an ebook reading environment.

Before reading, previewing an ebook may take more time, as teachers will need to evaluate its quality both as a piece of literature and also as an electronic book. Teachers need to make instructional decisions about what mode to use (listen to narration or read aloud) and when. They need to consider what devices to use to maximize children's participation at the outset and throughout the ebook reading experience. There are also new steps in the during-reading phase, especially around modeling key digital features and showing how these features
link to words, ideas and/or the story line. Over a few days, as students gain familiarity with the story and the digital assets, the teacher should teach specific traditional and digital reading skills. After each reading, children can return to their favorite parts. At this time the teacher can highlight how digital features work and the links between hotspots, for example, and the words or story plot. He or she can also ask individual children to “try” to read a page & negotiate the screen interfaces.

The future of teaching with ebooks is promising. Most practicing teachers should be able to incorporate ebooks as an additional curricular resources with ease. Teachers with a limited technological knowledge (TK) domain may need additional support and professional development to feel comfortable using ebooks to support learning. Explicit modeling of B/D/A ebook reading activities and oral reading strategy adaptations will be essential to developing a more comprehensive understanding of the dynamic nature of the technological, pedagogical and content knowledge domains as they pertain to teaching in the ebook-equipped classroom. Much like supporting compression in students, teachers will need links built between their prior knowledge of traditional pedagogical approaches and the requisite augmentations that must be applied to the ebook as a curricular material. Ongoing and job-embedded support for teachers making the transition to teaching in an ebook-equipped classroom will ensure teachers have the technological pedagogical content knowledge (TPCK) they need to effectively use ebooks to support student learning.
Research Question Two

The second research question of this study was: *What kinds of criteria do early elementary teachers use to select ebooks for use in their classroom?* The primary theme that emerged from the data analysis suggested teachers make ebook selections based on genre, content area connections and digital features that enhance literary content. Data analysis showed participants frequently selected informational text with specific content area and curricular connections when choosing ebooks to use with their students. They also shared their reluctance to incorporate ebooks that contained distracting digital features, such as extraneous audio or unnecessary animations that did not support the text.

Familiarity of the workings of both narrative and expository text is part of being fully literate according to Wells (1986). There are a number of researchers who have challenged the prevalence of narrative text in early childhood classrooms (Kamil & Lane, 1997; Moss, Leone, & Dipillo, 1997; Pappas, 1991). These researchers contend there is a need for increased exposure and use of informational text in early elementary classrooms. The preference across cases of selecting informational ebooks with content area connections corresponds to early elementary teachers’ awareness of the increased focus on informational texts in the Common Core State Standards (CCSS) adopted by 43 states, the District of Columbia, and four territories. With the increased importance of informational text in the CCSS, teachers will most likely continue to select ebooks that can provide
their students additional exposure to informational text as well as support content area instruction.

At the most basic level, ebooks provide an opportunity for storybook reading without direct adult participation. According to Roskos, Brueck, and Widman (2009), “Multimedia, in essence, replaces the adult mediator, providing the supports that “read the story” to the young child.” Past studies have suggested that multimedia features in ebooks, such as illustrations, can improve inference skills in story reading (Trabasso & Van den Broeck, 1985) and the data shows that participants prefer to use ebooks in which the illustrations supported details in the text. In respect to word learning (Segers & Vermeer, 2008) and comprehension (Verhallen, Bus & de Jong, 2006), interactive multimedia (i.e., animations, interactive games, hotspots) can benefit early literacy development. Additionally, Roskos, Burstein and You (2012) indicate that preschool children were engaged and motivated with ebook use because of the multimedia interactivity within the text.

Participants in this study shared their preference for selecting ebooks that contain animations, illustrations and audio that support the text. This is aligned with prior studies, which suggest that multimedia features in ebooks can improve inference skills in story reading (Trabasso & Van den Broeck, 1985) and that game-like interactivity can stimulate story comprehension (De Jong & Bus, 2003; Korat & Shamir 2008; Labbo & Kuhn, 2000) and word learning, especially when children’s attention is guided to these purposes (McKenna, 1998; Shamir & Korat, 2006).
more recent study by Korat (2010), found that oral reading of ebooks with the use of animations and dynamic illustrations might have a positive effect on word reading ability.

The teachers in this study were aware of the engagement and scaffolding opportunities present in ebooks and seek out ebooks that are easy for students to use, contain multimedia relevant to the story, and interactivity that supports story comprehension. They are wary of ebooks that contain audio, multimedia or interactivity that is superficial to the story and in many cases, will refrain from using ebooks with distracting digital features in the classroom. Roskos et al. (2009) pointed out “Multimedia can overload the cognitive processing of young children such that meaningful engagement with story and print is seriously reduced, and the literacy experience is superficial.” Early elementary teachers are aware of the elements in ebooks that potentially may cause cognitive overload for students and seek to limit exposure to these types of ebooks. Teachers also take steps to ensure that other students in their classroom are not distracted by digital features present in ebooks, such as limiting student use to independent rereading and requiring the use of headphones.

From a broad perspective, it is critical for early elementary teachers to understand that an ebook is both an object – on a device – and a source of content, in the traditional sense of a book (Roskos et al., 2009). The electronics interface with the content. This is both similar to and different from traditional books. An electronic book, for example, can have background music whereas a traditional
book cannot. The addition of electronics impacts the reading in new ways and teachers must develop a new degree of technological pedagogical content knowledge (TPCK) in order to effectively select ebooks that support learning in the early elementary classroom. For example, Denise articulated this on one occasion:

It took me a few times through the ebook to discover what all the different options are and what they do. I really like the read to me/read by myself narration option and I think it will help some of my kids. Some need to hear fluent reading but others can do it on their own. I’m going to take advantage of that to differentiate with my students.

Teachers need to understand key criteria that should be used for identifying and selecting a high-quality ebook. Multimedia and interactivity, or the e component of ebooks, while engaging for students must support literacy skills rather than distract. It will be critical for teachers to preview or screen ebooks prior to use in the classroom if they wish to maximize learning opportunities for students.

**Research Question Three**

The final research question of this study asked: *What challenges and opportunities do early elementary teachers encounter when using ebooks in the classroom?* This study found that teachers encounter challenges when using ebooks but the opportunities outweigh them.

Challenges faced by participants teaching in an ebook-equipped classroom, which included technical difficulties, distracting animations, audio that is not connect to the text, and digital book handling difficulties. Opportunities and challenges presented by ebooks in one area where prior research is lacking. Data
analysis in this study showed that when ebooks lack common book handling features, teachers struggle to adequately support key literacy practices. However, along with these challenges, participants consistently identified opportunities that outweighed challenges, including the potential ebooks possess for engaging young readers, scaffolding early literacy learning experiences, and connecting the writing process.

Technical problems with ebooks most often revolve around issues such as loading ebooks in a web browser and inadequate or inconsistent audio volumes. In the early stages of integrating ebooks into the early elementary classroom, teachers may find these type of technical problems as a hindrance to instructional practice, however increased attention to technological pedagogical knowledge (TPK) can lead teachers to adjustments which can easily limit the effects of technical problems on instructional practice and student learning.

Teachers in this study selecting ebooks for use in early elementary classrooms identified these issues as barriers to effective literacy instruction. The participants cited animations, audio, illustrations and narration as the digital features in ebooks that engage their students. Interestingly, these engagement factors are some of the same key features the participants identified as challenges to student attentiveness to text and comprehension. Data analysis indicated it was primarily the digital features of ebooks that determine their worth as a curricular resource to participants in this study. When the sounds, animation, music and colors in an ebook are inessential to the story line or draw children’s attention
away from literacy learning goals, the student’s attention is split – and when this happens, the opportunity for learning literacy skills is reduced. When interactive motion and effects exactly match the story line, children become engaged readers in addition to picking up on the important content of a story, making it more likely they will be able to recall the story language and main ideas.

Indeed, ebooks can help teach children early literacy skills, such as phonological awareness and vocabulary. They can provide mini-tutorials in hotspots & hyperlinks and virtual assistants who instruct and explain on the spot to aid in the areas of print awareness, phonological awareness, vocabulary and comprehension. All studies so far reveal positive effects of animated books for language comprehension that supports literacy development. When motion and zooming exactly match the story line, for example, children can pick up on the important content of a story and more likely recall the story language and main ideas. However, we are also finding that multimedia may be less important for more able students and cartoon like multimodal books may be too distracting for children with learning problems –especially if motion, sounds, music etc are not well matched to the story line.

To overcome the challenges presented in this theme and take full advantage of the opportunities ebooks offer, teachers should adjust their selection criteria, focusing on selection of high quality ebooks for use in the classroom. Teachers must pay close attention to the scaffolds provided in ebooks and ensure the interactive elements are well intentioned for learning to read (e.g., decoding helpers;
definitions, etc.). Teachers who thoroughly preview ebooks prior to instruction can assure that the challenges presented by distracting digital features in ebooks are minimized, opportunities for engagement and scaffolding are present in ebooks selected for classroom use, and that easy to use digital book handling components are present.

While challenges to effectively integrating ebooks in the early elementary classroom exist, the potential that well-designed ebooks can bring to early literacy learners far outweigh these concerns. In this section, the primary themes were discussed as they address the three overarching research questions. The implications of the opportunities ebooks afford are presented in the following section.

**Implications of the Study**

The study's findings have particular implications for early elementary teachers, school curricular leaders, teacher education, ebook developers and the field of literacy regarding teaching with ebooks. Following that premise, certain inferences are made that suggest a paradigm shift in how reading instruction is situated within the purview of technology, the approach to teaching English-Language Arts content with technology, and changing methods to meet the demands of early learners who arrive to school with an innate understanding of new technologies and an expectation to utilize those technologies ubiquitously.
Implications for Early Elementary Teachers

Reading literacy is a essential pedagogy in K–2 classrooms. Reading instruction has a well-established practice constructed on print texts across all content of reading and learning. The transformational effects of technology on traditional definitions of reading and learning impact the purpose, processes, medium, and act of reading. As ebooks rapidly spread into the early childhood classroom, inviting young children to interact with books in ways they have not done before, the findings of this study present several key implications for early elementary teachers.

It is incumbent of early elementary teachers to stay current with emerging technologies. Students are entering classrooms as fluent and fluid learners of the most recent digital advances. Early elementary educators need to stay current with these advances, determine the impact on their current pedagogical approaches and adapt, revise or eliminate based on pedagogical need. Early elementary educators may make their own decisions about which technology to learn, but they should be kept apprised of digital advances and changes and strongly encouraged to continuously learn about emerging technologies. A strong foundational knowledge in the fundamental operation of new technologies will allow early elementary teachers to begin to consider the shifts in pedagogy and practice needed to teach using ebooks and future iterations of children’s literature.

Educators teaching early elementary should place an emphasis on a seamlessly integrated approach to technology. Technology should not drive the
curriculum nor determine content; rather, technology should be ubiquitously integrated at every available opportunity based on the increased opportunities for expanded depth and breadth of student learning as identified by TPACK knowledge domains and overlap. In creating opportunities for ebook reading in the classroom, the important educational goal is the full use of technological tools for learning. There is little benefit in having interactive whiteboards, touchscreens, laptops and mobile devices for ebook reading that lay idle for much of the instructional day. Yet how to seamlessly integrate ebook reading tools into the instructional day is a challenge for many educators who genuinely want to use these tools, but don’t know how. Solving this problem begins with teacher professional development in how various devices work and how they can be used in instructional delivery.

Educators teaching early elementary should utilize critical analysis skills to develop a comprehensive understanding of the dynamic nature of technological, pedagogical and content knowledge (TPCK) to ascertain the appropriate technology to use for content delivery with ebooks. For example, Dawn once articulated:

The ebook fit in well with our Community unit in social studies, but the background music was far too loud. It distracted the students from the narration and the text. I will not be using this ebook again with my class and I’m going to check the BookFlix library for another title I could use as a substitute.

Additionally, school curricular leaders who are abreast of the changing landscape of literacy should support teachers in this type critical approach.
Implications for School Curricular Leaders

Mobile phones, ebook readers, tablets, and computers can store hundreds or even thousands of ebooks, which makes it possible for students to hold comprehensive personal libraries in their hands. Changes in textbook adoption processes and expanding state support for electronic textbooks in California, Florida, Indiana, Texas, and Virginia indicate that awareness of the progression of educational media and also the cost effectiveness of these new technologies (Mardis, Everhart, Smith, Newsum, & Baker, 2010). Factors such as these set the stage for the implications the findings of this study have on school curricular leaders.

It is incumbent upon school curricular leaders to critically evaluate ebooks prior to purchasing them as a school or district resource, just as they would any major curricular material. As new technologies like ebooks are adopted for instructional uses, school curricular leaders must ensure teachers are made aware of and provided a variety of opportunities to attend training to learn about teaching in an ebook-equipped classroom. School curricular leaders should adopt or develop guidelines for engaging children at the screen during ebook reading sessions. These should be developed in collaboration with teachers to support children’s active participation in ebook reading and to develop screen reading and digital book handling skills.

Professional development materials need to be created to train teachers in the how to of literacy instruction with ebooks and deepen their ebook-reading
language facilitation skills, such as asking questions, clarifying content, and extending ideas. Google Hangouts, Facetime and web-conferencing are becoming widely available thereby, reducing the need to meet face-to-face and allowing school curricular leaders to offer teachers the opportunity to set individualized time schedules to learn how to incorporate ebooks into their classrooms. Additionally, school curricular leaders should consider providing expert resources and professional development such as workshops, seminars, and conferences to teachers that present, support, and establish new pedagogical approaches for teaching using ebooks.

Following professional development centered on instruction in the ebook-equipped classroom, school curricular leaders should encourage teachers to experiment with alternative instructional practices and pedagogies. School curricular leaders should support inquisitiveness, innovation, and creativity in developing and delivery instruction with ebooks that support early literacy learning in students. Recommendations for support include providing instructional coaching for early elementary teachers, collaborating with children's library and media specialists, and assistance from instructional designers and technology integration specialists.

**Implications for Teacher Education**

Another area where the findings of this study present significant implications is the field of teacher education. As illustrated across the cases in this study, teachers often graduate from teacher preparation institutions with limited
knowledge of the ways technology can be used in their professional practice. With a new generation of early elementary student entering school in-tune with the current technologies and an expectation to use technology ubiquitously, it is critical for teachers entering the education field are highly skilled in pedagogical approaches that meet the needs of all their learners.

In a digital age, it is essential for college professors need to stay up to date on new and emerging technologies, assess the impact the technology may have on K-12 education, and incorporate relevant learning experiences in their pre-service teacher courses. If K-12 education is to achieve successful technology integration in schools, teacher education programs need to play a prominent role. Digital media, such as ebooks, should be evaluated and utilized in an equitable fashion and integrated with discussions about content and pedagogical decisions in all teacher preparation courses. Teacher preparation on ebooks, should afford teachers with a substantial understanding of the various digital media impacting literacy, their affordances and their constraints. In some instances, new curricula and pedagogical approaches that take advantage of the affordances of the new media may need to be developed by college professors to replace out-dated practices in undergraduate and graduate courses.

Finally, college-level literacy courses should be updated to include ebooks as a curricular resource for literacy instruction. Professors and instructors will need to not only build pre-service teachers knowledge on the digital features and framework of the ebook, but also assist them in acquiring pedagogical approaches
that can be implemented in their future classrooms. It is here where literacy faculty should turn to the TPACK framework to build an understanding of the dynamic relationship between the three main knowledge domains to help them articulate the skills, traits and methods that pre-service teachers will need in the early elementary classrooms of the future.

**Implications for the Field of Literacy**

As the data from this study showed, teachers view ebooks as just another curricular resource for literacy instruction, merely a new medium which they can use to support student literacy growth and development. Ebooks will continue proliferate into classrooms across the K-12 spectrum, and in light of the thin evidence base on their role in curriculum and instruction, the field of literacy must become the impetus for new and innovative research in this area. Just as the field of literacy has contributed to a vast scientifically based reading research base to guide literacy instruction with traditional materials, now is the time to begin to build a similar foundation around ebooks. If we are to sufficiently support future generations of students and teachers who will be exposed to ebooks from birth, more research around the use of ebooks to support literacy is critical at this juncture. Experts from the field of literacy are greatly needed to further the work of ebook research pioneers like Burstein, Bus, Korat, Moody, Roskos and Shamir.

In addition to meeting the research need, a bridge between ebook developers and literacy experts must be created. Ebook developers need more input from literacy experts on the types of features that enhance the literacy
learning experience in order to create more efficient and effective ebooks for the classroom. While excellent at creating dazzling graphics, effects and interactive media for ebooks, most developers have no formal education in early literacy development. The key to creating high-quality ebooks for the early elementary classroom is a collaborative effort between experts from the field and literacy and ebook developers.

**Implications for Ebook Developers**

As the use of mobile devices, apps and cloud-based computing increases at the elementary level, well-designed ebooks for early elementary students will become one of the hottest commodities in the K-12 educational marketplace. Practicing teachers and school curricular leaders, guided by national and state learning standards like the Common Core, will become critical components in determining which ebooks are selected to support literacy and content area learning and the pedagogical decision-making required to meet the needs of a diverse set of learners. One implication for ebook developers from this study illustrates the need for ebook developers to engage in ongoing dialogue with teachers and school curricular leaders in order to develop an understanding on the types of ebooks that are desirable for use in the early elementary classroom. Teachers who have a strong TPACK will be vital participants in these discussions, if they can articulate to ebook developers how digital features impact the content and pedagogical decisions they make in their classrooms. As seen in this study, ebook genre, ease of use and interactive features drive teacher selection. Ebook
developers may benefit from conducting focus groups and field observations to
gain more insight into how their products fit, or don’t fit, in the early elementary
classroom.

Participants in this study cited difficulties with digital book handling as a
strong challenge to learning with ebooks. For this reason, it would be beneficial if
ebook developers worked to standardized digital book handling conventions across
future ebook titles. To achieve this, app developers and publishers should consider
a standardized user interface, grounded in TPACK, to ensure young learners can
easily turn the pages of an ebook, return to the cover, and toggle the audio and
narration. A set of digital book handling criteria, including accompanying icons (see
Figure 14), should be developed and adopted to better support early learners
literacy growth and development.

<table>
<thead>
<tr>
<th>Stop</th>
<th>Play</th>
<th>Pause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page Back</td>
<td>Page Forward</td>
<td>Home (Cover)</td>
</tr>
<tr>
<td>Settings</td>
<td>Volume</td>
<td>Record</td>
</tr>
</tbody>
</table>

Figure 14. Recommendations for standardized digital book handling icons
If teachers are to use ebooks to support learning in the early elementary classroom, there is a need to ensure that common ebook design mistakes are avoided, such as confusing taps, swipes, and page turns or lack of easy access to the menu and controls. Additionally, distracting digital features must be reduced or eliminated during the ebook development process. Ebook developers should seek input from literacy and technology experts on the types of features that enhance the literacy learning experience when designing ebooks. For example, the addition of annotation tools build in to the ebook would allow students to read, write, record and show their learning as well as share it with their teacher would provide opportunities for teachers to use ebooks in new and innovative ways, not simply as replacement for traditional books.

**Limitations**

This basic interpretive study described how early elementary teachers used ebooks to support learning in the classroom is limited in several areas. The first limitation is the sample size. This study had a sample size of only three participants, and while the sample was purposive in nature, the findings may be difficult to generalize to other populations. Additionally, the participants were chosen by their building administrator because they seemed to possess interest in technology and were willing to participate in a teacher planning grant. This interest with regards to teaching in an ebook-equipped classroom could have impacted the findings.

Moreover, participants may have differing prior experiences with technologies, which could impact their view as to whether or not they were
effective at utilizing ebooks to support learning. Not all participants would have attended the same institution of higher education nor participated in the same staff development exercises which may account for differences in pedagogical approaches participants chose to use to support learning in the ebook-equipped classroom. Cultural differences between schools could have an impact on the ease with which ebook technology adoption occurs, thereby impacting participants’ willingness to integrate regardless of the training they had received.

Also, all participants in this study held a Master’s degree in Reading or Literacy. It is possible this advanced knowledge in reading may make it easier to adapt and extend traditional comprehension and oral reading practices into the ebook-equipped classroom. A larger participant pool, encompassing a wider variety of educational training backgrounds may have led to a significantly different range of instructional techniques and teaching strategies being incorporated into the ebook-equipped early elementary classroom.

Finally, the addition of focus group discussions to the data set and reflective journaling would have been beneficial. First, more data could have been collected. Focus groups would have provided the opportunity for further clarification of statements made during the semi-structured interviews. Reflective journaling extending over the course of the teacher planning grant would have provided more exhaustive and reflective data with deeper insight into the process of using ebooks to support learning in the early elementary classroom.
Recommendations for Further Research

Overall, more research is needed in this emerging field in a number of areas. Research is necessary to inform the areas of teacher practice, K-12 curricular decision-making, teacher education and ebook development. This section outlines recommendations for future research based on the results of this study.

The first recommendation is to replicate the study with a larger participant sample and focus on early elementary teachers at different types of K-12 educational institutions such as urban, suburban, rural, charter, and private schools. Enlarging the participant sample and replicating the study to include more K-2 teachers would establish whether the themes found in this study remain constant across institution type and participant sample size. Selecting teachers from a more diverse set of educational institutions would validate the findings of this study and possibly provide even greater insight into the ways differences that emerge from TPACK teacher profiles as well as how, when provided access and professional development, early elementary teachers use ebooks to support learning in diverse settings.

The second recommendation is to use the findings from this study to further develop and refine the Ebook Quality Rating Tool to gather data from a larger teacher base on kindergarten through Grade two teacher criteria for selecting ebooks to use in the early elementary classroom. The addition of items that are specifically aligned to TPACK would assist researchers in understanding where specific ebook titles display or lack value in content, pedagogical and technological
areas. TPACK aligned items would reflect how teacher knowledge impacts ebook ratings as well as provide a scaffold for teachers to think about ebooks in new ways. A larger sample size would validate the findings of this study and possibly provide even greater insight into teacher selection criteria. Further refinement of the Ebook Quality Rating Tool could lead to a more workable and easy to use tool that could assist early elementary teachers in selecting high-quality ebooks for use in their classrooms.

Another recommendation is to explore the issue of access to ebooks in the early elementary classroom. While technology continues to permeate in to all aspects of our society, a divide between the haves and have nots is still pervasive across schools and communities (Ferro, 2010). For the purposes of this study, access to a collection of ebooks was provided for teachers and students and may have impacted the findings. Further research is needed to understand the extent to which ebooks are available as curricular resources for early elementary teachers and students.

The final recommendation is for experts in the field of literacy to contribute to a focused research effort with the intent to provide additional research on the digital features of ebooks that scaffold early literacy learning. Additional contributions to this field would provide a more critical understanding of the impact ebooks have on the cognitive patterns of early elementary students today. To date there has been very minimal work done in this field and more research is needed to determine those effects on current pedagogy.
Conclusion

For nearly everyone, the electronic book is a thriving alternative to the traditional book—even for elementary-age children. Ebooks are rapidly spreading into the early elementary classroom, inviting our youngest students to interact with books in ways they have not done before. What the shift from page to screen might mean for early elementary literacy learners remains to be seen, although the fact that the ebook has arrived in their world is abundantly clear.

The overall conclusion of this study is when early elementary teachers use ebooks with early elementary students, they adapt and extend traditional comprehension and oral reading practices in to support learning. From the perspective of practicing teachers, these findings provide a starting point for understanding ebook instructional approaches they can implement in their classroom. Additionally, teachers can gain an understanding of the key features both to look for and to avoid when selecting ebooks for use in their classroom. These selection criteria are relevant not only to early elementary teachers, but also provide guidance for school curricular leaders as to the types of curricular materials they should purchase as well as the type of professional development needed to support teachers as ebook curricular materials are adopted for use in districts and schools.

While the findings of this study make a significant contribution to the field, they also highlight the need for the field of literacy to contribute more research on the types of ebook instructional practices that prove effective in supporting literacy
development. Developing a comprehensive research base in this area will require integrated and ongoing discussions between early elementary teachers, school curricular leaders, literacy experts and ebook developers if we hope to create adequate and appropriate ebooks for early elementary students, a process that will surely take years, but must begin now.

Until such an effort has been achieved, practicing teachers should not feel intimidated or overwhelmed by the thought of using ebooks to support learning. Rather, the findings of this study conclude that getting started with ebooks in early elementary reading instruction is not hard. Teachers should select a quality ebook, gather a small group of children around a touchscreen computer or a tablet and explore the ebook together. Teachers can begin by using the oral reading strategies, such as read aloud and shared book routines, they already know—but should remain open to new procedures that expand the ebook reading experience, such as modeling the types of new digital book handling skills that ebooks present.

Thoughtfulness and patience are a necessity as early elementary teachers begin to incorporate ebooks into their literacy curriculum, as technical problems will most likely be encountered, but can easily be mitigated with minimal impact to student learning. Teachers should choose ebooks wisely, making sure they are aligned to national, state and local English Language Arts and content area standards and start to build up a library. The digital scaffolds (animations, virtual assistants and audio) in ebooks should be leveraged to help teach early literacy skills. Finally, early elementary teachers should employ the hand over principle and model for
children how to navigate apps and ebooks effectively while encouraging independent ebook browsing and sharing.

This study described how, when provided access and instruction (i.e., PD on technology and an ebook instructional model), early elementary teachers use ebooks to support learning in the classroom. These findings contain pertinent information for early elementary teachers, school curricular leaders, higher education faculty, literacy experts, and ebook developers as they seek to develop an understanding of using ebooks to support student learning. Since the prior literature surrounding these issues is mainly focused on preschool teachers and their young students, the hope is that this study will add to the growing body of knowledge of how K-12 education is affected by teaching with ebooks in the early elementary classroom.


APPENDIX A

PARTICIPANT CONSENT FORM

DigiTXT Teacher Assessment Data Release Form

Dear Teachers,

In order for us to measure the success of the materials and teaching strategies used in the DigiTXT program, we would like to provide The University of Akron researchers access to important assessment data teacher perceptions, technology and pedagogical content knowledge. This data is collected using surveys, questionnaires and assessments that are given during various parts of the program calendar. Researchers will also be conducting a series of follow-up interviews during the year to determine how teachers feel about the DigiTXT program and curriculum as well as their own teaching methods.

There are no known negative effects of participating in these assessments. Rather, these assessment activities help teachers understand how to prepare children for the activities of reading and writing, provide better instruction and will create better school programs for children. Participants can remove themselves from the study at any time, and that the decision to participate or not to participate will not jeopardize their participation in the program in any way.

During the project, we will conduct learning assessments periodically and the interviews monthly throughout the year. In this way we can measure your progress and the progress of the program. At the end of the year we will provide you with a summary of your success.

The results of these tests will be kept confidential. Only the project staff will view individual scores. No individual scores will be provided to anyone. This information will allow us to better serve children in the program.

Please read and sign the consent below and return it to the program directors as soon as possible.

Respectfully,

Jeremy Breeze
Director, Digital Text Initiative
University of Akron | Center for Literacy

---------------------------------------------------------------------------------------------------------------

I ___________________________ give my permission for Digital Text Initiative to assess me

(First and last name, please print)

In the area of teacher perceptions, technology and pedagogical content knowledge in Fall ’11 and Spring ’12 using the LoTI Digital Age Survey (LoTI), Concerns-Based Adoption Model (CBAM), Teacher Efficacy questionnaires and interviews.

Signed: _________________________ Date: _________________________

166
APPENDIX B

TEACHER SEMI-STRUCTURED INTERVIEW 1 PROTOCOL

1. What degree(s) do you currently hold?
2. Do you hold any additional certificates or possess other licensure?
3. How many years have you been teaching?
4. What grade levels have you taught during that time?
5. What content areas have you taught during that time?
6. Did you take an educational technology, instructional technology or relate course during your undergraduate or graduate coursework?
7. Do you have computer access at school?
8. Do you have an Internet connection in your classroom?
9. Do you have an Internet connection at home?
10. Do you have a WiFi connection in your classroom?
11. Do you have a WiFi connection at home?
12. Do you have access to iPad(s), iPod(s), Kindles or other eReading devices in your classroom?
13. Do you have access to iPad(s), iPod(s), Kindles or other eReading at home?
14. What do you perceive as your greatest obstacle to further using technology in your instructional setting?
15. How often are you (the teacher) using information and communication technology and digital resources during the instructional day?
16. How often are your students using information and communication technology and digital resources during the instructional day?
17. How do your students use the available information and communication technology and digital resources for (1) collaboration with others, (2) publishing, (3) communication, and (4) research to solve issues and problems of personal interest that address specific content standards?
18. Do you use different digital media and formats (such as: blogs, online newsletters, online lesson plans, podcasting, digital documents) to communicate information effectively to students, parents, and peers? What and how do you use?
19. How do your students use the information and communication technology and digital resources (e.g., interactive whiteboard, digital student response system, online tutorials) to supplement the curriculum and reinforce specific content standards?
20. How do your students use classroom information and communication technology and digital resources to engage in relevant, challenging, and self-directed learning experiences that address content standards?
APPENDIX C

TEACHER SEMI-STRUCTURED INTERVIEW 2 AND 3 PROTOCOL

1. What specific approaches did you take to incorporate ebooks in your classroom?
2. What type of planning did you do to prepare to incorporate ebooks in your classroom?
3. What did you like about the ebook reading experience?
4. What did your students like about the ebook reading experience?
5. What worked for the ebook reading session?
6. What didn’t work?
7. What changes would you recommend?
APPENDIX D

TEACHER EFFICACY SURVEY

This questionnaire is designed to help us gain a better understanding of the kinds of things that effect teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential. This survey consists of 20 questions. It should take less than 20 minutes to complete.

Read each statement and choose the number that approximates your beliefs.

1 Strongly Disagree
2
3
4
5 Strongly Agree

1. When a student does better than usual, many times it is because I exert a little extra effort.
2. The hours in my class have little influence on students compared to the influence of their home environment.
3. The amount a student can learn is primarily related to family background.
4. If students aren’t disciplined at home, they aren’t likely to accept any discipline.
5. I have not been trained to deal with many of the learning problems my students have.
6. When a student is having difficulty with an assignment, I often have trouble adjusting it to his/her level.
7. When a student gets a better grade than he/she usually gets, it is usually because I found better ways of teaching that students.
8. I am very limited in what I can achieve because a student’s home environment is a large influence on his/her achievement.
9. Teachers are not a very powerful influence on student achievement when all factors are considered.
10. When the grades of students improve, it is usually because I found more effective teaching approaches.
11. If a student masters a new concept quickly, this might be because I knew the necessary steps in teaching that concept.
12. If parents would do more for their children, I could do more.
13. If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.
14. The influences of a student's home experiences can be overcome by good teaching.
15. If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him/her.
16. Even a teacher with good teaching abilities may not reach many students.
17. If a student couldn't do a class assignment, most teachers would be able to accurately assess whether the assignment was at the correct level of difficulty.
18. If I really try hard, I can get through to even the most difficult or unmotivated students.
19. When it comes down to it, a teacher really can't do much because most of a student's motivation and performance depends on his/her home environment.
20. My teacher training program and/or experience did not give me the necessary skills to be an effective teacher.
APPENDIX E

CONCERNS BASED ADOPTION MODEL (CBAM) SURVEY

The purpose of this questionnaire is to determine what people who are using or thinking about using new programs are concerned about at various times during the innovation adoption process. The items were developed from typical responses of school and college teachers, who ranged from no knowledge at all about various programs to many years experience in using them. Therefore, a good part of the items on this questionnaire may appear to be of little relevance or irrelevant to you at this time. For the completely irrelevant items, please circle “0” on the scale. Other items will represent those concerns you do have, in varying degrees of intensity, and should be marked higher on the scale, according to the explanation at the top of each of the following pages.

For example:

7 This statement is very true of me at this time.
6
5
4 This statement is somewhat true of me now.
3
2
1 This statement is not at all true of me at this time.
0 This statement is irrelevant to me.

Please respond to the items in terms of your present concerns, or how you feel about your involvement or potential involvement with DigiTXT right now. We do not hold to any one definition of this program, so please think of it in terms of your own perceptions of what it involves and how the DigiTXT program is impacting your classroom and how it impacts your teaching. Since this questionnaire is used for a variety of innovations/projects, the name DigiTXT never appears. However, phrases such as “the innovation,” “this approach,” and “the new system” all refer to DigiTXT. Remember to respond to each item in terms of your present concerns about your involvement or potential involvement with DigiTXT.

We will be asking these questions twice each year across the duration of the DigiTXT project. In this way we can measure how teachers’ concerns shift as they adopt new ideas, methods, and strategies. We will be happy to share the group
findings as we proceed. However, no individual responses will be shared. All responses are confidential. Thank you for taking time to complete this task.

1. I am concerned about students' attitudes toward this innovation.
2. I now know of some other approaches that might work better.
3. I don't even know what the innovation is.
4. I am concerned about not having enough time to organize myself each day.
5. I would like to help other faculty in their use of the innovation.
6. I have a very limited knowledge about the innovation.
7. I would like to know the effect of this reorganization on my professional status.
8. I am concerned about conflict between my interests and my responsibilities.
9. I am concerned about revising my use of the innovation.
10. I would like to develop working relationships with both our faculty and outside faculty using this innovation.
11. I am concerned about how the innovation affects students.
12. I am not concerned about this innovation.
13. I would like to know who will make the decisions in the new system.
14. I would like to discuss the possibility of using the innovation.
15. I would like to know what resources are available if we decide to adopt this innovation.
16. I am concerned about my inability to manage all the innovation requires.
17. I would like to know how my teaching or administration is supposed to change.
18. I would like to familiarize other departments or persons with the progress of this new approach.
19. I am concerned about evaluating my impact on students.
20. I would like to revise the innovation's instructional approach.
21. I am completely occupied with other things.
22. I would like to modify our use of the innovation based on the experiences of our students.
23. Although I don't know about this innovation, I am concerned about other things in the area.
24. I would like to excite my students about their part in this approach.
25. I am concerned about my time spent working with nonacademic problems related to this innovation.
26. I would like to know what the use of the innovation will require in the immediate future.
27. I would like to coordinate my efforts with others to maximize the innovation's effects.
28. I would like to have more information on time and energy commitments required by this innovation.
29. I would like to know what other faculty are doing in this area.
30. At this time, I am not interested in learning about the innovation.
31. I would like to determine how to supplement, enhance, or replace the innovation.
32. I would like to use feedback from students to change the program.
33. I would like to know how my role will change when I am using the innovation.
34. Coordination of tasks and people is taking too much of my time.
35. I would like to know how this innovation is better than what we have now.
36. What other concerns, if any, do you have at this time? (Please describe them using complete sentences.)
37. Briefly describe your job function.
**Title:** The Hockey Card

<table>
<thead>
<tr>
<th>Day 1- Monday</th>
<th><strong>Vocabulary:</strong> hockey, winner, facing, shaky, silent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before~</strong></td>
<td>Complete a story impression including the vocabulary</td>
</tr>
<tr>
<td></td>
<td>words. Have students work in partners to create a story</td>
</tr>
<tr>
<td></td>
<td>using the preselected words from the story. (game, play,</td>
</tr>
<tr>
<td></td>
<td>gift, birthday, boys)</td>
</tr>
<tr>
<td><strong>During~</strong></td>
<td>Pause and introduce vocabulary words as they arise</td>
</tr>
<tr>
<td></td>
<td>showing picture card.</td>
</tr>
<tr>
<td><strong>After~</strong></td>
<td>Compare and contrast verbally the story impressions</td>
</tr>
<tr>
<td></td>
<td>with the actual text. Repeat vocabulary words use in</td>
</tr>
<tr>
<td></td>
<td>context.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 2- Tuesday</th>
<th><strong>Vocabulary:</strong> wink, pretending, corner, closest,</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before~</strong></td>
<td>preview new vocabulary one word at a time. Have</td>
</tr>
<tr>
<td></td>
<td>students illustrate on white boards what they think</td>
</tr>
<tr>
<td></td>
<td>it means, then compare to picture on the card.</td>
</tr>
<tr>
<td><strong>During~</strong></td>
<td>Pause and discuss vocabulary words as they arise</td>
</tr>
<tr>
<td></td>
<td>show picture card again.</td>
</tr>
<tr>
<td><strong>After~</strong></td>
<td>Complete a concept sort using all vocabulary. Group</td>
</tr>
<tr>
<td></td>
<td>accordingly</td>
</tr>
<tr>
<td></td>
<td>~Have students retell story to a friends that was not</td>
</tr>
<tr>
<td></td>
<td>in our group. Observe and note vocabulary that was</td>
</tr>
<tr>
<td></td>
<td>used in their retelling.</td>
</tr>
</tbody>
</table>
| iPods | • Distribute mobile devices to individuals or pairs  
| | • Select place to browse/read  
| | • Monitor engagement |

| iPods | • Distribute mobile devices to individuals or pairs  
| | • Select place to browse/read  
| | • Monitor engagement |
### APPENDIX G

**SAMPLE LESSON PLAN – DENISE**

<table>
<thead>
<tr>
<th>Instructional Day 1: Touch Screen</th>
<th><strong>E-Book Reading Plan</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date:</strong> 2/27 through 3/2</td>
<td><strong>Title:</strong> Down to the Sea with Mr. Magee</td>
</tr>
<tr>
<td><strong>Prior knowledge:</strong> Discuss title and make predictions about the text content.</td>
<td></td>
</tr>
<tr>
<td><strong>Vocabulary Introduction:</strong> Distribute cards equally among the students, verbally predict meanings and discuss and record on vocab page.</td>
<td></td>
</tr>
<tr>
<td><strong>Vocabulary Page:</strong> Students write one word and/or sketch that will represent the meaning of the word. Students keep these sheets during initial reading of the text.</td>
<td></td>
</tr>
<tr>
<td><strong>During:</strong> Students point out vocab during the reading, teacher stops to ask inferential questions.</td>
<td></td>
</tr>
<tr>
<td><strong>After:</strong> Discuss problem and solution in the text.</td>
<td></td>
</tr>
</tbody>
</table>
| Instructional Day 2: Touch Screen | **Making connections**: Review the story verbally and allow students to make text to self/text/world connections.  
**Vocabulary**: Students chorally read the words from the posted chart.  
**Vocabulary Page**: Students highlight the words and take turns telling their elbow buddy what they mean.  
**During**: Students take turns reading the text aloud every other screen. Teacher encourages students to pause the text with any questions that arise about the story.  
**After**: Students verbally summarize text using transition words. |
| Mobile Days 3 & 4 | Students use the iPods to reread the text two or more times.  
**Time one**: Tallying vocabulary sheet as they see or hear it in the text.  
**Time two**: Reading along on every other page to practice fluency. |
Title: Hoover's Bride
Date: Tuesday, April 10th and Wednesday, April 11th

<table>
<thead>
<tr>
<th>Instructional Segment</th>
<th>Plan</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td>Rate the Word</td>
<td>Note pre-selected screens for instruction; information/vocabulary to point out; organization for mobile reading</td>
</tr>
<tr>
<td>Use pocket chart for introducing target words</td>
<td>1 finger= I don’t know this word</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 fingers= I have seen the word before but I can’t use it in a sentence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 fingers= I can use the word in a sentence and give a definition</td>
<td></td>
</tr>
</tbody>
</table>

Vocabulary Words:
- fled
- level
- machine
- appliance
- flatter
- reception
- stagger
- collapse
- sprouted
- repairs
### During
- Listen or Read Aloud
- Pause to discuss
- Highlight new words (as needed)

**Identify cause / effect relationships**
**Identify the plot of the story**

### After
- Ask for favorite part
- Repeat new words (as needed)
- Prepare for mobile reading

### Mobile
- Distribute mobile devices to individuals or pairs
- Select place to browse/read
- Monitor engagement

### Observations

**Note:** Keep vocabulary instruction short and simple. (1) Say target words and ask children to say them. (2) Tell about the word meaning and encourage children to talk about the meaning a little bit. (3) Use a gesture (if possible) to help children remember the word; invite children to use the gesture + say the word.
### APPENDIX I

**EBOOK QUALITY RATING TOOL CRITERIA**

<table>
<thead>
<tr>
<th>Category</th>
<th>Feature</th>
<th>Criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ease of Use</strong></td>
<td>Start Page</td>
<td>The ebook has a clear Start Page. The Start Page may also be considered the “Cover” or “Title Page” of the eBook.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Start Page contains the ebook TITLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Start Page contains the ebook AUTHOR.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Start Page contains the ebook ILLUSTRATOR.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It is clear where the child should ’click’ in order to return to the Start Page, or ”cover,” from any point in the story.</td>
</tr>
<tr>
<td><strong>User Guidance</strong></td>
<td>User Guidance</td>
<td>The ebook includes directions that explain how to “read” the ebook. The directions may be composed of text, images, or audio prompts. The directions may occur as part of an Introduction or may be viewed/accessed by clicking on a ’Help’ button.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The directions are presented in a manner that is easy for children to follow.</td>
</tr>
<tr>
<td><strong>Page Numbers</strong></td>
<td>Page Numbers</td>
<td>The ebook includes numerals on each page of the story to identify the page number.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The page numbers are prominently displayed on each page, making them easy to locate.</td>
</tr>
<tr>
<td><strong>Start/Stop Buttons</strong></td>
<td>Start/Stop Buttons</td>
<td>The ebook has buttons that allow the child to “play” and “stop” the story.</td>
</tr>
<tr>
<td>Multimedia</td>
<td>Fonts</td>
<td>The ebook varies font sizes to identify headings and text.</td>
</tr>
<tr>
<td>------------</td>
<td>-------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Text Layout</td>
<td>The ebook uses block letter fonts that support letter-recognition for an emerging reader.</td>
<td></td>
</tr>
<tr>
<td>Use of font styles (italic, bold, underline) is consistent throughout the ebook.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of font styles (italic, bold, underline) improves the readability of the ebook.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narration Mode</td>
<td>The ebook includes audio narration, i.e., it is read aloud to the child.</td>
<td></td>
</tr>
<tr>
<td>The child can toggle the eBook narration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The buttons are identified with text labels. Text labels could include, but not be limited to, PLAY, STOP or PAUSE.

Using the Start/Stop buttons would be easy for a child.

Forward/Back Buttons | The ebook has buttons that allow the child to manually “turn the pages” of the eBook. |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The ebook Forward/Back buttons are identified with text labels. Text labels could include, but not be limited to, FORWARD, BACK, PREVIOUS or NEXT.</td>
<td></td>
</tr>
<tr>
<td>It is clear where the child should ‘click’ in order to turn the ebook pages FORWARD or BACK.</td>
<td></td>
</tr>
</tbody>
</table>

Ebook Controls | The operation, or clicking of the buttons, of the ebook is within a preschool child’s motor skill range |
<p>| The way the buttons are laid out on the screen supports a preschool child’s independent use of the ebook. |</p>
<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON/OFF</td>
<td>The ebook Narration buttons are identified with text labels, such as ON, OFF or MUTE.</td>
</tr>
<tr>
<td></td>
<td>It is clear where the child should ‘click’ in order to turn the ebook narration ON or OFF from any point in the story.</td>
</tr>
<tr>
<td></td>
<td>Using the narration control buttons would be easy for an emerging reader.</td>
</tr>
<tr>
<td>Print Highlighting</td>
<td>The ebook includes print highlighting, or tracking, of the text as it is read aloud.</td>
</tr>
<tr>
<td></td>
<td>The print highlights are synced with the narration at paragraph, phrase or word level.</td>
</tr>
<tr>
<td></td>
<td>The print highlights support left-to-right, and top-to-bottom text tracking for an emerging reader.</td>
</tr>
<tr>
<td>Audio</td>
<td>The ebook includes auxiliary audio, like music or sound effects that are not part of the narration of the story or text.</td>
</tr>
<tr>
<td></td>
<td>The auxiliary audio is NOT distracting for an emerging reader.</td>
</tr>
<tr>
<td></td>
<td>The auxiliary audio matches the story or text in a manner that is supportive of story comprehension for an emerging reader.</td>
</tr>
<tr>
<td>Graphics</td>
<td>The ebook includes graphics, which could be in the form of illustrations, photos, or pictures.</td>
</tr>
<tr>
<td></td>
<td>The graphics match the story or text in a manner that is supportive of story comprehension for an emerging reader.</td>
</tr>
<tr>
<td></td>
<td>The graphics are appealing to an emerging reader.</td>
</tr>
<tr>
<td></td>
<td>The graphics are NOT distracting for an emerging reader.</td>
</tr>
<tr>
<td>Animated Content</td>
<td>The ebook contains animated content, such as</td>
</tr>
<tr>
<td>Interaction</td>
<td>Text Interactions</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Illustration Interactions</td>
<td>The ebook provides the child with an opportunity to access &quot;hot spots&quot; or click on story graphics, illustrations or pictures. The interactions with story graphics, illustrations, or pictures provide auditory or visual options to encourage child exploration. The interactions with story graphics, illustrations or pictures are supportive of building vocabulary for an emerging reader. The interactions with story graphics, illustrations or pictures are supportive of story comprehension for an emerging reader.</td>
</tr>
<tr>
<td>Interactions</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>The interactions with story graphics, illustrations or pictures are supportive of building content area knowledge for an emerging reader.</td>
<td></td>
</tr>
<tr>
<td>The illustration interactions are appealing to an emerging reader.</td>
<td></td>
</tr>
<tr>
<td>The illustration interactions are NOT distracting for an emerging reader.</td>
<td></td>
</tr>
<tr>
<td><strong>Game or Quiz Interactions</strong></td>
<td>The ebook provides the child with an opportunity to access &quot;hot spots&quot; or click on buttons that activate games or quizzes. Clicking the link to a game or quiz may open the game inside the ebook or link you to an external web address.</td>
</tr>
<tr>
<td>The game or quiz interactions are connected to the ebook theme or topic.</td>
<td></td>
</tr>
<tr>
<td>The game or quiz interactions are meaningful to building vocabulary.</td>
<td></td>
</tr>
<tr>
<td>The game or quiz interactions are meaningful to building content area knowledge.</td>
<td></td>
</tr>
<tr>
<td>The game or quiz interactions are appealing to an emerging reader.</td>
<td></td>
</tr>
<tr>
<td>The game or quiz interactions are NOT distracting for an emerging reader.</td>
<td></td>
</tr>
<tr>
<td><strong>Educational Content Interactions</strong></td>
<td>The ebook provides the child with an opportunity to access &quot;hot spots&quot; or click on buttons that with an opportunity to interact with disciplinary content in one or more areas, including, but not limited to, vocabulary.</td>
</tr>
<tr>
<td>The interactions with educational content provide auditory or visual options to encourage child exploration.</td>
<td></td>
</tr>
<tr>
<td>The interactions with educational content are meaningful to building vocabulary.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>The interactions with educational content are meaningful to building content area knowledge.</td>
<td></td>
</tr>
<tr>
<td>The interactions with educational content are appealing to an emerging reader.</td>
<td></td>
</tr>
<tr>
<td>The interactions with educational content are NOT distracting for an emerging reader.</td>
<td></td>
</tr>
</tbody>
</table>