

Effects of Parent-Child Dialogic Reading with Digital English Storybooks: A Qualitative Study in Chinese Context

Zhao Lili^{1,2}, Sarimah Shamsudin^{1*}

¹ Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia, Malaysia

² Faculty of Foreign Languages, University of Jinan, Jinan, China

* Corresponding Author: ssarimah.kl@utm.my

Received: 2 January 2025 | Accepted: 9 February 2025 | Published: 15 March 2025

DOI: <https://doi.org/10.55057/ajress.2025.7.1.31>

Abstract: *While many studies have investigated parent-child dialogic reading in first language settings through quantitative methods, limited qualitative studies have explored children's language outcomes in English as a foreign language contexts, especially with digital English storybooks. This study delved into the effects of dialogic reading with digital English storybooks in Chinese context via video recordings of 20 parent-child dyads' dialogic reading sessions over eight weeks and semi-structured interviews on parents. Results identified three key outcomes: First, children's vocabulary gains displayed a distinction between receptive and expressive words, with receptive vocabulary improvement being more prominent in Chinese context. Second, reading comprehension enhancement was observed across literal, inferential, and evaluative levels. Third, children's engagement were presented through three dimensions: verbal, physical, and affective aspects. Among verbal engagement, pronouncing new words frequently is unique in EFL context. Besides, children exhibited different degrees of physical engagement. It is noted that overly formal instruction may decrease children's affective engagement. These findings contribute to understanding the effects of digital dialogic reading practices in EFL contexts, providing insights for the implementation of English storybook reading to promote early English literacy.*

Keywords: parent-child dialogic reading, digital English storybooks, Chinese context

1. Introduction

Storybook reading has been widely recognized to bolster preschoolers' literacy development (Read et al., 2022; Sari & Fitriisa, 2022) and learning engagement (Grolig, 2020). As English education gained popularity in China, parents gradually turned to English storybook reading as one effective tool to foster children's English language acquisition (Huang, 2013). Despite their enthusiasm about storybook reading, Chinese parents often face many obstacles in reading with their children, largely attributed to limited English proficiency and reading strategies to sustain children's interest and fulfill the benefits (Ge, 2023).

These challenges underscore the need for effective reading approaches that can support both parent facilitators and child learners in maximizing the educational benefits of storybook reading (Steiner et al., 2022). Dialogic reading, an interactive approach where adults engage children in interactive activities about storybook content, has emerged as a crucial contributor to foster children's linguistic abilities and literacy competence (Xu et al., 2022). This method emphasizes active participation through strategic questioning and discussion, fostering deeper

engagement with story content and enhanced learning outcomes (Kennedy & McLoughlin, 2023). However, most of the studies on dialogic reading were conducted in first language acquisition (Chang, et al., 2023; Hidayatullah et al., 2023; Strouse et al., 2023), whether this strategy could fulfill its benefits in English as a foreign language (EFL) remains unclear.

In EFL context where both parents and children have restricted English proficiency, additional language support is needed for their dialogic reading. To address this language barriers, digital English storybooks has emerged as a potential solution. The resources, now increasingly available to Chinese families via the internet, could offer enhanced multimedia elements such as audio narration, animation, and interactive features that provide rich contextual support for language learning and meaning-making (Cheng, 2024). While the benefits of dialogic reading of digital storybooks in first-language environments have been reported (Cordes, et al., 2023; Rubegni et al., 2021; Stuckelman et al., 2022) their combined impact in EFL contexts remains unclear. This is important given that language barriers and cultural differences may substantially influence the effectiveness of these approaches when both parents and children are non-native English speakers (Yang et al., 2022). Therefore, the purpose of this research is to explore the effects of parent-child dialogic reading of digital English storybooks on Chinese preschoolers' English outcomes in the EFL context.

2. Literature Review

2.1 Dialogic Reading and Language Development

Dialogic reading, pioneered by Whitehurst et al. (1988), is a shared reading approach involving evoking questions and giving prompt feedback. This method enabled children to transform from passive listeners into active participants during parent-child interactions. According to Zevenbergen and Whitehurst (2003), dialogic reading strategies include two main strategies, namely the PEER sequence (prompt, evaluate, expand, and repeat) and CROWD prompts (completion prompt, recall prompt, open-ended question, wh-prompt, and distancing prompt) (see Appendix A).

Dialogic reading strategies have been reported to bring substantial benefits on children's first language outcomes, particularly vocabulary acquisition (Hidayatullah et al., 2023; Yüzbaşıoğlu & Akyol, 2022), reading comprehension (Xu et al., 2022), and learning engagement (Strouse et al., 2023; Sun et al., 2022). Specifically, in a ten-week quasi-experimental study with 30 kindergarten children, Yüzbaşıoğlu and Akyol (2022) found that children exposed to dialogic reading strategies showed significantly higher scores in expressive words acquisition and categorizing skills compared to the control group. Similarly, Xu et al. (2022) employed a 2×2 factorial design (dialogic reading vs. non-dialogic reading; agent vs. human) with 117 children aged three to six years, revealing significant improvement in reading comprehension through dialogic reading approaches. Children's various forms of engagement in the reading has also been documented. Strouse et al. (2023) documented improvements in both utterance quantity and high quality of children's verbal participation, while Sun et al. (2022) demonstrated that story-related questions and prompts effectively enhanced children's visual concentration and engagement during reading interventions.

2.2 Digital Storybooks and Children's Learning

Research on digital storybooks reveals both benefits and challenges in supporting children's language development. The enhancement features of interactive storybooks have demonstrated significant benefits for native language speakers' word acquisition and reading comprehension (Connor et al., 2019). Specifically, children using multimedia-enhanced e-book learning

systems showed greater improvements in vocabulary acquisition, story comprehension, and learning strategies compared to those using traditional printed books (Connor et al., 2019). These advantages extend to reading engagement and behavior, with studies documenting increased reading duration, enhanced attentiveness (Richter & Courage, 2017), accelerated reading speeds, and more active peer interactions during e-book reading sessions (Strouse & Ganea, 2017).

However, research has also identified potential drawbacks associated with certain interactive features. Of particular concern are embedded interactive games within story applications, which can shift children's attention away from the narrative content (Munzer et al., 2019; Strouse et al., 2013). For instance, Strouse et al. (2013) revealed that children often prioritized interactive feature exploration over story engagement, potentially compromising reading comprehension. Additionally, certain interactive elements, such as embedded hotspots, have shown no significant impact on verbal engagement, with studies finding comparable levels of child vocalization between e-book and printed book reading sessions (Richter & Courage, 2017). These findings underscore the importance of thoughtful design and implementation of interactive features to ensure they enhance rather than impede the reading experience.

Given the benefits of both dialogic reading strategies and digital storybooks in early language learning, their combination can yield fruitful outcomes, which have been validated by studies (Chow et al., 2023; Strouse et al., 2023; Yang, et al., 2022; Zhou & Yadav, 2017). These studies have predominantly relied on quantitative measurements to assess learning outcomes. For instance, vocabulary acquisition has typically been evaluated through standardized tests like researcher-developed receptive and expressive vocabulary assessments (Yang, et al., 2022), while reading comprehension has been measured via multiple-choice questions (Strouse et al., 2023) or structured open-ended questions (Zhou & Yadav, 2017). Similarly, reading engagement has been quantified through frequency of children's behaviors of video recordings (Zhou & Yadav, 2017).

While the quantitative data has offered valuable statistical evidence of children's learning outcomes, they are limited in capturing parent-child reading process, specifically how parents utilized dialogic reading strategies and digital storybook features to promote children's language acquisition. They may overlook the parent-child interactions and contextual factors that influence the impact of dialogic reading strategies with digital English storybooks. Furthermore, quantitative measurements alone cannot fully display the specific benefits, such as the types of vocabulary, the depth of reading comprehension or the quality of reading engagement. Understanding these benefits and mechanisms is crucial for optimizing the use of dialogic reading and digital storybooks and in EFL contexts, where children's language learning is complex and intricate, involving language barriers and cultural differences (Ge, 2023). This necessitates a deeper understanding that can be best achieved through qualitative research, with its emphasis on capturing rich, detailed data of real-life experiences and complex interactions (Miles et al., 2014). Therefore, this study utilizes a qualitative design to explore both the impact of dialogic reading strategies of digital storybook reading and the mechanisms through which these elements support children's language development in EFL contexts.

2.3 Theoretical Framework

This study is built upon two theoretical frameworks: sociocultural theory (Vygotsky, 1978) and multimedia learning theory (Mayer, 2022). The sociocultural theory proposed by Vygotsky's (1978) highlighted that children acquired knowledge through social interactions within their zone of proximal development (ZPD). In the context of dialogic reading, parents serve as more

knowledgeable others who scaffold children's understanding through strategic questioning and discussion. Besides, the digital English storybooks should be selected within children's English proficiency in line with ZPD. Complementing this, Mayer's (2022) multimedia learning theory suggests that learning is boosted when verbal and visual information are processed simultaneously via diverse cognitive channels. Both theories provide a framework for understanding how parents' dialogic reading strategies and multimodal elements of digital storybooks might affect children's language learning, particularly in EFL contexts.

3. Research Design

3.1 Participants

The study recruited 20 parent-child dyads in one eastern province in China based on convenient sampling. Participants were recruited by recruitment letter posted via the researcher's WeChat groups and QQ groups. The inclusion criteria are as follows: 1) parents needed to have English proficiency to participate in English storybook reading with their children; 2) children are typically developing, which means none of the children were reported to display learning or cognitive disabilities by teachers of parents; 3) the family should be equipped with digital devices, such as smart phones, tablets or computers. Based on these criteria, 20 parents (17 mothers and 3 fathers) and their children (13 girls and 7 boys) participated in this dialogic reading intervention. All 20 parents have at least a bachelor's degree and obtained the certificate of College English Test Band 4 (CET-4), a standardized English proficiency exam widely recognized in China. The child participants' age spanned from four to six years old ($M = 5.1$ years, $SD = 0.8$).

3.2 Research Instrument

Qualitative methods were adopted in this study because they allow for rich, contextualized understanding of social phenomena in their natural settings (Creswell, 2013). They include parent-child video recordings and semi-structured interview. These instruments enabled an in-depth exploration of the interactive reading process between parents and their child, capturing the authentic parent-child reading experiences that emerge during digital storybook reading sessions.

3.2.1 Parent-Child Video Recording

Each parent-child dyad was video-recorded during their digital English storybook reading sessions, with each session typically taking round 10 minutes. In order to ensure the natural settings, the video was recorded at home via participants' smart phones. They usually conducted the recording after dinner or before bedtime. The recordings captured both verbal interactions (including parents' questions, children's responses, and spontaneous discussions) and non-verbal behaviors (such as gestures, pointing, and interaction with digital features).

3.2.2 Semi-structured Interview

Individual semi-structured interviews were carried out with each parent participant after the completion of eight-week intervention. The interviews were carried out in Chinese, enabling parents to articulate their thoughts and experiences comprehensively without language barriers. Each interview session lasted between 45 to 60 minutes, mainly concerning parents' views on the effectiveness of dialogic reading approach. To ensure accurate data collection and facilitate thorough analysis, all interview sessions were audio-recorded with parental consent.

3.3 Data Analysis

Both the video recordings and interview data were transcribed verbatim and analyzed using thematic analysis (Creswell, 2013). First, all parent-child reading interactions were transcribed, including both verbal exchanges and descriptions of non-verbal behaviors. Interview data were transcribed. Second, the researchers conducted initial coding independently to identify emergent themes related to language development, meaning making, and learning motivation. Third, the researchers met to discuss and refine the coding scheme until consensus was reached. Finally, all transcripts were systematically coded using the refined coding scheme. To ensure reliability, the data was double-coded by two researchers, achieving an inter-rater reliability of 90%. To ensure anonymity, parent participants were labeled as P1, P2,...P20 while child participants are labeled as C1, C2,...C20.

3.4 Research Procedure

The study was conducted over eight weeks to explore the outcomes of parent-child dialogic reading of digital storybooks. Eight digital storybooks (see Appendix B) were selected based on the zone of proximal development (ZPD) theory, ensuring the reading materials matched children's developmental level while providing appropriate challenges for learning (Vygotsky, 1978). These books were: *New Trees*; *Biscuit's Big Friend*; *The Snowman*; *Biscuit goes to school*; *Brown Bear, Brown Bear, What do you See?*; *Kipper's Birthday*; *The Wobbly Tooth*; *The New Gingerbread Man*. To maintain focus on the core reading experience and minimize potential distractions (Strouse et al., 2013), only essential digital features were enabled, including audio narration, text highlighting, and translation functions.

The parent participants were asked to conduct weekly reading sessions at home with their child using one assigned digital storybook per week using dialogic reading strategies by Zevenbergen and Whitehurst (2003) (see Appendix A). These sessions, lasting approximately ten minutes, were video-recorded to capture natural reading interactions. The consistent duration helped ensure comparable data across participants while allowing sufficient time for meaningful parent-child interactions to develop. Upon completion of the eight-week reading period, semi-structured interviews were carried out with parent participants to gather their reflections on the dialogic reading experience and their perspectives about their children's language acquisition progress.

4. Findings and Discussion

This section presented the major findings of this study and also discussed the outcomes of the dialogic reading strategies with digital English storybooks in EFL context.

4.1 Vocabulary Gains

Children's English vocabulary gains were reported to display on receptive and expressive dimensions.

4.1.1 Receptive Vocabulary Gains

All the parents reported great gains in receptive vocabulary, especially the target words from the storybooks. Children could comprehend and recognize the physical objects and action words within the storybooks by the support of multi-modal features of the digital storybooks (visual, audio, translation function). As P3 explained:

My child could understand the new words about physical objects, such as 'fence', 'shed'. They also comprehend action words, such as 'put in the oven' and 'put on the rack'. He can

match these words with the storybook illustrations because I often reminded him to look at the illustrations and pointed at the words with my fingers. (P3)

The acquisition of these basic words were further strengthened by the audio features of digital storybooks. As P7 reflected: *“My child could understand many words, like ‘bubble’ and ‘sandwich’, after my playing the audio of digital storybook back and forth because the audio pronunciation helped him connect the sound with the word.”* This showed the importance of audio feature in the sound recognition of the vocabulary. Additionally, children could understand the words more clearly by translation function feature of the storybook. As P5 reported,

My child could acquire the new words like “rack” and “oven” after knowing their Chinese meaning after clicking the translation button to get their Chinese meanings. After learning words through translation, he could later recognize these words in different stories. (P5)

This showed embedded translation function can bridge the gap between their native language and English, enabling them to build a stronger foundation in recognizing and understanding new vocabulary.

Furthermore, children demonstrated enhancement in understanding emotional and descriptive words through parents’ dialogic strategies. For instance, P9 employed distancing strategy to associate target descriptive words with real-life objects: *“My child could acquire the words “brown” and “blue” quickly, because I related ‘brown’ to our family dog and ‘blue’ to the sky, made the words more meaningful and easier to understand”*. Comparatively, recall strategy is used less frequently, but P9 proved its effectiveness. She recalled all the emotional words (sad, glad, upset) used in one storybook, and asked her child to make the facial expression under her instruction to show respectively these emotions, which helped her child grasp the meanings and these three words.

In addition to the targeted words from the storybooks, parents (P1, P2, P10) reported their respective child to have acquired the extended words beyond the storybooks through the parents’ use of expansion and distancing strategies. For example, C8 could understand anatomical terms like *“black whiskers”, “long tail”, and “four legs”* beyond the targeted storybooks after P8 described the blue horse using the expansion strategy. Similarly, C1 could differentiate similar words *“eat” and “swallow”* after his mother used body language and connected these words to his daily life, which showed the role of distancing strategies.

4.1.2 Expressive Vocabulary Gains

Parents reported that children’s expressive vocabulary gains were less significant compared to their receptive vocabulary development. Nevertheless, children displayed the ability to express words both within and beyond the storybook context through dialogic reading strategies (mainly completion, repetition, and wh-questions) and digital features of the storybooks. P6 comprehensively employed these strategies:

P6: 树枝怎么说? (How do you say “Stick” in English?)

C6: (Keep Silent).

P6: Big stick. Listen (play the audio). Repeat it.

C6: Big stick.

P6: 那你想想, 前面刚发生了一个什么故事, Sam在干什么? (Think about it, what just happened earlier, what did Sam do?)

C6: 跑 (Run).

P6: 跑用英语怎么说? 你记得有一个阿姨在说她的女儿 Nancy 的时候 Nancy don't _____ (How do you say “跑” in English? Do you remember an aunt was talking about her daughter Nancy, and she said Nancy don't _____?)

C6: Run.

P6: Run是跑, 跑得快呢? (“Run” means to run. How to say, “running fast”?)

C6: Fast.

In this excerpt, C6 have successfully produced the target words “*big stick*”, “*run*”, “*fast*” through parent’s multiple dialogic reading strategies. First, P6 used a repetition strategy (*Big stick. Repeat it*) to reinforce the target word production. It is noted that the parent also used the audio features to reinforce child’s memory of the words (listen to the audio). Then, she employed wh-questions (*What did Sam do?*) to encourage spontaneous expression. When C6 struggled to produce the English word “*run*”, P6 skillfully employed a distancing strategy by connecting a previous conversation about Nancy, which helped C6 to recall and produce the target word. Among these strategies, the effectiveness of the repetition strategies in expressive words was particularly emphasized by P14:

Repetition is crucial in memorizing new words. When I asked my child to repeat words like “party” “shed” “stream” several times, she can remember and use these words in our next reading session (P14).

Beyond the storybook context, children could express extended words inspired by the digital features, particularly the visual cues. For example, when P10 asked the question: “*Where did the floppy bury the bone?*” The child answered: “*Hole*”, which was outside the storybook context. When P15 asked: “*What can you see from this picture?*”, the child extended the storybook words to “*I can see a wheel, fresh water and grass*” which were not included in the storybooks.

The findings revealed the children’s vocabulary development through dialogic reading of digital English storybooks. In line with previous research (Yang et al., 2022), children demonstrated significant proficiency in receptive vocabulary, including different varieties of words within and beyond the storybooks. This progress can be due to multiple learning opportunities of dialogic reading, such as extended visual support, in-depth clarification, repetition, and multiple encounters to new vocabulary across the reading sessions (Wasik et al., 2016), which empowered children to review English vocabulary with their parents’ scaffolding (Yang et al., 2022). Nevertheless, the findings concerning expressive words were not consistent with first and second language leaning literature. Different from first language research finding that dialogic reading has contributed to expressive vocabulary progress for preschoolers (Mol et al., 2008), this study found modest improvement, as evidenced by reports from only a few parents. This finding also diverges from research in the second language context (Chow et al., 2023), which showed an increasing enhancement in expressive vocabulary more than receptive vocabulary with a sample of first graders from Hong Kong primary schools. This discrepancy is probably due to the differences in the English learning context (the child had little contact with English in mainland China while Hong Kong children are exposed to English in the kindergarten or at home, such as listening to English storybooks, singing songs in English, and practicing English letters and vocabulary). Children in the present study demonstrate a deficiency in English vocabulary, so it is difficult for them to remember and express the new words in a short time, indicating that baseline vocabulary knowledge plays a critical role in expressive vocabulary acquisition.

4.2 Reading Comprehension

Reading comprehension emerged as a significant improvement, which includes literal, inferential and evaluative comprehension, shaped by digital storybooks and parents' dialogic reading.

4.2.1 Literal Comprehension

In this study, children can understand stories or acquire literal comprehension of facts, ideas, vocabulary, events, and stated information. The most notable progress was observed in children's basic story element identification abilities. Children could accurately identify main characters, settings, and key events due to parents' frequently asked wh- questions and completion strategies with the support of digital storybook features. The following interaction illustrates this process:

P15: Where is biscuit going?

C15: Pond.

P15: 小狗是去池塘了吗? 你看看这个图片(Are you sure? Look at this picture).

C15: 不是, 是去公园了. (No, to the park)

P15: Going to the_____.

C15: park.

P15: Ok, now let's listen to this part (play the audio).

In this excerpt, wh- questions was first asked to verify child's understanding of the story plot. After C15 incorrectly answered "*pond*", P15 directed her back to the picture to confirm the correct location was "*park*", indicating the visual elements can help child identify the correct information. Then P15 used completion strategy to reinforce basic comprehension. Finally, the audio play enabled the child to further comprehend the answer.

Additionally, children also exhibited their capacity of sequential comprehension through parents' recall strategy during dialogic reading of the digital storybooks. For instance,

P7: 前面刚发生了一个什么故事来, 这是掉了一个树枝, 刚才又发生了什么故事呢? 他也要做什么呢? (Think about what happened earlier. A stick fell, and then what happened? What did he want to do?)

C7: 也想跑. (Also wanted to run.)

P7: OK. 然后, 这又发生了一个什么故事呢? (OK. And what happened next?)

C7: 小饼干也想要树枝. (Little Biscuit also wanted a stick.)

P7: A big stick.很棒 发生了两件事儿了是吧? 我们看一下 (Very good! Two things have happened, right? Let's see) (play the audio: Biscuit and Sam want to play tug). 两个朋友想干什么呢? (What did the two friends want to do?)

C7: 拔河(play tug).

In this example, P7 guided the child through sequential story recall by asking about earlier events involving a stick and running, pointing out the sequence of events: first wanting to run, then wanting the stick, and finally wanting to play tug. This sequential understanding was crucial for building a coherent understanding of the story events.

4.2.2 Inferential Comprehension

In this study, children can use information from the storybook or understand the inferential comprehension from making inferences about "best guesses" about what a character might do,

what might happen next, etc. Specifically, children can infer the implicit information based on the storybook with the open-ended questions and visual cues of the digital storybooks. For example,

P18: How old is Kipper?

C18: He is five today.

P18: How do you know?

C18: I can see 5 candles on the cake.

P18: How did Kipper ask his friends to come to the party? Look at this picture.

C18: 他们手里拿着邀请函 (They brought an invitation card).

In this example, although the information of Kipper's age and invitation card is not explicitly stated, C18 can infer from the visual support of the digital storybook, showing the child's ability to make logical connections between visual elements (the candles) and implicit information (the age). In a similar vein, C18 successfully inferred the invitation approach by observing the pictures after being asked by his parent. These examples suggested that parent's open-ended questions and the digital storybooks can foster children's inferential thinking and ability to comprehend implicit information.

Furthermore, children can comprehend the cause-effect relationships of the storybook by the digital storybook features and open-ended questions about "why?". For example, when discussing why everyone needed to push the snow together, C20 demonstrated inferential understanding by explaining "因为推不动啊, 因为雪球太大了" (*because they couldn't move it, the snowball was too big*), showing her ability to understand cause-effect relationships. Another example is when parent asked, "Why mom stopped dad to take the sandwich?", several children could infer "because dad's hands were not clean", demonstrating their ability to connect actions with underlying reasons.

4.2.3 Evaluative Comprehension

In the study, children can go beyond the literal text and make judgments or critical analysis about the story, referred to as evaluative comprehension. Specifically, they can evaluate the character's emotions and motivations from contextual clues by wh-question and open-ended questions. When P13 asked her child: "狗狗心里咋想的?" (*What did the dog think of it?*), C13 answered: "狗狗心里想应该很好吃" (*He thought it was delicious*). Besides, children can incorporate their own knowledge and opinions to assess the characters. For example, P19 asked "你喜欢这只大狗还是小狗?" (*Which dog do you prefer, the big or the small one?*), she answered "我喜欢这个小狗, 可以翻过栅栏, 也可以捡到球" (*I like this dog who can jump the fence and get the ball*). They can also evaluate Biscuit's behavior of drinking from Sam's dish, "我觉得他不知道哪个是他的, 我也这样" (*I think he didn't know which one was his, like me*), showing her ability to make judgments based on character behavior.

The findings highlighted the significance of dialogic prompts in enhancing children's reading comprehension, particularly in technology-mediated environments (Cheng et al., 2024; Yang et al., 2022). Through structured prompts, questions, and feedback during reading sessions, children were provided with increased opportunities for story-related discourse, enabling parents to address misconceptions and facilitate deeper comprehension (Flores, Pires & Souza, 2014). This scaffolded interaction was particularly crucial for literal comprehension, where parents' wh-prompts and completion strategy helped children identify key story plots and sequence events accurately. Additionally, the multimedia elements embedded in the

application, such as interactive illustrations and sounds, supported children's understanding of complex sentences. The inferential thinking can also be facilitated by visual and auditory cues (Rooha et al., 2023). This observation aligns with multimedia learning theory (Mayer, 2022), which suggests that the simultaneous processing of verbal and visual information enhances learning outcomes. In the EFL context, where children have limited exposure to authentic English input, this multimodal support proved especially valuable in bridging linguistic gaps and supporting comprehension at both literal and inferential levels.

4.3 Reading Engagement

4.3.1 Verbal Engagement

The most frequently reported progress is verbal engagement. Children could verbalize story-related content when parents utilized completion prompts, wh-questions, and repetition strategies. They could answer "what" "when" "where" and "who" questions, follow parents' instructions to repeat the target words or complete the sentences. Besides, children began connecting stories to their personal experiences through parents' distancing strategies. C3 exemplified this when discussing snowmen in the story, connecting it to her own experience and future aspirations: *"I have made two snowballs, but I am looking forward to snowman fighting"*. Similarly, when discussing school-related content, she linked it to her personal experience, asking *"Did you know why I did not take a schoolbag?"*

In addition, children developed the ability to initiate questions and inquiries about the stories. This advanced form of verbal engagement was demonstrated by C4's spontaneous questions such as *"Why did they not plant flowers instead of trees?"* and *"Why is the school bus yellow?"*; C7 similarly showed this development by asking *"What does this word mean?"* and *"Why did the dog do this?"*. Both answering and initiating story-related questions indicated children's increasing verbal participation in the story. A notable finding was children's uttering word pronunciation, particularly among families with high English proficiency. For example, P16 required her child to correct the pronunciation of the word *"Small"* and *"Biscuit"* to keep the tongue in when pronouncing *"s"*. Then the child repeatedly pronounced the words until they are correct.

4.3.2 Physical Engagement

The physical engagement through eye contact and visual attention was particularly evident with the children during the dialogic reading sessions. This was demonstrated when the children responded to their parents' wh-questions, such as *"Who is Lee?"* or *"Where is the blue horse?"*, which required focused visual engagement with the story illustrations. This visual engagement is often accompanied by *"leaning on the screen of the digital storybook"* or *"adjusting sitting position to view more clearly"*. In addition, children's pointing behaviors emerged, such as pointing at the objects in pictures when parents directly instructed *"Which is Sam's dish? Please point it out"* or *"Where is the green frog?"*. Besides, some children established the habit of tracking the text when they were required to *"use fingers to follow words to help remember the words"*.

However, two parents (P11 and P14) reported little physical engagement because they restricted their children's physical contact with the tablets to manage potential distractions of digital features. As P14 explained, *"my child liked to click the button and flipped pages before we finished reading, so I did not allow him to touch the screen"*. That is, children did not display the physical engagement due to parents' concerns about the digital features.

4.3.3 Affective Engagement

Children's affective engagement was reported by many parents in terms of voluntary participation and enthusiasm for reading activities. P8 expressed the child's transformation:

I have bought over 200 English storybooks in the past two years, but my child had no interest, so I just stacked them on the bookshelf. But one day he took out all these books by himself, read and then laughed by himself. Now he asked to read these books together with me after dinner every day (P8).

Furthermore, children demonstrated positive emotional expressions during reading sessions. They were observed to laugh, smile and showed apparent happiness during the reading process. For instance, P9 described her child “burst into laughter when view ing the pictures of Kipper being hit by the swing” and “hearing the sound of the hooray”. They were excited to talk about their stories or comments on the characters when parents used the distancing strategy.

However, Some parents (P9 and P14) reported their children displayed more affective engagement when they read independently than in the dialogic reading sessions. As P14 reflected,

Being a junior middle school teacher, I focused on whether my child can acquire the language, especially new words. So I controlled the dialogic reading sessions to achieve my goal. Whenever he tries to tell me about the story or share his ideas, I interrupted him and turned it into an English lesson. So he rarely displayed positive facial expressions and wanted to read by himself.

This case showed when parents are overly-structured and language-focused in the parent-child reading, child's emotional engagement decreased.

The findings revealed that parent-child dialogic reading of digital English storybooks has produced a mixed impact on the children's reading engagement. On the one hand, the enhancement of verbal engagement aligned with Zhou and Yadav's (2017) findings, including answering parents' questions, making personal connections and initiating questions. The enhanced elements of digital storybooks facilitated richer verbal interactions between parents and children (Xu et al., 2022), and also enhanced both quality and quantity of these interactions (Strouse et al., 2023). One notable finding is children's pronouncing the words, which reflects a distinctive characteristic of EFL contexts, indicating that phonological awareness and accuracy was emphasized by Chinese parents with high English proficiency. Inconsistent with Zhou and Yadav's (2017) findings of physical and emotional engagement, children displayed different levels of engagement due to parents' concerns and reading approaches. Some children have enhanced their visual attention through the multimedia features, which echoed the finding of Sun et al. (2022) that the combination of auditory and visual enhancements resulted in greater visual attention compared to non-digital formats. Conversely, some children demonstrated little physical engagement due to parents' restriction on tablets contact. This conflicting result showed that children's physical engagement was greatly affected by parents' beliefs on the digital technology use, which varied based on their experience (Straker et al., 2018). Therefore, parents need to balance the benefits and potential drawbacks of the digital features to promote children's engagement (Sung & Chiu, 2022). Furthermore, children's emotional engagement was reported to decrease when parents adopted overly structured

instruction methods, which emphasized the role of parents' interactive approaches in shaping children's emotional investment in the reading experience.

5. Conclusion

Drawing on qualitative data of the parent-child reading videos and interview from 20 Chinese parent participants, this paper has explored the impact of digital English storybook dialogic reading. The findings revealed the multi-modal features of digital storybooks and parents' strategic use of dialogic reading techniques have produced improvement in vocabulary, reading comprehension and engagement. There is substantial improvement in vocabulary acquisition, particularly in receptive vocabulary while less progress lies in the expressive vocabulary. Additionally, children demonstrated development across multiple levels of reading comprehension, progressing from literal to inferential and evaluative understanding. Furthermore, children exhibited enhanced reading engagement across physical, verbal, and affective dimensions, although the level of engagement was influenced by the reading styles and environment. In EFL context, pronunciation is emphasized in terms of engagement. These findings contribute to understanding the effects of digital dialogic reading practices in EFL contexts, providing insights for the implementation of English storybook reading to promote early English literacy.

Several limitations of this study should be acknowledged. First, the relatively small sample size and the homogeneous nature of participants limit the generalization of the findings. Secondly, the intervention period was relatively short, making it difficult to determine the long-term sustainability of the observed benefits by conducting longitudinal studies with larger, more diverse samples across different regions and socioeconomic groups can be conducted.

Acknowledgement

The first author would like to thank the supervisor, Dr. Sarimah, who has provided substantial insight for this study. The authors wish to thank 20 parent-child participants, who gave us rich and authentic data in the natural settings. The appreciation is also given to two researchers who coded and analyzed the qualitative data.

References

- Chang, C. S., Hsieh, F. J., Chen, T. Y., Wu, S. C., Tzeng, O. J., & Wang, S. (2023). Revisiting dialogic reading strategies with 12-month-old infants. *Early Childhood Education Journal*, 51(8), 1413-1426.
- Cheng, X., Yin, L., Lin, C., Shi, Z., Zheng, H., Zhu, L., & Dong, R. (2024). Chatbot dialogic reading boosts comprehension for Chinese kindergarteners with higher language skills. *Journal of Experimental Child Psychology*, 240, 105842.
- Chow, B. W. Y., Hui, A. N. N., Li, Z., & Dong, Y. (2023). Dialogic teaching in English-as-a-second-language classroom: Its effects on first graders with different levels of vocabulary knowledge. *Language Teaching Research*, 27(6), 1408-1430.
- Connor, C. M., Day, S. L., Zargar, E., Wood, T. S., Taylor, K. S., Jones, M. R., & Hwang, J. K. (2019). Building word knowledge, learning strategies, and metacognition with the Word-Knowledge e-Book. *Computers & Education*, 128, 284-311.
- Cordes, A. K., Egert, F., & Hartig, F. (2023). Fostering child language with short-term digital storybook interventions. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*.

- Creswell, J. W. (2013). *Research design: qualitative, quantitative, and mixed methods approaches*. New York, NY: SAGE Publications, Inc.
- Flores, E. P., Pires, L. F., & Souza, C. B. A. D. (2014). Dialogic reading of a novel for children: Effects on text comprehension. *Paidéia (Ribeirão Preto)*, 24(58), 243-252.
- Ge, Y. (2023). *Uncovering the Myths of Shared Reading English Picture Books for Chinese Families: A Narrative Inquiry* (Doctoral dissertation), The University of Western Ontario, Canada.
- Grolig, L. (2020). Shared storybook reading and oral language development: A bioecological perspective. *Frontiers in Psychology*, 11, 1818.
- Hidayatullah, S., Mulyati, Y., Damaiani, V. S., & Permadi, T. (2023). Effectiveness of dialogical reading literacy programs in improving language skills and literacy of early students. *International Journal of Learning, Teaching and Educational Research*, 22(8), 233-252.
- Huang, S. (2013). The use of literacy bags promotes parental involvement in Chinese children's literacy learning in the English language. *Language Teaching Research*, 17(2), 251-268.
- Kennedy, C., & McLoughlin, A. (2023). Developing the emergent literacy skills of English language learners through dialogic reading: A systematic review. *Early Childhood Education Journal*, 51(2), 317-332.
- Mayer, R. E. (2022). Cognitive theory of multimedia learning. In R. E. Mayer & L. Fiorella (Eds.), *The Cambridge handbook of multimedia learning* (3rd ed., pp. 57-72). Cambridge University Press.
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *On Qualitative Data Analysis. Methods Sourcebook (3rd Edn.)* SAGE Publication.
- Mol, S. E., Bus, A. G., De Jong, M. T., & Smeets, D. J. (2008). Added value of dialogic parent-child book readings: A meta-analysis. *Early Education and Development*, 19(1), 7-26.
- Munzer, T. G., Miller, A. L., Weeks, H. M., Kaciroti, N., & Radesky, J. (2019). Differences in parent-toddler interactions with electronic versus print books. *Pediatrics*, 143(4), e20182012.
- Read, K., Rogojina, A., & Hauer-Richard, O. (2022). Rhyme over time: Vocabulary learning through daily reading aloud at home with children. *First Language*, 42(3), 426-447.
- Richter, A., & Courage, M. L. (2017). Comparing electronic and paper storybooks for preschoolers: Attention, engagement, and recall. *Journal of Applied Developmental Psychology*, 48, 92-102.
- Rooha, A., Anil, M. A., Bhat, J. S., Bajaj, G., & Deshpande, A. (2023). Assessing Inferencing Skills in Children Through the Lens of Dynamic Visual Narratives. *Communication Disorders Quarterly*, 44(3), 173-184.
- Rubegni, E., Dore, R., Landoni, M., & Kan, L. (2021). "The girl who wants to fly": Exploring the role of digital technology in enhancing dialogic reading. *International Journal of Child-Computer Interaction*, 30, 100239.
- Sari, P. R., & Fitrisia, D. (2022). The Effectiveness of Using Picture Books to Strengthen Students' Performance in Reading Comprehension. *Research in English and Education Journal*, 7(2), 74-84.
- Steiner, L. M., Hindin, A., & Rizzuto, K. C. (2022). Developing children's literacy learning through skillful parent-child shared book readings. *Early Childhood Education Journal*, 50(4), 539-553.
- Straker, L., Zabatiero, J., Danby, S., Thorpe, K., & Edwards, S. (2018). Conflicting guidelines on young children's screen time and use of digital technology create policy and practice dilemmas. *The Journal of Pediatrics*, 202, 300-303.

- Strouse, G. A., & Ganea, P. A. (2017). Toddlers' word learning and transfer from electronic and print books. *Journal of Experimental Child Psychology*, 156, 129-142.
- Strouse, G. A., O'Doherty, K., & Troseth, G. L. (2013). Effective coviewing: Preschoolers' learning from video after a dialogic questioning intervention. *Developmental Psychology*, 49(12), 2368.
- Strouse, G. A., Troseth, G. L., & Stuckelman, Z. D. (2023). Page and screen: Storybook features that promote parent-child talk during shared reading. *Journal of Applied Developmental Psychology*, 86, 101522.
- Stuckelman, Z. D., Strouse, G. A., & Troseth, G. L. (2022). Value added: Digital modeling of dialogic questioning promotes positive parenting during shared reading. *Journal of Family Psychology*, 36(6), 1010.
- Sun, H., Roberts, A. C., & Bus, A. (2022). Bilingual children's visual attention while reading digital picture books and story retelling. *Journal of Experimental Child Psychology*, 215, 105327.
- Sung, Y. Y. C., & Chiu, D. K. (2022). E-book or print book: Parents' current view in Hong Kong. *Library Hi Tech*, 40(5), 1289-1304.
- Vygotsky, L. S. (1978). *Mind in society: Development of higher psychological processes*. Harvard University Press.
- Wasik, B. A., Hindman, A. H., & Snell, E. K. (2016). Book reading and vocabulary development: A systematic review. *Early Childhood Research Quarterly*, 37, 39-57.
- Whitehurst, G. J., Falco, F. L., Lonigan, C. J., Fischel, J. E., DeBaryshe, B. D., Valdez-Menchaca, M. C., & Caulfield, M. (1988). Accelerating language development through picture book reading. *Developmental Psychology*, 24(4), 552-559.
- Xu, Y., Aubele, J., Vigil, V., Bustamante, A. S., Kim, Y. S., & Warschauer, M. (2022). Dialogue with a conversational agent promotes children's story comprehension via enhancing engagement. *Child Development*, 93(2), e149-e167.
- Yang, D., Xia, C., Collins, P., & Warschauer, M. (2022). The role of bilingual discussion prompts in shared E-book reading. *Computers & Education*, 190, 104622.
- Yüzbaşıoğlu, Y., & Akyol, C. (2022). The Effect of a dialogic reading program on the early literacy skills of children in preschool period. *Education Quarterly Reviews*, 5(Special Issue 2), 557-563.
- Zevenbergen, A. A., & Whitehurst, G. J. (2003). Dialogic reading: A shared picture book reading intervention for preschoolers. In A. van Kleeck, S. A. Stahl, & E. B. Bauer (Eds.), *On reading books to children: Parents and teachers* (pp. 177-200). Lawrence Erlbaum Associates Publishers.
- Zhou, N., & Yadav, A. (2017). Effects of multimedia story reading and questioning on preschoolers' vocabulary learning, story comprehension and reading engagement. *Educational Technology Research and Development*, 65, 1523-1545.

Appendix A Dialogic Reading Strategy (Zevenbergen & Whitehurst, 2003)

Strategy	Category	Definition	Example
PEER Strategy	Prompt	Encourage the child to say something about the reading materials.	How many “No”s on this page?
	Evaluate	Give feedback about the child’s answer. Is the answer correct or not?	Yes, you are correct; Excellent
	Expand	Add information to the child’s response or use other ways to supplement children’s answer.	Can you describe this wolf and this pig?
	Repeat	Ask the child to repeat to make sure the expanded or correct response can be memorized.	run, run, run down the road, please repeat it
CROWD Strategy	Completion Prompts	Leave a blank for children to fill in the final position of a sentence, especially used in books with repetitive patterns.	“No”, said one little____; The wolf said I will blow your____down
	Recall Prompts	Ask the child to recall what has been read in a book for the facilitation of their memorization about the story event.	So what did the wolf say ? How many “No”s on the first page?
	Open-ended Prompts	Encourage children to use their own words to answer the questions based on illustrations of the book.	What will happen to the pig? Can you infer the ending of the story?
	Wh-prompts	Ask wh-questions that begin with where, what, when, why and how to elicit more information about the book.	what did the little pig do? Why did the pig run down the road?
	Distancing Prompts	Associate the book with their real life and experience.	What will you do if you met a wolf on your own?

Appendix B: List of Digital English Storybooks

Intervention Week	Book Name
Week 1	New Trees: Oxford Reading Tree (Brychta, 2003)
Week 2	Biscuit’s Big Friend: I can Read Series (Capucilli, 2003)
Week 3	The Snowman: Oxford Reading Tree (Brychta, 2005)
Week 4	Biscuit goes to school: I can Read Series (Capucilli, 2003)
Week 5	Brown Bear, Brown Bear, What do you See? (Carle, 2007)
Week 6	Kipper’s Birthday: Oxford Reading Tree (Brychta, 2003)
Week 7	The Wobbly Tooth: Oxford Reading Tree (Brychta, 2005)
Week 8	The New Gingerbread Man: Oxford Reading Tree (Brychta, 2005)