



The Effect of E-books on Young EFL Learners' Vocabulary Acquisition and Parents' Perceptions of E-books*

Sujin Lee (International Graduate School of English)

YunDeok Choi (International Graduate School of English)



This is an open-access article distributed under the terms of the Creative Commons License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium provided the original work is properly cited.

Received: May 9, 2022

Revised: June 18, 2022

Accepted: June 30, 2022

Sujin Lee (first author)

Graduate Student, International Graduate School of English
Email: sujinlee@igse.ac.kr

YunDeok Choi (corresponding author)

Lecturer, International Graduate School of English
Email: yundeokchoi@gmail.com

* This paper is developed from the master's thesis of the first author at the International Graduate School of English in 2021.

ABSTRACT

Lee, Sujin and Choi, YunDeok. 2022. The effect of e-books on young EFL learners' vocabulary acquisition and parents' perceptions of E-books. *Korean Journal of English Language and Linguistics* 22, 593-617.

This exploratory study examines the effect of independent e-book readings compared to listening to an adult reading printed books aloud on young Korean learners' vocabulary acquisition and parents' perceptions of e-books and printed books as vocabulary learning tools for their children in EFL contexts. In a counterbalanced, within-subject study design, 19 young Korean EFL learners participated in eight 20-25-minute reading sessions (four independent e-book reading and four reading printed book teacher read-aloud) over eight days and completed pre-tests and post-tests that were designed to measure receptive vocabulary learning (word meaning recognition). In addition, 128 Korean parents responded to an online survey. A Wilcoxon signed-rank test revealed both reading methods exerted positive effects on the learners' incidental L2 vocabulary learning to different extents. Analysis of the survey responses indicated that the parents considered both reading mediums useful for different reasons. They suggested incorporating additional features into e-books to better assist their children in learning L2 vocabulary. Implications regarding the effective use of two reading methods and the design of e-book features, as well as methodological limitations, are discussed.

KEYWORDS

e-books, printed books, EFL, vocabulary learning, young learners, parents' perceptions

1. Introduction

Vocabulary knowledge, a component of communicative competence (Bachman and Palmer 1996), plays an important role in communication in that “without vocabulary, nothing can be conveyed” (Wilkins 1972, p. 112). The vocabulary size needed for successful communication is considerable. According to Nation (2006), educated English native speakers possess approximately 20,000-word families, meaning they acquire 1,000-word families on average each year until the age of 20. L2 learners should know 8,000- to 9,000-word families to understand written texts (e.g., newspapers) without external assistance.

Young children acquire a substantial amount of vocabulary incidentally when they encounter and process linguistic input during extensive reading (Cunningham 2005), which is termed incidental learning (Hulstijn 2013). That is, children incrementally acquire unfamiliar words while listening to a text read aloud (shared reading) or engaging in independent text reading depending on their reading ability (Cunningham 2005). Storybooks are one of the most effective and popularly used text types for incidental vocabulary learning, particularly for children, due to the wide coverage of interesting topics, coupled with plentiful picture illustrations that facilitate drawing the meaning of unknown words from the context (Kim and Kim 2016, Nodelman and Reimer 2003, Smeets and Bus 2015).

Parents' reading out printed storybooks to their children is traditionally exercised as part of the Home Literacy Environment (HLE) (Liu et al. 2018, Kang et al. 2019, van Bergen 2017). HLE refers to “a variety of resources and opportunities provided to children as well as by the parental skills, abilities, dispositions, and resources that determine the provision of these opportunities for children” (Burgess et al. 2002, p. 413). However, with the rapid development of educational technology and the advent of electronic books (e-books), children's independent reading of stories in e-books has become another common practice of HLE.

As independent e-book reading has gained much traction in HLE, in addition to printed book reading, a number of previous studies have examined the effectiveness of the two reading methods and user perceptions of the two as an educational tool for child language and literacy development. The research findings have collectively evidenced both e-book reading and printed book reading could play facilitative roles in developing literacy (e.g., Biemiller and Boote 2006, De Jong and Bus 2002, 2004). In addition, different groups of users (students, teachers, and parents) tended to have positive attitudes toward reading e-books as a new educational practice, although some users still preferred the traditional, printed book reading method over the new one (e.g., Jeong 2012, Maynard 2010, Rideout 2014).

The aforementioned research endeavors have expanded our knowledge base about the two different HLE practices (independent e-book reading and parents' reading aloud of printed books); still, there are several unsolved issues that are worthy of investigation in this area. Firstly, it remains quite elusive which reading method is more effective because of the mixed findings in the literature. Some researchers reported adults' (including parents) reading aloud printed books resulted in superior child literacy performance (e.g., De Jong and Bus 2002), whereas others found the superiority of e-book reading over printed book reading (e.g., Zipke 2016) and others observed no significant difference between the two (e.g., Korat and Shamir 2007). Our understanding of the relative functionality of the two reading methods in enhancing L2 learning is particularly limited since most of the investigations have been conducted in L1 settings (Pardede 2019, Soruç 2015). Moreover, little is known about parents' perceptions of e-book usage compared to that of printed books for children's L2 learning, despite the fact that parents are key stakeholders making important decisions in HLE practices.

The main purpose of this research is two-fold: to examine the relative effect of independent e-book reading compared to adults' printed book reading on Korean EFL children's vocabulary learning, and to explore parents'

perceptions of e-books as a vocabulary-learning instrument for their children, both in the list are underexplored. This study contributes to the child L2 development field by shedding light on the comparative effectiveness of the two commonly exercised HLEs. It also provides practical suggestions for e-book publishers regarding design features based on research findings.

2. Literature Review

2.1 Learning Vocabulary

Vocabulary (lexis) “refers to all the words in a language” (Barcroft et al. 2011, p. 571), ranging from individual words to collocations and (semi) fixed expressions (Li 2016). Vocabulary knowledge encompasses knowing form (e.g., pronunciation, spelling, word parts), meaning (e.g., form and meaning connection), and use (e.g., frequency, collocations) of words on receptive and expressive levels (Nation 2001). Receptive and expressive knowledge involves meaning recognition and meaning recall and form recognition and form recall, respectively (Schmitt 2010).

Vocabulary learning, which occurs intentionally or incidentally, is determined by learners' selective attention to and elaborated processing of new words as well as frequent activation in different contexts (Hulstijn 2013). According to the literature, there are several pedagogical means effective for children's learning new vocabulary (both L1 and L2). The methods include repeated book readings (e.g., Koskinen et al. 2000, Krashen 1989, Rott 2007), explicit vocabulary instruction with clear definition and explanation of word meaning (Apthorp et al 2012), provision of visual aids (Silverman and Hines 2009), frequent checking for understanding (August et al. 2005), looking up meanings (Hulstijn 2013), and bridging to L1 (Wood et al. 2018).

2.2 Reading E-books and Language and Literacy Development

“E-books are electronic forms of text that have been published in a digital format and displayed on specialized reading devices, portable tablets, and computers” (Lee 2017, p. 1596). Unlike printed books, e-books afford multimedia effects (e.g., sound effects, audio narration accompanied by text highlighting, animated videos) and/or interactive features, such as built-in digital dictionaries, games, or quizzes that are activated by clicking on hotspots hidden on the screen (e.g., Takacs et al. 2015).

E-books have recently gained increasing popularity as an HLE for children. A national survey study administered to over 1,500 parents in the U.S., for instance, revealed approximately one-third of their children engaged in digital reading on a regular basis (Rideout 2014). Against this backdrop, a growing body of research has examined the effects of e-book reading activities on child language and literacy development in different aspects. The first line of studies comparing child independent e-book reading (e-book reading) to listening to adults' reading of e-books or printed books (shared book reading) has yielded conflicting findings. Some studies revealed shared reading was more beneficial than e-book reading (e.g., Ihmeideh 2014, Korat et al. 2014) whereas some others found the contrary. For instance, according to Korat et al. (2014), Israeli Hebrew-speaking preschoolers learned new vocabulary more effectively in the shared reading condition with an adult's vocabulary support compared to another two conditions (e-book reading with and without built-in dictionaries). The adult's support included asking questions, rereading sentences, and directly explaining word meanings. By contrast, in their meta-analysis study, Takacs et al. (2015) discovered e-book reading elicited small but significant additional benefits for

story comprehension and expansion of expressive vocabulary knowledge. However, others documented reading e-books with animations or a static dictionary was not significantly different from listening to adults reading printed books (De Jong and Bus 2004, Korat and Shamir 2007).

A second line of research has explored the interactive affordance of e-books in relation to child literacy performance. Due to inconsistent findings, however, no firm conclusion has been made as to whether interactivity facilitates or interferes with language learning. According to Korat and Shamir (2008) and others (e.g., Smeets and Bus 2012, 2015, Zipke 2017), interactive features like hotspots, dictionaries, and animations relevant to the story were supportive of story comprehension and/or vocabulary acquisition. Similarly, Smeets and Bus (2015) found interactive animated e-books (followed by non-interactive animated books) were most effective in facilitating vocabulary learning, while static e-books were least effective. However, another group of scholars unveiled interactivity could be distracting and caused enhanced cognitive load, hindering literacy development regardless of the feature's relevance to the story (e.g., Labbo and Kuhn 2000, Takacs et al. 2015). Others, including Etta and Kirkorian (2019), however, uncovered interactive features that were irrelevant to the story did not negatively affect story comprehension or vocabulary learning.

Compared to child L1 literacy, the utility of e-book reading for L2 development has attracted relatively little attention (Huang 2013). Moreover, existing L2 studies (e.g., Chen et al. 2013) rarely targeted preschoolers and elementary students from lower-grades, despite the fact that this child population can accomplish implicit vocabulary acquisition and develop reading skills in the L2 while reading e-books as well. This skewed trend holds true for the small number of studies investigating Korean students' EFL learning, all of which findings in combination suggest the promising potential of e-books as an L2 development instrument. For instance, Yoon (2013) observed 5th-grade students achieved higher, albeit insignificant, scores on EFL reading comprehension and vocabulary tests after 12 weeks of reading e-books written in English. Similarly, college students' reading and listening comprehension in L2 improved most when reading e-books (passages in a text format) along with audiobooks (the same passages in an audio format) rather than either of reading e-books or audio books alone.

However, it remains indecisive if e-book reading is more effective than printed book reading in learning L2. Park and Lee (2021) found, after 11 weeks of intervention, 5th- and 6th-grade students from the e-book group accomplished a greater improvement in comprehending what is explicitly stated in the text (literal reading comprehension), whilst those in the printed book group improved more in making inferences from the text (inferential reading comprehension) and grammar knowledge. Contrarily, middle school students from the two reading groups (interactive e-book reading and printed book reading) obtained similar scores in the literal and inferential reading comprehension tests across five reading sessions (Lim et al. 2021).

In sum, the findings of the surveyed studies collectively indicate that both reading mediums (e-books and printed books) are useful in promoting language and literacy development possibly across different language learning contexts. However, very little is currently known about the relative effect of e-book reading versus printed book reading on young children's language learning (including vocabulary) in EFL contexts.

2.3 Attitudes of Users towards Reading E-books

With the growing prevalence of e-book usage in reading, a number of researchers have explored different groups of users' attitudes toward using e-books in comparison with printed books as an educational tool for language learning and literacy development. In general, all three groups of users (students, teachers, and parents) tended to have positive perceptions of e-books (e.g., Huang et al. 2013, Liman Kaban and Karadeniz 2021, Yoon 2013, Zipke 2017) for various reasons, such as accessibility and availability without constraints of time and place (Shelburne

2009). Young students, for instance, demonstrated more active engagement and stronger motivation when reading e-books rather than printed books and preferred reading e-books to reading printed books due to the multimedia effects and/or interactivity available only in the former (Ciampa 2012, de Jong and Bus 2002). Likewise, in Kaynar et al. (2020), classroom teachers responded that using e-books not only increased students' interest in reading, but also enhanced reading competencies.

According to the literature, nevertheless, not all users preferred e-books to printed books as a reading medium for a range of different reasons (e.g., Wood et al. 2010). For example, 6th-grade Korean students did not intend to use e-books as an alternative to printed books because e-book reading involved sustained screen time that caused eye fatigue (Jeong 2012). In the same vein, some parents held stronger preferences for printed books because of concern about the optic health of children (See et al. 2019). Parents also reported that they restricted children's use of e-books, believing that reading printed books was more beneficial for language learning (Oakley and Jay 2008, Rideout 2014). In a recent study, Strouse and Ganea (2017) found that Canadian caregivers read printed books more frequently than e-books to young children.

To recap, previous research has established that different groups of users favorably perceived e-books; however, some users still preferred printed books to e-books as a reading medium. A search of the literature revealed there has been much discussion about students' attitudes toward reading e-books, but studies have rarely investigated parents' perceptions of their children's use of e-books compared to printed books as means to develop language learning. This paucity holds particularly true for L2 contexts. It is of importance to examine parents' perspectives, as parents make key decisions regarding HLE practices for their children.

2.4 The Present Research

Taking into account the gaps in the literature, this study aims to compare the effects of children's independent reading of e-books to listening to an adult reading aloud printed books on learning new words, as well as parents' perceptions of the two mediums for their children's vocabulary learning instruments in a Korean EFL context. To this end, the present study addresses the following two questions:

- (1) What are the relative effects of independent e-book reading and adult-read printed book reading on children's receptive EFL vocabulary learning?
- (2) How do South Korean parents perceive e-books compared to printed books as an EFL vocabulary-learning tool for their children?

3. Methods

3.1 Participants

We recruited two groups of participants, young Korean EFL learners and parents of Korean EFL learners, using convenience (Mackey and Gass 2015) and snowball sampling (Parker et al. 2019), respectively. Gift cards with a small amount of money were provided to both groups to compensate for their participation.

3.1.1 Young Korean EFL learners

The first group of participants included 19 seven- to nine-year-old Korean EFL learners who were enrolled in a private English language institute, Hagwon in Yongin, Gyeonggi Province, South Korea, where the first author was working as a teacher. The learners were deemed representative of young Korean EFL learners who begin learning English at Hagwon before receiving official English education starting from Grade 3 in primary school. Similar to other Hagwon institutes that cater to elementary-level kindergartners and primary school learners, the English language institute where the current study was conducted offered phonics and music programs, as well as English language courses (reading, writing, speaking, and listening), in English. The demographic information of the learners is presented in Table 1. None of the learners had prior experience attending an English kindergarten. They could read in Korean and had studied English for a year, on average, at the private English language institute. At the time of data collection, the learners could read individual words, but not read sentences fluently in English, as they had just finished the phonics learning stage (learning to read by associating sounds with letters) and had only begun learning the English alphabet. All 19 learners participated in the e-book and printed book reading sessions in four groups (Groups A, B, C, and D) of five or four participants each, as described in the Data Collection Procedure.

Table 1. Demographic Information of the Learners

| Age (Grade) | Male | Female | Subtotal |
|--|------|--------|----------|
| 7 years old (preschoolers) | 3 | 4 | 7 |
| 8 years old (1 st grade) | 3 | 3 | 6 |
| 9 years old (2 nd grade) | 2 | 4 | 6 |

3.1.2 Parents of young Korean EFL learners

Another group that consisted of 128 parents of Korean preschoolers or elementary school students, including the parents of the 19 learners, was recruited via the teacher's (the first author's) personal contact. We also recruited the participants by posting a research recruitment flier on the personal blog homepage of an English language educator famous to Korean parents. The parents who responded to an online survey were all Korean L1 speakers. Among the 128 parents, the 104 who reported that they had prior experience using both e-books and printed books as HLEs were included in the data analysis. The 104 parents' children were either kindergarteners below six- to seven-year-old ($n = 16$, 15%) or elementary school students from Grades 1 to 6 ($n = 88$, 85%). Table 2 presents the demographic information about the parents ($n = 87$, 68%) who identified their gender and age. As shown in Table 2, most of the parents were females who were in their 40s.

Table 2. Demographic Information of the Parent Participants

| Age range | Male | Female | Subtotal |
|-----------|------|--------|----------|
| 30s | 0 | 23 | 23 |
| 40s | 2 | 61 | 63 |
| 50s | 0 | 1 | 1 |

Note. 17 among 104 parents (16%) did not identify their gender and age.

3.2 Materials

3.2.1 Paper books and e-books

We selected and used eight storybooks (four electronic and four printed) that contained 194 to 286 words, and the text readability estimated by Lexile measures ranged from 400 to 500L, which corresponded to the lower A2 level in CEFR for languages (University of Colorado Boulder, 2018). The readability of both types of books was deemed somewhat challenging but adequate for the learners, who had learned to with phonics. The genre of the books was fiction. The e-books and printed books looked comparable in terms of text length, reading difficulty, and parts of speech of the target words. It should be noted, however, that Lexile levels of the e-book texts were slightly higher and their text lengths were somewhat longer than those of the printed books. On average, the Lexile level of the e-books was 462.50 in the Lexile level with 264.50 words and printed books were at the Lexile level of 422.5 with 217 words. Each book contained five target words necessary for story comprehension. Parts of speech of the target words were noun (N), verb (V), or adjective (A), and most were either nouns or verbs. The target vocabulary occurred from one to eight times. According to the literature, occurrence frequency is one of the factors that contributes to vocabulary learning, and the required number of appearances in written texts varies from at least six to 20 encounters (e.g., Horst et al. 1988, Rott 1999, Waring and Takaki 2003, Webb 2007, Zahar et al. 2001). Taking into account the inconsistency of the reading mediums, findings should be interpreted with caution. Table 3 shows the titles, Lexile levels, word counts, target vocabulary items along with parts of speech, and the number of appearances of the target words of the four e-books and four printed books.

Table 3. Information for the E-books and Printed Books

| Book Type | Title | Lexile Level | Word Count | Target Words (Parts of Speech, Number of Occurrences) |
|--------------|--------------------------------|--------------|------------|---|
| E-book | Stone Soup | 420 | 261 | giant (N, 1), sniff (V, 1), pot (N, 6), village (N, 3), visitor (N, 7) |
| | The Ugly Duckling | 490 | 286 | hatch (V, 1), stay (V, 1), curious (A, 1), peacock (N, 1), mean (A, 3) |
| | The Three Billy Goats Gruff | 480 | 244 | decide (V, 1), bridge (N, 8), plan (N, 1), yell (V, 3), lick (V, 2) |
| | Martina the Cockroach | 460 | 267 | sweep (V, 1), noisy (A, 1), whistle (N, 1), fix (V, 1), marry (V, 5) |
| Printed Book | The Magic Melon | 400 | 205 | tap (V, 1), plant (V, 1), wish (V, 2), cheat (V, 2), laugh (V, 2) |
| | The Genie in the Bottle | 420 | 205 | net (N, 1), sigh (V, 2), pour (V, 1), huge (A, 2), inside (N, 1) |
| | Old Mother Hubbard | 420 | 194 | cupboard (N, 4), thief (N, 2), cash (N, 2), reward (N, 1), shout (V, 2) |
| | King Donkey Ears | 450 | 264 | servant (N, 4), secret (N, 3), jail (N, 2), promise (V, 2), strange (A, 1) |

Note. N = noun; V = verb; A = adjective

Dissimilar to the printed books, the e-books used in this study afforded four main multimedia/interactive features designed to facilitate L2 learning. A text-to-speech function enabled a computer-generated voice to read aloud a written text (audio narration), which could be useful for young learners to begin developing reading skills (Biancarosa and Griffiths 2012). A synchronous text-highlighting feature automatically marked the part of the text being read aloud on-screen (Smeets and Bus 2013), drawing learners' attention to the corresponding word being

read aloud (Biancarosa and Griffiths 2012, Zipke 2017). The audio narration in combination with the text highlighting could assist learners in comprehending texts with unknown words that required phonetic decoding on the part of learners (Danaei et al. 2020). A built-in dictionary with a hotspot activated a gloss with a word definition and an associated image when learners clicked on an unfamiliar word (Smeets and Bus 2015), a function known to facilitate vocabulary learning and reading comprehension (Korat et al. 2013). Post-reading comprehension quizzes were also available and enabled learners to check their text comprehension.

3.2.2 Pre- and post-tests

We created two vocabulary tests with multiple-choice items to check if the learners knew the meaning of the target words before reading the e-books and printed books (one for the e-books and another for the printed books). Both pre-tests contained 20 items, each of which presented a target word in English in a stem and three options of word meaning written in Korean (one key and two distractors). The same pre-tests were used to measure the learners' incidental learning of the target vocabulary (meaning recognition) after reading the e-books and printed books (Appendix 1). The questions on the pre- and post-tests were counter-balanced, meaning the same questions were presented in a different order to the four groups (A, B, C, and D). Each item was worth one point, and the total possible score on each of the test was 20.

3.2.3 Online survey

A two-part online survey was constructed to collect the demographic information of the parents and their children (Part 1) and to explore the uses of e-books and printed books as HLE practices as well as parents' perceptions of the two reading mediums (e-books and printed books) as tools for their children's L2 learning, including vocabulary knowledge (Part 2). We created survey items, referring to some literature on children's use of e-books (e.g., Chung and Choi 2012). Four parents who were representative of the sample of this study took part in the pilot testing, after which minor modifications were made to the survey items. The finalized survey contained 24 items written in Korean (six 5-point Likert-scale items, 14 multiple-choice items, and four open-ended items). Five items (Items 9, 10, 11, 20, and 22) specifically addressed English vocabulary learning, the overarching topic of the current study (see Appendix 2). Accordingly, the parents' responses to only these five items were included in the data analysis.

3.3 Data Collection Procedure

3.3.1 Paper- and e-book readings and test administration

With Institutional Review Board (IRB) approval, we obtained informed consent from the director of the private language institute and the parents of the young learner participants before initiating the study.

Figure 1 illustrates the data collection procedures in terms of reading sessions and pre- and post-test administrations, both of which were carried out in a quiet classroom. All 19 learners attended eight reading sessions (four e-book and four printed book readings) before or after regular classes in four groups (Groups A, B, C, and D) of five or four participants for eight days from July 23 to August 21, 2020. Before the reading sessions, the first author, who was the teacher, administered the pre-tests to the learners, asking them to select the meanings of the target words that they would encounter while reading books on Days 1 and 5. She monitored all testing session

and provided assistance when needed (e.g., for some learners who could not read the target words in English on their own, she read the words aloud).

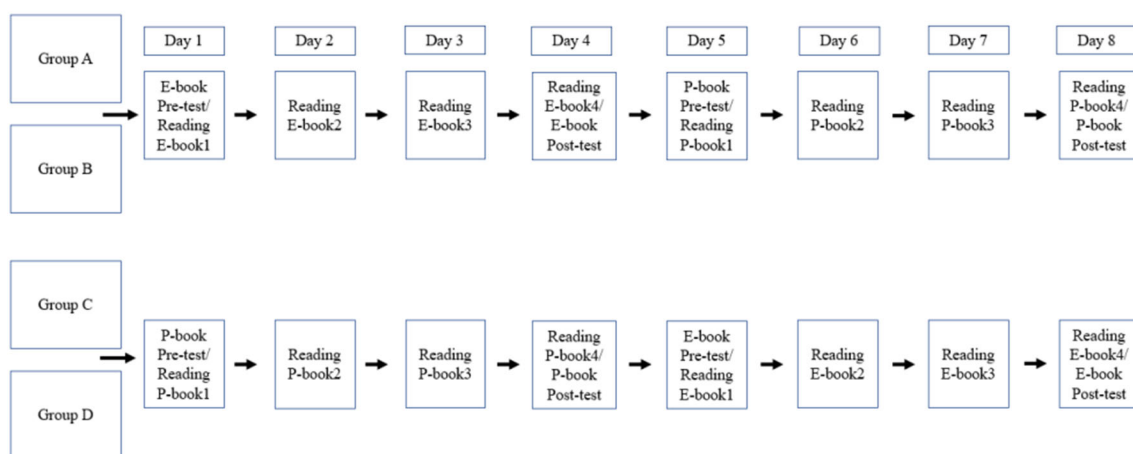


Figure 1. Data Collection Procedures

After the pre-tests, two groups (Groups A and B) participated in four e-book reading sessions followed by four printed book reading sessions, while the other two groups (Groups C and D) did the same in reverse order. Before the e-book reading sessions on Days 1 and 5, the teacher trained the learners how to read e-books on an iPad and use multimedia/interactive functions available in the e-books. In each reading session, learners either independently read an e-book on an iPad device with the same interface while listening to the audio narration and watching the text highlighted, or listened to the teacher's reading aloud of a printed book for 20-25 minutes. In the shared reading condition, each learner held a copy of the printed book and looked at the written text and pictorial illustrations while listening to the teacher. The learners were allowed to read the e-books or listen to the printed books being read aloud multiple times during the reading sessions. However, it was observed that each book was read once. The teacher observed the learners during the reading sessions and took field notes immediately after each session. In the e-book reading sessions, all the learners were observed using the audio narration along with the synchronous text-highlighting and the built-in dictionary features, but not the post-reading comprehension quizzes.

While reading the books, the learners were exposed to unfamiliar vocabulary including the target words. They could look up the meaning of unknown vocabulary on their own using the built-in dictionary while reading the e-books. When the learners clicked on a word on-screen, the word meaning in English and an associated image popped up. Contrarily, in the shared reading condition, when the learners encountered unfamiliar vocabulary, they had to infer the meaning from the pictures and the story. The teacher did not provide any direct assistance (e.g., explaining word meaning, providing word definition) and encouraged the learners to guess the meaning of the words by providing explanations of the given situations, directing the learners' attention to contextual clues, and/or helping to understand the content. After finishing reading the books, the learners took the post-tests on Days 4 and 8. The teacher monitored and helped the learners during the test sessions as she did in the pre-test administration.

3.3.2 Online survey administration

Using the Survey Monkey website, a commercial online survey platform, we sent the online survey link to the parents, who voluntarily agreed to participate in the study. Upon receiving the link via email or text message, the parents completed the survey for approximately 10 minutes on either their smartphones or computers during the week of October 29 to November 5, 2020.

3.4 Data Analysis

We examined the first RQ about the effect of reading modes (printed reading vs. e-book reading) on young learners' L2 vocabulary learning (meaning recognition) by descriptively and inferentially analyzing the scores on the pre- and post-tests in SPSS (Version 23). Data screening conducted before the main analysis revealed that the test score data satisfied the three assumptions of the paired-samples t-test (interval data, independence of observation, and equal variances¹), but violated the normality assumption. Therefore, the (pre- and post-) test score data were submitted to the Wilcoxon signed-rank test, a non-parametric alternative to the paired samples t-test. In addition, the field notes the teacher took while observing the learners in the reading sessions were qualitatively analyzed.

The second RQ concerning the parents' perceptions of e-books and printed books as an English vocabulary-learning tool was investigated by analyzing descriptive statistics on the responses to the closed-ended survey items (Items 9, 10, 11, and 20) and conducting a content analysis of the responses to the open-ended item (Item 22). The content analysis entailed identifying key points in individual responses and grouping similar points into categories that represented new features that were suggested as additions to the e-books (Dörnyei and Taguchi 2010). The frequency and percent of occurrence of each category in the responses were calculated.

4. Results and Discussion

4.1 Effects of E-book Reading vs. Printed Book Reading on Young Learners' L2 Vocabulary Learning

Table 4 presents the descriptive statistics (median and range) for the pre- and post-test scores for e-book reading and printed book reading. As shown in Table 4, the medians of the pre- and post-test scores of the e-book reading were equivalent, but the minimum of the post-tests is slightly larger than that of the pre-test. A very similar pattern was found in the pre- and post-test scores of the printed book reading. It seems that the learners achieved somewhat higher scores on the post-test than on the pre-test in both reading conditions, meaning each of the two reading methods was beneficial for the learners' L2 vocabulary learning.

¹ The assumption of equal variances is traditionally assumed as satisfied for the paired-samples t-test (Larson-Hall 2010).

Table 4. Descriptive Statistics for Pre- and Post-Test Scores

| | | n | Median | Range (Minimum – Maximum) |
|-------------------------|------------------|----|--------|------------------------------|
| E-book reading | Pre-test scores | 19 | 12 | 1-19 |
| | Post-test scores | 19 | 12 | 5-19 |
| Printed book reading | Pre-test scores | 19 | 11 | 1-19 |
| | Post-test scores | 19 | 12 | 3-19 |

Note. The total possible maximum score on each test is 20.

A Wilcoxon signed-ranked test indicated that the learners' knowledge of the target vocabulary before and after participating in the e-book reading sessions was significantly different, $Z = -3.225$, $p = .0001$ with a large-sized effect ($r = .83^2$). On the other hand, the learners' knowledge of the target vocabulary before and after participating in the printed book reading sessions was not significantly different ($Z = -1.845$, $p = .065$), which was possibly due to the relatively small sample size and resultantly insufficient power of the statistical analysis (Larson-Hall, 2010). The effect size, however, was medium ($r = .43$), meaning shared reading indeed exerted positive effects on vocabulary learning to a medium extent.

The first finding indicates that both reading methods (independently reading e-books and listening to the teacher reading printed books aloud) were beneficial for young L2 learners' incidental vocabulary learning to a medium to a large extent, despite the small number of reading sessions the learners participated in (four sessions totaling 80-100 minutes for each method). However, e-book reading was more effective compared to printed book reading. What we found confirms the results from the previous studies showing that extensive reading, regardless of reading mediums, facilitated young learners' L1 literacy development (De Jong and Bus 2004, Korat 2010, Korat and Shamir 2007) and L2 vocabulary learning (Chen et al. 2013, Zipke 2017).

More positive effects of e-book reading than printed book reading on the young learners' L2 vocabulary acquisition might be the result of the multimedia/interactive features available in e-books, in combination with the absence of the teacher's vocabulary support in the printed book reading sessions. As reported in earlier research, the audio narration plus word-by-word highlighting and the built-in dictionary the learners could freely use in the e-book reading sessions when they encountered unfamiliar words must have attracted their attention to the targeted words (Korat 2010, Korat and Shamir 2007, Smeets and Bus 2015). Due to the selective attention, deeper processing of the words occurred and the learners could internalize the vocabulary knowledge in the mental lexicon (Hulstijn 2013). Contrarily, in the shared reading sessions, the learners could not access the multimedia/interactive features or did not receive any explicit instructional assistance from the teacher (e.g., explicit vocabulary instruction, clear explanation of word meaning) that were necessary for effective vocabulary learning (Apthorp et al. 2012, Hulstijn 2013).

The current study result appears to also substantiate that mere exposure to new words in context might not as effective as reading books with an adult's vocabulary-learning support (e.g., explaining word meaning) or multimedia features designed for language learning (Korat et al. 2013, Schatz and Baldwin 1986, Smeets and Bus 2015). Assistance for vocabulary learning is essential, because learners might misinterpret a word's meaning when the context where an unfamiliar vocabulary item is embedded is misleading (Beck et al. 1983, Joyce 2018). In fact, the field notes revealed that when some learners encountered the word "reward" written on the pictorial illustration of the meat given to a dog for its good behavior, they paralogized the word meaning as meat. Taking the previous

² According to Cohen (1988), $r = .10$ (small), $r = .30$ (medium), $r = .50$ (large)

and current findings together, it is of importance to provide clear definitions and explanations of new words to accelerate young learners' L2 vocabulary acquisition (LugoNeris et al. 2010).

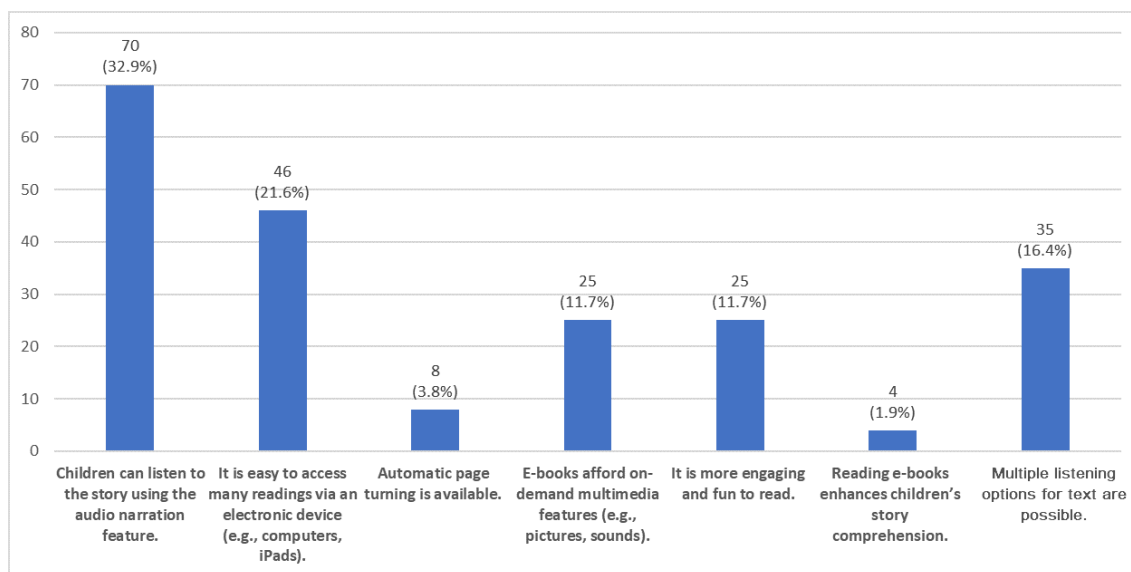
4.2 Parents' Perceptions of E-books and Printed Books as L2 Vocabulary Learning Tools

Table 5 shows the parents' perceived effectiveness of e-books and printed books in facilitating their children's English vocabulary learning. As presented in Table 5, the parents generally agree that both reading mediums are useful, even though their average perception of printed books is very slightly more positive than that of e-books. The parents' stronger preferences for printed books are in line with those of parents in other countries, including the U.S., UK, and Australia, as has been reported in the literature (e.g., Pew Research Center 2012, Rideout 2014, Scholastic, Kids, family reading report 2015a, 2015b, 2015c). These findings all together suggest that, overall, printed books are still the preferred parent choice of a primary reading medium in both L1 and L2 contexts.

Table 5. Parents' Perceived Effectiveness of E-books and Printed Books as Vocabulary Learning Tools (n = 100)

| Survey question | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree | M | SD |
|--|-------------------|-----------|----------------------------|-------------|----------------|------|------|
| Reading with an e-book is effective in improving children's English vocabulary. | 0 (0%) | 4 (4%) | 34 (34%) | 49 (49%) | 13 (13%) | 3.71 | .743 |
| Reading with a paper book is effective in improving children's English vocabulary. | 1 (1%) | 2 (2%) | 20 (20%) | 54 (54%) | 23 (23%) | 3.96 | .777 |

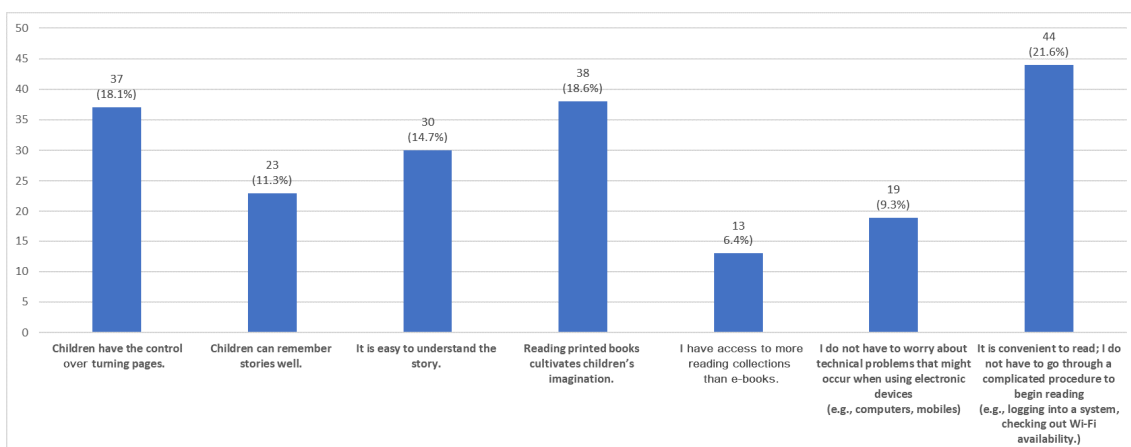
Figure 2 below illustrates various reasons why the parents preferred e-books to printed books as means to assist their children in improving English vocabulary. The most prevalent reasons were relevant to audio narration, followed by the convenience of accessing many readings and portability, text rereading, and multimedia/interactive features that made reading more engaging and fun. The parents, however, did not appreciate the automatic page-turning function as much as the other features and rarely thought that e-book reading resulted in better story comprehension than printed book reading.



Note. n = 213

Figure 2. Reasons for Parents' Preferences for E-books

Figure 3 in contrast, displays reasons why the parents preferred using printed books to enhance their children's L2 vocabulary knowledge. The top three reasons were that reading printed books was convenient, because it did not involve complicated procedures (e.g., logging into a web system, checking Wi-Fi availability), reading printed books cultivated children's imagination, and children had control over turning the pages. Other reasons were that children could understand and remember content when reading printed books. However, few parents preferred printed books merely due to the accessibility to more reading collections than e-books or the absence of technical problems.



Note. n = 204

Figure 3. Reasons for Parents' Preferences for Printed Books

The finding for the second RQ was that the parents positively perceived both reading mediums for their children's L2 vocabulary learning for different reasons. For instance, the parents appreciated the audio narration feature most. This result is not surprising, in that it must have been quite onerous for the parents who were EFL speakers to read aloud printed books to their children, possibly because they believed their English pronunciation was not always accurate. When reading e-books, however, their children were exposed to the accurate and so-called "nativelike" pronunciation of English words. On the other hand, the parents preferred printed books, mostly because of the convenience of their use; printed book reading is simpler than e-book reading, which requires technological preparation on the part of the readers. When considering that the parents' perceived effectiveness of e-books and printed books were comparable (see Table 5) and the different advantages of each medium that the parents noted in their responses on reading preferences (illustrated in Figure 2 and 3), parents are likely to use e-books in conjunction with printed books as HLEs, not using one over the other. From the parents' perspectives, the two reading mediums complement each other with the unique advantages that each holds.

Table 6 presents the extent to which the parents considered each of the selected features commonly available across many different e-books beneficial for their children's English vocabulary learning. On average, all the features, at least to some extent, were deemed helpful by the parents. The most useful features were reading comprehension quizzes and vocabulary quizzes, followed by audio narration, text rereading, and built-in dictionaries, all of which have been documented to support children's early literacy development including vocabulary in the literature (e.g., Smeets and Bus 2015). However, the parents did not agree that the four features that looked less relevant to L2 learning (automatic page flipping, voice recording, usage details, and rewards) were as useful as the other five features.

Table 6. Parents' Perceived Effectiveness of Each of the E-book Features in Facilitating English Vocabulary Learning ($n = 89$)

| | Not at all | Not so much | So-so | A little | Very much | <i>M</i> | <i>SD</i> |
|-------------------------------|------------|-------------|------------|------------|------------|----------|-----------|
| Audio narration | 2 (2.2%) | 0 (0.0%) | 15 (16.9%) | 34 (38.2%) | 38 (42.7%) | 4.19 | .87 |
| Text rereading | 2 (2.2%) | 2 (2.2%) | 15 (16.9%) | 38 (42.7%) | 32 (36.0%) | 4.08 | .90 |
| Voice recording | 2 (2.2%) | 10 (11.2%) | 22 (24.7%) | 34 (38.2%) | 21 (23.6%) | 3.70 | 1.02 |
| Automatic page-flipping | 3 (3.4%) | 12 (13.5%) | 37 (41.6%) | 24 (27.0%) | 13 (14.6%) | 3.36 | 1.00 |
| Built-in dictionary | 0 (0.0%) | 5 (5.6%) | 16 (18.0%) | 41 (46.1%) | 27 (30.3%) | 4.01 | .87 |
| Usage details | 1 (1.1%) | 3 (3.4%) | 31 (34.8%) | 35 (39.3%) | 19 (21.3%) | 3.76 | .86 |
| Rewards | 2 (2.2%) | 4 (4.5%) | 23 (25.8%) | 32 (36.0%) | 28 (31.5%) | 3.90 | .97 |
| Vocabulary quizzes | 0 (0.0%) | 2 (2.2%) | 12 (13.5%) | 36 (40.4%) | 39 (43.8%) | 4.26 | .77 |
| Reading comprehension quizzes | 0 (0.0%) | 1 (1.1%) | 10 (11.2%) | 38 (42.7%) | 40 (44.9%) | 4.31 | .71 |

Note. Usage details includes information about access frequency to an online library program and the amount of reading time; rewards are certificates or badges children receive when accomplishing reading goals.

In addition to the existing features, there are largely four new functions that the parents suggested should be added to e-books to promote child L2 vocabulary learning. Table 7 shows the four features, the number of responses pertinent to the features, and example excerpts from the parents' responses. The most desirable feature was a customized vocabulary list that would enable the parents to assess the accuracy of children's word pronunciation and would provide further information about unfamiliar words (e.g., synonyms, antonyms, example sentences showing the vocabulary usage), followed by learning reports that would allow them to check their children's vocabulary learning progress. Other features were hands-on practice exercises/activities and automated

feedback on oral and written performance, as well as amusing interactive features (e.g., games) that could make reading books and vocabulary learning interesting to their children.

Table 7. New Features Desirable to be Added to E-books ($n = 49$)

| Feature | Number of Responses (%) | Example excerpts from the parents' responses |
|--|-------------------------|---|
| Vocabulary lists | 18 (36.7%) | "We need a function that accurately checks the child's pronunciation and intonation." |
| Amusing interactive features | 8 (16.3%) | "I hope there will be many word-related games so that children can have fun learning." |
| Practice exercises/activities and automated feedback | 14 (28.6%) | "I need a function that allows my child to practice English writing and receive a correction. There's almost no function like this yet." "I hope there is a function that allows children to practice spelling after learning vocabulary." |
| Learning progress reports | 9 (18.4%) | "I hope I can accurately check the child's learning progress and level." "I hope there is a function to report the child's learning situation to parents in real-time." |

The four features suggested by the parents seem to indicate that e-books still have much room for improvement to better assist children in learning L2 vocabulary. The two most desired features (vocabulary lists, as well as practice exercises/activities and automatic feedback) were pertinent to the enhancement of expressive vocabulary knowledge, which indicates that the parents believed existing e-book features were not sufficient for building productive ability so that children cannot use newly learned words in oral and written discourse. Moreover, the parents seemed to recognize the importance of their roles in practicing HLEs including e-book reading; resultantly, they aspired to monitor their children's L2 learning trajectories via learning progress reports. Lastly, from their prior experiences, the parents were aware of the necessity of fun features to motivate their children to read e-books, a condition whereby L2 vocabulary learning would occur (e.g., Ciampa 2012, de Jong and Bus 2002). The parents' opinions were partially supported by the fact that some learners demonstrated strong reluctance to read books, asking "Should I read the book again?" or stating "I hate reading books," particularly in the printed book reading sessions. We speculate that the primary reason for such negative reactions was a lack of fun, interactive learning features.

5. Conclusion

This study examined the effect of two different methods of reading (independently reading e-books and listening to an adult's reading of printed books aloud [shared reading]) on young Korean EFL learners' vocabulary learning and Korean parents' perceptions of e-books and printed books as educational tools for their children's L2 vocabulary acquisition. The main findings were that both reading methods exerted positive effects on the learners' incidental vocabulary learning, but independent reading of e-books was more effective than the shared reading with an adult despite the slightly longer length and higher reading difficulty of the e-book texts. In addition, overall, the parents held similarly positive perceptions of the two reading mediums (e-books and printed books), but for different reasons. Lastly, a majority of the parents considered each of the existing e-book features beneficial to their children's English vocabulary learning, at least to some degree; there were new features that some of the

parents suggested to be added to the e-books to better support the children's vocabulary learning.

The findings of the present study have practical implications for HLE practices and the design of e-book features. Parents should encourage their children to engage more frequently in reading e-books independently rather than reading printed books alone in order to maximize the effects of extensive reading on incidental L2 vocabulary learning. E-book reading could be more appealing than printed book reading to children who are digital natives, and multimedia/interactive features that e-books afford could increase children's active engagement in reading activities and motivation for reading (Wright et al. 2013). When encountering unfamiliar words while reading printed books, children need adults' direct instructional assistance (e.g., either parents' or teachers' explanations of word meanings). Otherwise, they fail to acquire new words, because they are likely to misinterpret the meanings of unknown words, particularly when contextual cues are misleading. In addition, e-book publishers should consider incorporating various new features (e.g., features that facilitate the improvement of young L2 learners' expressive vocabulary knowledge, or the ability to productively use the newly acquired word) and making e-books as convenient as printed books to use (e.g., simplifying a login process).

This study has several limitations that should be properly addressed in further examinations. Above all, only a small number of young Korean L2 learners who were studying at a private English institution participated in the study; thus, the findings may not be generalizable. Future research should be conducted with a larger number of Korean children studying English in diverse academic contexts. Secondly, we should interpret the relative effects of e-book reading compared to the printed book reading discovered in this study cautiously, as the number of instances of the target words varied despite potential effects of repetitions on vocabulary learning (e.g., Zahar et al. 2001). As factors, such as the number of repetitions (occurrence frequency), individual learners' current vocabulary knowledge, and parts of speech, can affect vocabulary learning (Hulstijn, 2013, Nation 1982), these variables must be controlled in future studies. In addition, we conducted the current research study for eight days, revealing the beneficial effects of the two reading methods on L2 vocabulary learning from a short-term perspective. Long-term effects should also be examined in future investigations. Next, the current study design lacks ecological validity in that the teacher did not provide any direct support while the learners were reading printed books. In shared reading, adults (either parents or teachers) usually interact with young learners and help them to understand the text and learn new words that can positively contribute to L2 learning. Researchers should address this issue when launching new investigations. Last but not least, we observed that the learners utilized the audio narration, synchronous text-highlighting, and built-in dictionary features to make the experimental condition comparable to authentic e-book reading situations. Due to the research design, it is impossible to disentangle effects of each of the e-book features. Thus, it would be interesting to tease out and compare the effects of the features and to examine which feature contributes most to L2 vocabulary learning.

References

- Apthorp, H., B. Randel, T. Cherasaro, T. Clark, M. McKeown and I. Beck. 2012. Effects of a supplemental vocabulary program on word knowledge and passage comprehension. *Journal of Research on Educational Effectiveness* 5(2), 160-188.
- August, D., M. Carlo, C. Dressler and C. Snow. 2005. The critical role of vocabulary development for English language learners. *Learning Disabilities Research & Practice* 20(1), 50-57.
- Bachman, L. F. and A. S. Palmer. 1996. *Language Testing in Practice: Designing and Developing Useful Language Tests*. Oxford University Press.

- Barcroft, J., G. Sunderman and N. Schmitt. 2011. Lexis. In J. Simpson, ed., *The Routledge Handbook of Applied Linguistics*, 571-583. Routledge.
- Beck, I. L., M. G. McKeown and E. S. McCaslin. 1983. Vocabulary development: All contexts are not created equal. *The Elementary School Journal* 83(3), 177-181.
- Biancarosa, G. and G. G. Griffiths. 2012. Technology tools to support reading in the digital age. *The Future of Children* 22(2), 139-160. <https://doi.org/10.1353/foc.2012.0014>
- Biemiller, A. and C. Boote. 2006. An effective method for building meaning vocabulary in primary grades. *Journal of Educational Psychology* 98(1), 44.
- Burgess, S. R., S. A. Hecht and C. J. Lonigan. 2002. Relations of the home literacy environment (HLE) to the development of reading-related abilities: A one-year longitudinal study. *Reading Research Quarterly* 37(4), 408-426.
- Chen, C. N., S. C. Chen, S. H. E. Chen and S. C. Wey. 2013. The effects of extensive reading via e-books on tertiary level EFL students' reading attitude, reading comprehension, and vocabulary. *Turkish Online Journal of Educational Technology-TOJET* 12(2), 303-312.
- Chung, Y.-K. and Y.-K. Choi. 2012. A study on perception and use of E-books by librarians and children. *Journal of the Korean Society for Information Management* 29-1, 45-62.
- Ciampa, K. 2012. Reading in the digital age: Using electronic books as a teaching tool for beginning readers. *Canadian Journal of Learning and Technology* 38(2), 1-26.
- Cohen, J. 1988. *Statistical Power Analysis for the Behavioral Sciences*. Sage.
- Cunningham, A. E. (2005). Vocabulary growth through independent reading and reading aloud to children. In E. H. Hiebert and M. L. Kamil, eds., *Teaching and Learning Vocabulary: Bringing Research to Practice*, 45-68. Lawrence Erlbaum Associates Publishers.
- Danaei, D., H. R. Jamali and Y. Mansourian. 2020. Comparing reading comprehension between children reading augmented reality and print storybooks. *Computers and Education* 153, 103900. <https://doi.org/10.1016/j.compedu.2020.103900>
- De Jong, M. T. and A. G. Bus. 2002. Quality of book-reading matters for emergent readers: An experiment with the same book in a regular or electronic format. *Journal of Educational Psychology* 94(1), 145-155.
- De Jong, M. T. and A. G. Bus. 2004. The efficacy of electronic books in fostering kindergarten children's emergent story understanding. *Reading Research Quarterly* 39(4), 378-393.
- Dörnyei, Z. and T. Taguchi. 2009. *Questionnaires in Second Language Research: Construction, Administration, and Processing*. Routledge.
- Etta, R. A. and H. L. Kirkorian. 2019. Children's learning from interactive eBooks: Simple irrelevant features are not necessarily worse than relevant ones. *Frontiers in Psychology*, 2733. doi: 10.3389/fpsyg.2018.02733
- Horst, M., T. Cobb and P. Meara. 1998. Beyond a clockwork orange: Acquiring second language vocabulary through reading. *Reading in a Foreign Language*, 11(2), 207-223.
- Huang, H. C. 2013. E-reading and e-discussion: EFL learners' perceptions of an e-book reading program. *Computer Assisted Language Learning* 26(3), 258-281.
- Huang, Y. M., T. H. Liang and C. H. Chiu. 2013. Gender differences in the reading of e-books: Investigating children's attitudes, reading behaviors and outcomes. *Journal of Educational Technology & Society* 16(4), 97-110.
- Hulstijn, J. H. 2013. *Incidental learning in second language acquisition*. In C. A. Chapelle, ed., *The Encyclopedia of Applied Linguistics*. Wiley. 2632-2640.
- Ihmeideh, F. M. 2014. The effect of electronic books on enhancing emergent literacy skills of pre-school children.

- Computers & Education* 79, 40-48.
- Jeong, H. 2012. A comparison of the influence of electronic books and paper books on reading comprehension, eye fatigue, and perception. *The Electronic Library* 30(3), 390-408.
- Joyce, P. 2018. L2 vocabulary learning and testing: The use of L1 translation versus L2 definition. *The Language Learning Journal* 46(3), 217-227.
- Kang, S., B. No, N. K. Lee and N. Choi. 2019. Learning English at home: Young children's use of English educational media in South Korea. *Int. J. Inf. Educ. Technol* 9, 350-355
- Kaynar, N., O. Sadik and E. Boichuk. 2020. Technology in Early Childhood Education: Electronic Books for Improving Students' Literacy Skills. *TechTrends* 64, 911-921.
- Kim, J. Y. and J. R. Kim. 2016. Meta-Analysis of the Effectiveness of Reading Instruction Using English Literature for Children. *The Journal of the Korea Contents Association* 16(4), 741-756.
- Korat, O. 2010. Reading electronic books as a support for vocabulary, story comprehension and word reading in kindergarten and first grade. *Computers & Education* 55(1), 24-31.
- Korat, O. and A. Shamir. 2007. Electronic books versus adult readers: Effects on children's emergent literacy as a function of social class. *Journal of Computer Assisted Learning* 23(3), 248-259.
- Korat, O. and A. Shamir. 2008. The educational electronic book as a tool for supporting children's emergent literacy in low versus middle SES groups. *Computers & Education* 50(1), 110-124.
- Korat, O., A. Shamir and S. Heibal. 2013. Expanding the boundaries of shared book reading: E-books and printed books in parent-child reading as support for children's language. *First Language* 33(5), 504-523.
- Korat, O., I. Levin, A. Ben-Shabt, D. Shneor and L. Bokovza. 2014. Dynamic Versus Static Dictionary With and Without Printed Focal Words in E-Book Reading as Facilitator for Word Learning. *Reading Research Quarterly* 49(4), 371-386.
- Koskinen, P. S., I. H. Blum, S. A. Bisson, S. M. Phillips, T. S. Creamer and T. K. Baker. 2000. Book access, shared reading, and audio models: The effects of supporting the literacy learning of linguistically diverse students in school and at home. *Journal of Educational Psychology* 92(1), 23.
- Krashen, S. 1989. We acquire vocabulary and spelling by reading: Additional evidence for the input hypothesis. *The Modern Language Journal* 73(4), 440-464.
- Labbo, L. D. and M. R. Kuhn. 2000. Weaving chains of affect and cognition: A young child's understanding of CD-ROM talking books. *Journal of Literacy Research* 32(2), 187-210.
- Larson-Hall, J. 2010. *A Guide to Doing Statistics in Second Language Research Using SPSS*. Routledge.
- Lee, S. H. 2017. Learning vocabulary through e-book reading of young children with various reading abilities. *Reading and Writing* 30(7), 1595-1616.
- Li, L. 2016. CALL tools for lexico-grammatical acquisition. In F. Farr and L. Murray, eds., *The Routledge handbook of language learning and technology*. Routledge. 487-503.
- Lim, J., G. E. Whitehead and Y. Choi. 2021. Interactive e-book reading vs. paper-based reading: Comparing the effects of different mediums on middle school students' reading comprehension. *System* 97, 102434.
- Liman Kaban, A. and S. Karadeniz. 2021. Children's reading comprehension and motivation on screen versus on paper. *SAGE Open* 11(1), 1-11. DOI: 10.1177/2158244020988849
- Liu, C., G. K. Georgiou and G. Manolitsis. 2018. Modeling the relationships of parents' expectations, family's SES, and home literacy environment with emergent literacy skills and word reading in Chinese. *Early Childhood Research Quarterly* 43, 1-10.
- Lugo-Neris, M. J., C. W. Jackson and H. Goldstein. 2010. Facilitating vocabulary acquisition of young English language learners. *Language, Speech, & Hearing Services in Schools* 41, 314-327

- Mackey, A. and S. M. Gass. 2015. *Second language research: Methodology and design* (2nd Ed.). Routledge.
- Maynard, S. 2010. The impact of e-books on young children's reading habits. *Publishing Research Quarterly* 26(4), 236-248.
- Nation, I. P. 1982. Beginning to learn foreign vocabulary: A review of the research. *RELC journal*, 13(1), 14-36.
- Nation, I. 2006. How large a vocabulary is needed for reading and listening?. *Canadian Modern Language Review* 63(1), 59-82.
- Nation, I. S. 2001. *Learning vocabulary in another language*. Cambridge university press.
- Nodelman, P. and M. Reimer. 2003. *The pleasures of children's literature* (3rd Ed.). Allyn & Bacon.
- Oakley, G. and J. Jay. 2008. "Making time" for reading: Factors that influence the success of multimedia reading in the home. *The Reading Teacher* 62(3), 246-255.
- Pardede, P. 2019. Print vs Digital Reading Comprehension in EFL. *Journal of English Teaching* 5(2), 77-90.
- Park, J. and J. Lee. 2021. Effects of E-Books and Printed Books on EFL Learners' Reading Comprehension and Grammatical Knowledge. *English Teaching* 76(3), 35-61.
- Parker, C., S. Scott and A. Geddes. 2019. *Snowball sampling*. In P. Atkinson, S. Delamont, A. Cernat, J. W, Sakshaug and R. A. Williams, eds., SAGE research methods foundations. DOI: <https://dx.doi.org/10.4135/9781526421036831710>
- Pew Research Center, The rise of e-reading, 2012. <http://libraries.pewinternet.org/files/legacy-pdf/The%20rise%20of%20e-reading%204.5.12.pdf> (accessed 31.07.16)
- Rideout, V. 2014. *Learning at Home: Families' Educational Media use in America*. The Joan Ganz Cooney Center.
- Rott, S. 1999. The effect of exposure frequency on intermediate language learners' incidental vocabulary acquisition and retention through reading. *Studies in Second Language Acquisition*, 21(4), 589-619.
- Rott, S. 2007. The effect of frequency of input-enhancements on word learning and text comprehension. *Language Learning* 57(2), 165-199.
- van Bergen, E., T. van Zuijlen, D. Bishop and P. F. de Jong. 2017. Why are home literacy environment and children's reading skills associated? What parental skills reveal. *Reading Research Quarterly* 52(2), 147-160.
- Schatz, E. K. and R. S. Baldwin. 1986. Context clues are unreliable predictors of word meanings. *Reading Research Quarterly*, 439-453.
- Scholastic, Kids and family reading report, 2015. <http://www.scholastic.com/readingreport/Scholastic-KidsAndFamilyReadingReport-5thEdition.pdf?v=100> (accessed 31.07.16)
- Scholastic, Kids and family reading report: Australia, 2015. http://www.scholastic.com.au/schools/ReadingLeaders/KFRR/assets/pdf/KFRR_AUS.pdf (accessed 31.07.16)
- Scholastic, Kids and family reading report: United Kingdom, 2015. <https://images.scholastic.co.uk/assets/a/3f/36/kfr-uk-fnl-11-1423200.pdf> (accessed 31.07.16)
- Schmitt, N. 2010. *Researching vocabulary: A vocabulary research manual*. Springer.
- See, K., B. Madhubala and A. Koo. 2019. Motivation of Parents Towards Reading Multilingual eBooks To Pre-School Children. *International Journal of Information Management* 13(1), 1-36.
- Shelburne, W. A. 2009. E-book usage in an academic library: User attitudes and behaviors. *Library Collections, Acquisitions, & Technical Services* 33(2-3), 59-72.
- Silverman, R. and S. Hines. 2009. The effects of multimedia-enhanced instruction on the vocabulary of English-language learners and non-English-language learners in pre-kindergarten through second grade. *Journal of Educational Psychology* 101(2), 305-314.
- Smeets, D. and A. G. Bus. 2013. Picture storybooks go digital: Pros and cons. In S. B. Neuman, & L. B. Gambrell.

- Eds., *Quality Reading Instruction in the Age of Common Core Standards*. International Reading Association. 176-189.
- Smeets, D. J. and A. G. Bus. 2012. Interactive electronic storybooks for kindergartners to promote vocabulary growth. *Journal of Experimental Child Psychology* 112(1), 36-55.
- Smeets, D. J. and A. G. Bus. 2015. The interactive animated e-book as a word learning device for kindergartners. *Applied Psycholinguistics* 36(4), 899-920.
- Soruç, A. 2015. What Makes Redundant Presentation of Multimedia Learning Difficult?. *Procedia-Social and Behavioral Sciences* 191, 2844-2848.
- Strouse, G. A. and P. A. Ganea. 2017. A print book preference: Caregivers report higher child enjoyment and more adult-child interactions when reading print than electronic books. *International Journal of Child-Computer Interaction* 12, 8-15.
- Takacs, Z. K., E. K. Swart and A. G. Bus. 2015. Benefits and pitfalls of multimedia and interactive features in technology-enhanced storybooks: A meta-analysis. *Review of Educational Research* 85(4), 698-739.
- University of Colorado Boulder. 2018. *Reading metrics explanations and justifications*. <https://www.colorado.edu/flatironsforum/2018/05/14/reading-metrics-explanations-and-justifications>.
- Waring, R. and M. Takaki. 2003. At what rate do learners learn and retain new vocabulary from reading a graded reader?. *Reading in a Foreign Language*, 15(2). <http://www2.hawaii.edu/~readfl/rfl/October2003/waring/waring.html>
- Webb, S. 2007. The effects of repetition on vocabulary knowledge. *Applied Linguistics*, 28(1), 46-65.
- Wilkins, D. 1972. *Linguistics in Language Teaching*. The Chaucer Press.
- Wood, C., C. Pillinger and E. Jackson. 2010. Understanding the nature and impact of young readers' literacy interactions with talking books and during adult reading support. *Computers & Education* 54(1), 190-198.
- Wood, C., L. Fitton, Y. Petscher, E. Rodriguez, G. Sunderman and T. Lim. 2018. The effect of e-book vocabulary instruction on Spanish-English speaking children. *Journal of Speech, Language, and Hearing Research* 61(8), 1945-1969.
- Wright, S., A. Fugett and F. Caputa. 2013. Using Ereaders and internet resources to support comprehension. *Journal of Educational Technology & Society* 16(1), 367-379.
- Yoon, T. 2013. Exploring a Literacy Development in Young Korean ELLs with Online E-books. *Journal of Language Teaching & Research* 4(2), 253-259.
- Zahar, R., T. Cobb and N. Spada. 2001. Acquiring vocabulary through reading: Effects of frequency and contextual richness. *Canadian Modern Language Review*, 57(4), 541-572.
- Zipke, M. 2017. Preschoolers explore interactive storybook apps: The effect on word recognition and story comprehension. *Education and Information Technologies* 22(4), 1695-1712.

Examples in: English

Applicable Languages: English

Applicable Level: Primary

Appendices

1.1 Paper Book Pre- and Post-Test

☺ 단어의 뜻을 찾아보세요.

| | | | |
|--------------|----------|-----------|----------|
| 1. net | ① 그물망 | ② 가방 | ③ 주머니 |
| 2. sigh | ① 잠을 자다 | ② 글을 쓰다 | ③ 한숨 쉬다 |
| 3. pour | ① 요리하다 | ② 붓다, 따르다 | ③ 반죽하다 |
| 4. huge | ① 거대한 | ② 높은 | ③ 좁은 |
| 5. inside | ① 안에(속에) | ② 바깥에 | ③ 길가에 |
| 6. tap | ① 꼭대기 | ② 툭툭 두드리다 | ③ 만지다 |
| 7. plant | ① 책을 읽다 | ② 청소하다 | ③ 식물, 심다 |
| 8. wish | ① 거짓말하다 | ② 바라다 | ③ 일을 하다 |
| 9. cheat | ① 속이다 | ② 때리다 | ③ 도와주다 |
| 10. laugh | ① 울다 | ② 놀라다 | ③ 웃다 |
| 11. cupboard | ① 찬장, 벽장 | ② 식탁 | ③ 가게 |
| 12. thief | ① 손님 | ② 도둑 | ③ 경찰 |
| 13. cash | ① 먹을 것 | ② 돈 | ③ 지갑 |
| 14. reward | ① 보상 | ② 편지 | ③ 고기 |
| 15. shout | ① 도망가다 | ② 넘어지다 | ③ 소리치다 |
| 16. servant | ① 왕비 | ② 친구 | ③ 하인 |
| 17. secret | ① 비밀 | ② 편지 | ③ 학원 |
| 18. jail | ① 미용실 | ② 감옥 | ③ 궁전 |
| 19. promise | ① 소리치다 | ② 놀라다 | ③ 약속하다 |
| 20. strange | ① 이상한 | ② 재미있는 | ③ 슬픈 |

1.2 E-Book Pre- and Post-Test

☺ 단어의 뜻을 찾아보세요.

| | | | |
|------------|------------|--------|---------|
| 1. giant | ① 왕 | ② 거인 | ③ 난쟁이 |
| 2. sniff | ① 냄새맡다 | ② 먹다 | ③ 생각하다 |
| 3. pot | ① 접시 | ② 프라이팬 | ③ 냄비, 솥 |
| 4. village | ① 건물 | ② 마을 | ③ 백화점 |
| 5. visitor | ① 어른 | ② 손님 | ③ 군인 |
| 6. hatch | ① 놀리다 | ② 때리다 | ③ 부화하다 |
| 7. stay | ① 그대로 머무르다 | ② 뛰다 | ③ 날다 |
| 8. curious | ① 궁금한 | ② 멋진 | ③ 재미있는 |

| | | | |
|-------------|-------------|-------------|----------|
| 9. peacock | ① 백조 | ② 비둘기 | ③ 공작새 |
| 10. mean | ① 심술궂은 | ② 착한 | ③ 즐거운 |
| 11. decide | ① 고민하다 | ② 공부하다 | ③ 결정하다 |
| 12. bridge | ① (이어주는)다리 | ② 계곡 | ③ 도로 |
| 13. plan | ① 시간 | ② 계획 | ③ 시계 |
| 14. yell | ① 고함치다 | ② 놀라다 | ③ 넘어지다 |
| 15. lick | ① 흘리다 | ② 핥아먹다 | ③ 빨다 |
| 16. sweep | ① 달리다 | ② 닦다 | ③ 쓸다(청소) |
| 17. noisy | ① 조용한 | ② 시끄러운 | ③ 재미없는 |
| 18. whistle | ① 호루라기, 휘파람 | ② 속삭이다 | ③ 연주하다 |
| 19. fix | ① 망가뜨리다 | ② 가다듬다, 고치다 | ③ 어지르다 |
| 20. marry | ① 여행가다 | ② 청소하다 | ③ 결혼하다 |

2. Online Survey

* 9. 부모님이 생각하시기에, 자녀의 영어 어휘학습에 있어서 E-book과 종이책이 어느정도 효과가 있다고 생각하십니까?

| | 절대로 그렇지 않다 | 대체로 그렇지 않다 | 보통이다 | 대체로 그렇다 | 매우 그렇다 |
|---------------------------------|------------|------------|------|---------|--------|
| E-book으로 하는 독서가 영어 어휘향상에 효과적이다. | ○ | ○ | ○ | ○ | ○ |
| 종이책으로 하는 독서가 영어 어휘향상에 효과적이다. | ○ | ○ | ○ | ○ | ○ |

* 10. 자녀의 영어 어휘학습에 있어서, **E-book** 이용을 선호하는 이유를 모두 골라주시고, 기타의견이 있으시면 적어주시기 바랍니다.

- 사운드(읽어주기 기능)로 들을 수 있다.
- 힘들지 않게 기기 하나로(컴퓨터, 노트북, 패드 등)만 쉽게 찾아볼 수 있다.
- 페이지를 일일이 넘기지 않아도 된다.
- 그림, 소리가 나오고 움직인다.
- 종이책보다 더 실감나고 재미있다.

- 반복해서 들을 수 있다.

E-book을 선호하시는 기타의견을 남겨주세요.

* 11. 자녀의 영어 어휘학습에 있어서, **종이책** 이용을 선호하는 이유를 모두 골라주시고, 기타의견이 있으시면 적어주시기 바랍니다.

- | | |
|--|--|
| <input type="checkbox"/> 내가 원하는 대로 넘겨 읽을 수 있다. | <input type="checkbox"/> E-book보다 종류가 많다. |
| <input type="checkbox"/> 기억에 잘 남는다. | <input type="checkbox"/> 컴퓨터나 모바일 기기와 같이 오류나는 일이 없다. |
| <input type="checkbox"/> 직접 읽어 이해가 더 쉽다. | <input type="checkbox"/> 번거로운 절차 없이 바로 읽을 수 있다. (로그인, 와이파이 상태 확인, 기기 충전 유무 등) |
| <input type="checkbox"/> 상상력이 길러진다. | |

종이책을 선호하시는 기타의견을 남겨주세요.

* 20. 다음의 부가기능들이 자녀의 영어 어휘학습에 어느정도 도움을 준다고 생각하시는지
 콜라주세요.

| | 전혀 도움 안 됨 | 거의 도움 안 됨 | 보통 | 다소 도움이 됨 | 매우 도움이 됨 |
|--|--------------|--------------|----|-------------|-------------|
| 오디오 나레이션 기능(책 읽어주기 기능) | ○ | ○ | ○ | ○ | ○ |
| 다시 읽기 기능(원하는 문장을 클릭하면, 다시 책을 읽어주는 기능) | ○ | ○ | ○ | ○ | ○ |
| 녹음 기능(내가 책읽는 소리 녹음 기능) | ○ | ○ | ○ | ○ | ○ |
| 페이지 자동넘김(일정 시간이 지나면 페이지가 자동으로 넘어가는 기능) | ○ | ○ | ○ | ○ | ○ |
| 사전찾기 기능(모르는 단어를 클릭하면 뜻을 알려주는 기능) | ○ | ○ | ○ | ○ | ○ |
| 이용내역 관리 기능(접속 횟수와, 이용시간, 읽은 책 목록 등을 관리하는 기능) | ○ | ○ | ○ | ○ | ○ |
| 리워드 기능(아이가 독서 목표에 도달하면 상장이나 뱃지 등을 받을 수 있는 기능) | ○ | ○ | ○ | ○ | ○ |
| 단어 퀴즈 기능(책을 읽고 난 후, 어휘 점검을 위해 단어퀴즈를 풀 수 있는 기능) | ○ | ○ | ○ | ○ | ○ |

| | 전혀 도움 안 됨 | 거의 도움 안 됨 | 보통 | 다소 도움이 됨 | 매우 도움이 됨 |
|--|-----------|-----------|----|----------|----------|
| 이해도 점검 퀴즈 기능(책을 읽고 난 후, 전반적인 이해도 점검을 위한 퀴즈 기능) | ○ | ○ | ○ | ○ | ○ |

22. (위에서 언급된 부가기능 이외에) 자녀의 영어 어휘학습 향상을 위하여 E-book에 추가되어야 하는 기능과 이유를 적어주세요.