USING ELECTRONIC READERS: ACTION RESEARCH IN AN INTERMEDIATE ADULT ESL CLASS

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ABSTRACT
The use of portable electronic reading devices in the English as a second language (ESL) classroom has the potential to positively impact learners' reading engagement and language skill development. However, due to the lack of research, few guidelines are available to inform instructors of the benefits and challenges of using these devices in ESL classes. Therefore, the key objective of this action research project was to explore 21 intermediate adult ESL learners' experiences using e-readers in an extensive e-reading program. Results indicated that the use of e-readers increased the learners' volume and frequency of reading and enhanced their reading enjoyment when compared with their reading of paper books.

KEYWORDS: English as a second language, E-readers, Extensive reading

English as a second language (ESL) learners require intensive reading instruction to build language knowledge and extensive reading (ER) opportunities to develop fluent reading skills (Grabe, 2009). In order for reading to be considered extensive, it should involve substantial textual input over an extended period of time, learner selected material, the use of easy reading materials at the reader’s fluent reading ability level, and reading for enjoyment (Day & Bamford, 2002; Grabe, 2009; Waring, 2009, 2012). To address these core principles, effective ESL extensive reading programs (ERPs) tend to rely on graded reader series because they are written according to a pedagogical syllabus with increasing grades or levels of difficulty suited to learners’ varying reading levels and interests (Extensive
Reading Foundation, 2011). The explosion in the availability of electronic books (e-books), including graded readers, is increasing the sale and use of electronic reading devices specialized for reading e-books. To assist in the development of effective digital literacy skills, ESL learners should be provided with opportunities to read graded e-books on electronic devices. Research on the use of electronic readers (e-readers) and their effects on reading in authentic classroom settings is required to provide instructors with research-based best practices for using these devices effectively in ESL reading programs. Therefore, the primary objectives of this action research project were to examine the impact of portable e-reader use on intermediate adult ESL learners’ perceived reading skills (comprehension, speed), behaviours (volume, frequency), and attitudes (enjoyment); and to identify the learners’ levels of satisfaction with the use of e-readers in an extensive ESL e-reading program (EERP). Relevant literature related to each of these objectives is discussed below.

**Literature Review**

**Electronic Readers**

Technological advances have the potential to improve instructional approaches for developing learners’ reading skills in the ESL classroom (Chapelle, 2003; Grgurović, Chapelle, & Shelley, 2013). One instructional tool that has been underutilized in extensive ESL reading programs is the e-reader. An e-reader is a “portable, low-power, high-resolution device specifically designed to display digital versions of written material from books, magazines, newspapers, and other printed sources” (Educause, 2010, p. 1). The latest generation of e-readers contains electrophoretic ink® (e-ink) technology or electronic paper (e-paper) designed to imitate the appearance and contrast of ordinary ink on paper (Siegenthaler, Wurtz, Bergamin, & Groner, 2011). As a result, in order to read the print, e-ink e-readers require an external light source, just like paper-based books that can be read in a variety of lighting conditions including bright sunlight but not in the dark. Although numerous varieties of mobile reading devices exist, including eDGeS, Kindles, Nooks, proReaders, QUEs, Sony Readers, iPads, and many brands of tablet PCs (Mealer, Morgan, & Williams, 2011), in this paper, the term e-reader is used to refer to portable e-ink/e-paper e-readers only. Also, due to the differing functionalities of computers versus e-readers, it is necessary to distinguish between the reading of e-books on bright, back lit devices such as computers, iPads, or other tablet/pocket PCs, and the reading of e-books on portable e-ink e-readers such as the Sony PRS-T1 series used by the intermediate adult ESL learners in the action research project described in this paper. Studies examining e-ink e-reader use in ERPs are not abundant and those that have been conducted are limited to elementary school first language (L1) contexts.

**Extensive Reading**

To develop efficient (accurate and fast) reading skills, second language (L2) learners require massive amounts of reading practice (Day & Bamford, 2002; Grabe, 2009). Research has demonstrated that ER is not only fundamental for raising students’ language awareness, as it allows them to meet the language in natural contexts and develop a sense of how grammatical patterns work, but ER also builds vocabulary (Webb & Chang, 2015; Horst, 2005), reading speed (Beglar, Hunt, & Kite, 2012; Bell, 2001),
comprehension/“general reading ability” (Yamashita, 2008, p. 666), enjoyment (Lam, Lam, Lam, & McNaught, 2009), motivation (Elley, 1991), fluency, automaticity, confidence and good reading habits (Extensive Reading Foundation, 2011; Grabe & Stoller, 2011; Nation, 2013). According to Day and Bamford (2002) and Nation (2013), when implementing an ERP, teachers should encourage students to read a wide range of easy reading materials, on a variety of topics, mainly for pleasure but also for information, with overall understanding, at a fluent rate, and without the threat of evaluation. Teachers should also explain the purpose and benefits of ER, allow students choice in selecting materials, and encourage them to “read as much as possible” (Day & Bamford, 2002, p. 138), silently at their own pace, without the need of a dictionary.

Reading E-books in Extensive E-reading Programs
A lack of research on the effects of e-book use in ERPs prompted Lin (2010, 2014) to study how the reading of online e-books on computers affected adolescent EFL learners’ English reading attitudes and linguistic skills over the course of 10-week ERPs. In Lin (2010), ninth grade students were asked to read four or more e-books on computers per week. Then once a week, they discussed the e-books read during the previous week. Results indicated that the students (a) enjoyed reading e-books on their own time, (b) became more confident and interested in reading in English, (c) thought that the computer reading experience was novel and exciting, and (d) perceived that their reading, writing, listening, and speaking improved as a result of the ERP. Lin (2014) also found positive effects of reading on mobile tablet PCs versus desktop PCs on grade 10 students’ learning outcomes and their perceptions of the ERP.

Huang’s (2013) study of the effects of reading e-books on foreign language learning was instigated by a lack of research on computerized reading programs in university EFL contexts. This two-semester investigation included first-year university students enrolled in two intermediate EFL reading classes. Huang created an online reading site (with student reading materials/resources and a teacher database) to examine the students’ perceptions of e-book reading in relation to the site’s functions, the e-reading process, the learning effects, the strengths and weaknesses of the e-book reading program, and the integration of the e-book reading program into the EFL reading curriculum. The students read a minimum of one e-book on their computers per week, wrote in online reading journals after finishing each book, posted and responded to questions on a discussion board, and took note of answers to their posted questions.

Huang’s (2013) results showed that the students perceived the online reading journals, discussion posts, and information about the e-books to be the best functions of the reading site, followed by the online dictionary, audio capacity, and computer functions, respectively. In a post-study survey, students indicated that they chose e-books based on the recommendations of their peers and they were “positive about reading e-books” (p. 272). Students perceived that the e-book reading project had positive effects on their content learning, reading ability, and English learning. Nevertheless, it was unclear, whether the students’ positive attitudes and perceptions could be attributable to reading the e-books alone or to having access to the additional computer tools when reading.
In follow up group interviews, the EFL students in Huang’s (2013) study identified several advantages and benefits of the reading program: the e-books were convenient to read and the e-book reading project increased their reading speed, comprehension, and interest. Drawbacks of the program included increased eye-strain, a limited selection of e-books, the difficult downloading process, inadequate Internet access, and distractions by other computer applications when reading on the computer. However, the advantages and disadvantages of reading e-books on e-readers as opposed to reading on computers in ESL ERPs remain to be examined.

**The Effects of Paper versus Computer Texts on Reading Comprehension**

Although we were unable to locate any ESL or EFL studies examining the effects of e-book reading on e-readers on learners’ reading comprehension, the EFL studies that have investigated comprehension differences when reading paper texts versus texts on computers have provided mixed results: some researchers have found a positive impact of reading texts on computers on students’ comprehension (Szymańska & Kaczmarek, 2011); whereas others have found that reading on computers can hinder students’ reading comprehension (Lam et al., 2009).

In Poland, Szymańska and Kaczmarek (2011) used an experimental design to investigate group differences in EFL college students’ reading recall and comprehension when reading either a paper-based text or a text on a computer screen. Thirty participants were randomly divided into two groups (paper or computer). Both groups read the same text, and then completed the same recall and comprehension tests. Although the researchers did not find a group difference in students’ recall scores, they discovered that the computer group obtained significantly higher comprehension scores than the paper group.

In contrast, Lam et al. (2009) found that reading digital texts on a pocket personal computer (PPC) had a negative impact on EFL university students’ reading comprehension. One group \( n = 6 \) read e-books on a PPC while another group \( n = 4 \) read similar materials in paper format; then the students in both groups completed reading comprehension exercises. Results indicated that the students who read the digital texts had lower reading comprehension scores \( (M = 47.7\%) \) than those who read the paper-based texts \( (M = 63.9\%) \). Findings from follow up individual interviews revealed that the students who read the e-books attributed their reading inefficiencies to their unfamiliarity with e-books. Additional research using larger samples and a wider variety of longer text types and reading comprehension measures, however, is necessary to disentangle the complex effects of reading mode on reading comprehension.

**Reading Speed and Digital Texts**

Another relationship that remains unexplored in the reading literature is the impact of e-reader use on reading speed. Although no studies of ESL learners have examined the effects of reading e-books on students’ reading speeds, Lam et al. (2009) reported that the six EFL university students who read e-books in their study (described in the previous section) cited eye fatigue and unfamiliarity with e-book reading as reasons for reading.
English e-books on computers more slowly than paper texts. It is possible that the students’ eye fatigue and slower reading speeds may have been attributable to the bright contrast of the computer display which is not a factor when reading on e-ink e-readers. In contrast, participants in Huang (2013) reported gains in reading speed as a result of reading e-books on computers.

The Impact of E-Readers on Reading Volume and Frequency
Research on the impact of e-reader use on students’ volume and frequency of reading is also limited. We were only able to locate two L1 reading studies which considered these effects. Miranda, Johnson, and Rossi-Williams (2012) reported that the use of Kindle e-readers during scheduled sustained silent reading periods enticed struggling American middle school students to read more. In another study of students’ kindle e-reader experiences, Anderson (2012) found that e-reader use increased the frequency of grade three American English speaking students’ independent reading and the number of books read both in and out of school. Daily reading logs and interviews showed the e-readers not only enhanced students’ access to numerous e-books, but also provided opportunities for them to re-read prior texts, to continue reading new texts, or to choose different texts. Other factors contributing to students’ increased reading volume included the absence of distractions made by the rustling of papers during independent reading in class and the ease of holding the e-readers. The influence of e-reader use on the volume and frequency of ESL students’ reading, however, has not been explored.

Reading Enjoyment and E-readers, Computers or Paper Texts
Recent studies of reading e-books on e-readers or computers versus conventional paper-based reading show positive, neutral and negative effects of technology on reading enjoyment. Anderson’s (2012) results indicated that the grade 3 American students in her study enjoyed reading books on a Kindle more than paper books. Students appreciated the Kindles because they could type notes on them, change the font, turn the pages easily, and store, access, and read lots of books without having to carry around heavy paper books. Short (2010) found that second grade American students’ most favored activity was reading on the computer due to the displayed words of praise when they passed a quiz and the ability to easily move from one book to the next. In contrast, Grimshaw, Dungworth, McKnight, and Morris (2007) discovered no significant differences in elementary native-English speaking students’ enjoyment when reading electronic versus paper texts, although the enjoyment ratings were higher for the e-texts that had narration.

Unlike the positive or neutral results of reading digital texts found in L1 educational contexts, Lam et al. (2009) (described in detail above) identified negative effects of e-book reading on EFL university students’ reading enjoyment. Even though the novelty and portability of the pocket computers contributed to students’ initial reading interest, the students found that their eyes got tired when reading e-books on computers, which reduced their enjoyment. Also, “the more experience the students had with e-books, the less they found the technology enjoyable” (p. 39). However, the impact of e-readers on ESL learners’ reading enjoyment remains to be explored.
The Current Study
As evidenced from the literature, in recent years there has been a fair amount of interest in the use of e-books in ERPs, and the impact of e-books and the reading of digital texts on reading skills and attitudes. However, most e-reading studies have focused on the reading of e-books on computers in L1 or EFL contexts. Fewer studies have examined the impact and use of portable e-readers in education. To our knowledge, no study has investigated the benefits and challenges of using e-readers (as opposed to reading e-books on computers) in an extensive ESL reading program. Therefore, the main objectives of this study were (a) to determine the impact of using portable Sony e-ink e-readers on intermediate adult ESL learners’ reading attitudes, behaviours, and skills; and (b) to ascertain the learners’ satisfaction with not only the Sony e-readers but also the eight-week EERP developed for use in this action research project. The following research questions were investigated:

1. To what extent did the use of e-readers in an extensive e-reading program (EERP) impact intermediate ESL learners’ self-reported reading behaviours (volume read and frequency of reading)?
2. To what extent did the use of e-readers in an EERP impact the learners’ self-perceived gains in reading comprehension, vocabulary, speed, and enjoyment?
3. How satisfied were the learners with the EERP (i.e., with the program, the Sony e-reader training, and the selection of e-books)?
4. What did the learners like and dislike about using the Sony e-readers in their intermediate adult ESL EERP?
5. What recommendations did the learners have for future adult ESL EERPs?

METHODOLOGICAL
Participants
Intermediate adult ESL learners (7 men, 14 women) enrolled in an intensive language program in Canada were recruited from the first author’s ESL reading and writing class. The students ranged in age from 23 to 48 (M = 35; SD = 6.80). They came from a wide variety of language backgrounds and countries including China (n = 3), Pakistan (n = 2), Turkey (n = 2), and Eritrea (n = 2), and one from each of the following countries: Ethiopia, Central African Republic, Somalia, Syria, Iran, Burma, Vietnam, Algeria, Rwanda, Nigeria, Cambodia, and Peru. All participants had received some education in their native countries, ranging from grade 10 to 7 years of university (48% had attended high school; 52% had attended university). The average length of time they had lived in Canada was four years, four months (ranging from 11 months to 14 years; 9 months; SD = 4.02), and their length of ESL studies in Canada ranged from 0 to 2 years (M = 10 months; SD = 4.89). Twenty out of 21 participants had taken an ESL course at the same college in the previous semester. The participants’ reading skills were all at a minimum Canadian Language Benchmark (CLB) 7 level. At a CLB Reading Benchmark 7, an ESL student can “understand an expanding range of moderately complex texts in less predictable but relevant social, educational and work-related situations” (Centre for Canadian Language Benchmarks, 2012, p. 86).
All but one participant had relatively strong information technology skills: 20 students reported having moderate to high skills in creating word documents, searching the Internet and downloading content. Only one participant had used an e-reader prior to this study.

**Instruments and Data Collection**

A mixed-method action research approach (Burns, 2010; Creswell, 2005, 2009; Creswell & Plano Clark, 2011) was used in this study. Three instruments were developed for data collection: a paper-based pre-study background questionnaire, weekly e-book reading record sheets, and an online post-EERP questionnaire. To supplement and validate the questionnaire and record sheet data, the first author took detailed field notes throughout the study.

**Background Questionnaire.** The background questionnaire consisted of 25 questions divided into four sections pertaining to the students’ backgrounds, education, and technology skills, and their ER behaviours in their preceding ESL course.

**Weekly Graded Reader E-book Reading Record.** The e-book reading record sheets consisted of seven columns representing each day of the week where the participants documented the following information: date, title of e-book, author, completion of the e-book (yes/no), number of pages read, amount of time spent reading, problems with the e-reader, and what worked well with the e-reader. On the last page of each weekly reading record, the students calculated their weekly totals for number of e-books and pages read; they also provided summary comments about their weekly graded reader e-reading experiences.

**Classroom Observation Field Notes.** In her field notes, the instructor described the students’ behaviours, actions, and practices using the e-readers, and their experiences with the EERP. She also recorded students’ comments during their weekly discussions about the e-readers, e-books read, and the e-reading program every Friday.

**Post-EERP Questionnaire.** The online SurveyMonkey® post-EERP questionnaire included 14 questions divided into four sections: reading behavior; reading improvements made by using the e-reader in the EERP; satisfaction with the EERP, the e-reader training, selection of e-books, and the e-reader; and recommendations for future e-reader use in EERPs and for EERPs in general.

**Procedures**

Because the first author was the participants’ instructor, to maintain participants’ anonymity and confidentiality, a colleague recruited participants from the reading and writing course she was teaching. During class time, the students were informed that they were required to take part in the EERP as part of the course, but were not required to take part in the study. In addition, the background, purpose, benefits, risks, and procedures of the research, as well as the right to withdraw from the study without penalty, were explained to the students both orally and in writing. After the assistant had obtained informed consent, she gave each participant an identification number to ensure the participants’ anonymity, and administered the pre-study background questionnaire. Even
though there was a 100% participation rate, the instructor had no knowledge of who agreed to participate until the culmination of the study.

Before the data collection began, in order to determine a suitable level of graded e-books for the class, the students were administered the Oxford Bookworms Level Test 1: Stage 3 (http://elt.oup.com/teachers/bookworms/leveltests). Oxford University Press (2013) recommends a pass mark of 80% for readers to be at an appropriate reading level; if the readers get below 80%, they should try a lower level (Stage 2), and if they score above 95%, they should try a higher level (Stage 4). For the Stage 3 test, the participants’ scores ranged from 53% to 93% (M = 74%). Based on the range of test scores and to meet the needs of the lower and higher reading levels within the class, two e-books were selected at Stage 2, four e-books at Stage 3, and two e-books at Stage 4. The eight e-books were purchased and downloaded along with their summaries from the Oxford University Press graded e-book list (http://elt.oup.com /feature/global/e-books), then loaded onto the e-readers. Using the same procedure, two additional lists with eight e-books each were created for participants who read faster and required additional e-books to be loaded onto their e-readers. In total, 24 e-books were purchased for this project.

After a briefing by the college library staff about e-reader borrowing and care procedures, each participant signed out a device for the duration of the eight-week study. In the subsequent class, the instructor introduced the students to the EERP by explaining ER, as well as the objectives, duration, and activities of the EERP. Although the Sony PRS-T1 e-readers used in this study did not have a text-to-speech plugin installed at the time, they did include a dictionary function so students could easily look up words. Students were provided with an e-reader instruction manual, and one Stage 2 e-book that was loaded onto the e-readers and was used to demonstrate the e-reader features and use.

Following the introductory session, students were encouraged, not required, to read at least one e-book per week; they were also asked to fill out a weekly reading record which they submitted following their weekly peer discussions. The EERP implemented in this study incorporated Nation’s (2013, p. 254-256 ) recommendations for establishing an extensive graded reading program, with Day and Bamford’s (2002) principles of ER, and Huang’s (2013) suggestions for integrating technology into an EERP outlined in the EERP section above. To promote reading for pleasure, the students were not graded on any EERP activities. At the end of the eight-week EERP, the participants completed the online post-questionnaire during their scheduled computer lab time.

**Data Analysis**

The background questionnaire and weekly reading record data were entered into Excel. The post-EERP questionnaire response data were downloaded from SurveyMonkey® and saved in the same Excel data file. Descriptive statistics were calculated to summarize the questionnaire data. The participants’ open-ended pre-post questionnaire responses and the instructor’s field note observations were analyzed using an inductive approach based on Strauss and Corbin (2008): the participants’ responses and instructor’s field notes were
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(a) read thoroughly, (b) thematically coded, (c) verified for coding accuracy, and then (d) quantified.

results and discussion

the results of this study are presented and discussed sequentially by research question.

research question 1: to what extent did the use of e-readers impact the learners’ self-reported reading behaviours (volume and frequency)?

the participants reported reading an average of 11.6 e-book graded readers (sd = 4.02) or an average of 632 pages (sd = 277.45), over the duration of the eight-week eerp. in keeping with the core principles of er (day & bamford, 2002; nation, 2013), the students read on a voluntary basis. although the students were encouraged to read one e-book per week, 13 read more than one book each week, 7 read one, and 1 read slightly less than one.

to further examine the impact of e-reader use on the volume of students’ reading, we compared the number of graded readers that students read in their previous esl class’ erp with the number read in this eerp. although graded readers vary in length, beglar et al. (2012) reported that the oxford bookworms series stages 2, 3, and 4 graded readers have on average 158.6, 167.7 and 184.9 standard words per page, respectively. “every six character spaces were counted as one ‘word’ (p. 673).” therefore, no matter which level of graded reader our participants read, the number of words per page was fairly standard and therefore roughly comparable across the students’ previous paper-based erp and this eerp. in the last month of their previous erp, students reported reading an average of 1.89 stage 2 or 3 paper-based graded readers (sd = 0.93) or an average of 62 pages (sd = 48.12). in contrast, over the last month of this eerp, participants read an average of 5.6 stage 2, 3 or 4 e-book graded readers (sd = 2.22) or an average of 306 pages (sd = 122.47). these results suggest that the use of e-readers had a substantial impact on the participants’ reading volume. in class discussions, students indicated that because the e-readers were compact and very lightweight, they carried the e-readers with them and as result they read more.

research question 2: to what extent did the use of e-readers impact the learners’ self-perceived gains in reading comprehension, vocabulary, speed and enjoyment?

the results of the post-eerp questionnaire indicated that the students’ use of e-readers in the eerp contributed to positive attitudinal and reading skill gains. on a 4-point forced-choice likert
scale, all 21 of the participants indicated that their use of e-readers in the EERP increased their reading enjoyment ($M = 3.80$, $SD = 0.40$) and vocabulary knowledge ($M = 3.62$, $SD = 0.49$), and 20 participants reported improvements in reading speed ($M = 3.42$, $SD = 0.59$), and comprehension ($M = 3.38$, $SD = 0.59$). Based on the instructor’s observations, field notes and class discussions, the gains in reading enjoyment could be attributable to the particular e-book features that allowed the participants to easily access books, store several books, easily turn the pages, increase the font size, and quickly move from one book to the next. The American children in Anderson (2012) also enjoyed similar features when reading Kindle e-books. However, because only one of our participants had ever used an e-reader prior to this study, there is the possibility that over time, the novelty may wear off and there could be a decrease in enjoyment, as reported by the EFL learners in Lam et al.’s (2009) two-term study where the participants read e-books on a computer.

All of the ESL students in our study agreed or strongly agreed that their use of e-readers in the EERP increased their vocabulary knowledge, and 20 agreed or strongly agreed that their reading speed and comprehension also improved. These results are similar to findings in Huang’s (2013) computer e-book reading project where EFL students reported increased vocabulary reading speed and comprehension. Although we investigated perceived behavioral and linguistic gains, it is likely that the EERP contributed to actual improvements, as experimental studies of paper-based ERPs have found that reading extensively increases L2 learners’ vocabulary (Webb & Chang, 2015; Horst, 2005), reading speed (Beglar et al., 2012; Bell, 2001), and reading comprehension (Yamashita, 2008).

Research question 3: How satisfied were the learners with the EERP (i.e., with the program, the Sony e-reader training, and the selection of e-books)? Participants’ responses in the post-study questionnaire indicated that they were generally very satisfied with the EERP and the e-reader training. Using a 4-point forced-choice Likert scale, all 21 students agreed or strongly agreed that the EERP was enjoyable and clearly defined, that it helped them meet their personal reading goals, and that the e-reader training was clear. As suggested in Lin (2010) and Huang (2013), clearly organized ERPs promote students’ satisfaction with a reading program. The participants in our study may have considered the EERP clearly defined because it was highly structured (i.e., students were provided with the following: a teacher-created list of 24 graded e-books from which they could choose, explicit instruction about ER and the e-readers, time for independent reading, and opportunities for routine weekly record keeping and peer discussions about the e-books). Although the provision of book lists contributes to highly organized ERPs as revealed in Huang (2013), teacher-created book lists reduce students’ choice. In our study, this finding was reflected by the fact that 6 (28.6%) of the 21 students disagreed with the statement There was a wide selection of topics for me to choose from; however, the remaining 16 students agreed or strongly agreed with this statement, implying that the 24 graded readers purchased for this study provided a sufficient variety of topics.

Nineteen of the 21 participants found the weekly peer discussions about the e-books either somewhat or very enjoyable. The regularly scheduled discussions enabled students to select e-books based on their peers’ recommendations, which they appreciated. However, two
students indicated that the discussions were not very enjoyable. Perhaps these two students would have preferred discussing and posting their recommendations for interesting e-books on an online discussion forum. The participants in Huang’s (2013) study found the online discussions a useful alternative to face-to-face discussions.

**Research question 4: What did the learners like and dislike about using the Sony e-readers in their intermediate adult ESL EERP?** In the post-EERP questionnaire, the students were asked what they liked and disliked about using the e-readers in the EERP. The two most frequently reported reasons for liking the e-readers were that they were “easy to carry” \((n = 20)\) and “environmentally friendly” \((n = 18)\). In particular, the participants appreciated the convenience, portability, and lightweight features of the e-readers. In the class discussions, the participants shared tips on using the e-readers with one another and indicated that the ability to increase the font size made reading easier. The most frequently identified reasons why the students did not like using the e-readers in the EERP were (a) their inability to download books due to the Wi-Fi restriction, as the instructor had to purchase the Oxford Bookworms graded readers and pre-load them onto the e-readers \((n = 13)\); and (b) their inability to read in dark places, as an external light source was required to see the print \((n = 12)\). Surprisingly, even though a light attachment was available, most participants did not sign one out because they were viewed as cumbersome and reduced the ease of e-reader use.

Only two participants reported disliking the e-reader because it caused their eyes to tire more than when they read a paper-based book. The EFL students in Huang (2013) and Lam et al. (2009) also reported eyestrain and eye fatigue but they were reading e-books on computers: reading e-books on portable or desktop computers is different than reading e-books on e-ink e-readers, and reading on a digital device where the platform is in one’s L1 (e.g., reading on a Chinese computer system in an EFL context) is different than reading on a device that uses one’s L2 (i.e., using Sony e-ink e-readers in an ESL course). Our finding that the e-readers did not cause eyestrain for 19 of the 21 participants suggests that extensive amounts of reading on e-readers with glare-free e-ink is easier on the eyes than reading extensively on backlit devices such as iPads and computer screens.

In the post-EERP questionnaire, the students were asked to rate their overall satisfaction with the e-readers using the following 4-point scale \(\text{very unsatisfied, unsatisfied, satisfied, very satisfied}\). They all reported being either satisfied or very satisfied with the e-readers \((M = 3.50, SD = 0.51)\). Using a 4-point forced-Likert scale, students were also asked to rate their level of agreement with the statement I prefer to read books on an e-reader rather than in a paper format: 20 students either agreed or strongly agreed \((M = 3.43, SD = 0.60)\); only one student disagreed, indicating that she would rather read books in paper format. The American children in Anderson (2012) also preferred reading on e-readers.

**Research question 5: What recommendations did the learners have for future adult ESL EERPs?** In the last section of the post-EERP questionnaire, participants were asked to provide recommendations for future EERPs. Students’ responses were coded and classified under three major themes: recommendations for e-reader training, for using e-readers, and
for selecting e-books. With respect to future e-reader training, 5 participants advocated for a longer preparation period to adjust to using the e-readers, and 4 recommended developing instructions for downloading books. In this study, however, the instructor did not think a longer preparation period was required because her students did not use Wi-Fi to download their own e-books; she had to purchase the Oxford Bookworms graded readers and pre-load them onto the e-readers. Therefore, only the most basic training on how to use the e-reader was provided. In future EERPs, if Wi-Fi is used, then more extensive training would be required to instruct students in how to download e-books on their own.

Eight participants recommended the same type of e-reader use in future EERPs (i.e., 20-minutes of in class reading time per week and use of the e-reader outside class at their own convenience). Eight participants recommended greater self-selection of e-books, and 7 indicated that if e-book lists are created, the lists should contain a larger selection. The university EFL students in Huang (2013) also made similar recommendations. Students’ choice of e-books is important for building their reading confidence, ability and enjoyment, and for promoting the virtuous circle of good readers who enjoy reading, and as a result read more, understand better, and read faster than poor readers (Extensive Reading Foundation, 2011). Although an extensive level-appropriate e-book list with summaries of approximately 50 titles on various topics would enable students to select their e-book preferences before the instructor downloads the e-books onto the e-readers, this may be unfeasible as it would increase the instructor’s workload and time, as well as the cost of the EERP.

Limitations and Further Research
This study has limitations that have implications for future research. First, most of the findings are based on measures of self-reported behaviours. To quantify the effects of e-reader use on reading skill improvements, experiments need to be designed using both an EERP experimental group and an ERP control group. Then standardized pre- post- and delayed post-test measures of reading comprehension and reading speed could be collected and compared across groups. A second limitation was the short period of time involved in implementing the EERP. While the span of eight weeks may be long enough to assess initial impacts of e-reader use in EERPs, a longitudinal design would show (a) whether the positive effects on ESL learners’ skills and attitudes found in the current study are sustainable after the novelty of e-reader use diminishes, and (b) whether student reading enjoyment decreases over time. It would also be desirable to design EERPs that provide access to a wider range of e-books in terms of genres, difficulty levels, and topics. This would allow researchers to investigate the impact of these features on learners’ attitudes towards e-reading and their reading skill development and e-reading behaviours. Finally, it would be valuable to replicate this study with ESL students at both lower and higher language proficiency levels to examine the effects of language proficiency on e-reader use in EERPs.

Conclusions
The findings from our action research project provide some evidence for the positive impact of e-reader use on intermediate adult ESL learners’ reading skills, attitudes, and
behaviours, and the learners’ satisfaction with using e-readers in an EERP. The participants reported high satisfaction with the EERP because it was clearly defined and enjoyable, but less satisfaction with the limited selection of e-books. In terms of the features related to using the e-readers that the students liked, being easy to carry and environmentally friendly were the main reasons noted, while restriction on the use of Wi-Fi and the inability to read in dark places were the main drawbacks. In general, the students were highly satisfied with using the e-readers and preferred to read books on the e-reader rather than in paper-form. For future EERPs, the students recommended a longer e-reader preparation period, the same structure for e-reader use both in and out of class, a larger selection of e-books on the teacher-made lists, the ability to self-select and download other e-books not included on the lists, and instruction in how to download e-books. Overall, our results suggest that voluntary e-reading for pleasure without the threat of evaluation is an important feature of an EERP that enticed the adult ESL learners to read.

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REFERENCES


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