

A Case Study of English-Major Students' Preferences for English Reading from a Printed Text versus Electronic Text

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Abstract

The main purpose of this study is to investigate the preferences of English-major students to determine their reading activities when they have the choice of reading a printed text or an electronic text. The participants chosen for the study were 105 students from English reading classes at an English department. For the purpose of finding out students' preferences for English reading from printed or electronic texts, a questionnaire for online reading comprehension was employed. The result of an independent-samples t test showed that there was no significant difference between the genders (male and female) regarding preference for printed or electronic texts. The results of a one-way ANOVA showed that there were significant differences between the different proficiency levels (high, intermediate, and low) regarding their preferences for printed text or electronic text in male and female groups. Interestingly, both the males and females in the high proficiency group preferred the printed text over the electronic text, and the students at the low proficiency level preferred to use the electronic text over the printed text to read. In conclusion, these results can provide educators and instructors with text preferences for their students when they designate the reading medium which could improve readers' reading comprehension performance in the long run.

Keywords: *students' preferences, printed text, electronic text*

Introduction

Reading is an act that we humans never stop doing and that will never change. With the growth of knowledge as well as the increase in learning levels, we need to face a rapidly changing world. In addition to traditionally acquired knowledge, there are many new forms of information content and a huge variety of new learning methods. Not only do they guide people to think more and advance the humanities, but they also help people develop international notions. Additionally, the possibility of e-book application to education and academia increases day by day. E-books can be applied not only to self-learning software but also to general education; furthermore, they can be used for academic literature. Enabling e-books to fully develop their potential features of reading and teaching not only expands the arena of e-books but also strengthens their status as well as insight in the educational world.

Nowadays, as the Internet blooms, a variety of dissemination methods emerges, which changes the original ways of dissemination, and rewrites humans' reading habits as well as other learning habits or methods. Therefore, people begin to emphasize the need for information, accessibility of information, and its speed of transmission. For this reason, through technology, e-books, e-novels, e-magazines, e-encyclopedias, etc. develop quickly, and carriers capable of receiving information content start to appear; more and more mobile devices contain convenient e-books for reading, such as PDAs, cell phones, handheld games, etc. According to Liu's (2005) definition, electronic books (e-books) are a replacement for traditional paperback books and they require additional equipment to read, like personal computers or electronic dictionaries. There are three characteristics of e-books: paperless, multimedia, and abundant. Paperless indicates that e-books no longer rely on paper, which largely reduces the waste of trees and occupy less space. E-books do not simply show texts any more but are full of numerous multimedia elements, such as pictures, voices, images, etc., so that a wider variety of knowledge carriers can be added. Abundant is the result of the rapid development of the Internet, which makes traditional knowledge speed up its dissemination due to e-revolution; accordingly, e-book readers have nearly infinite sources of knowledge. Not only are traditional books heavy physically, they are also expensive and inconvenient to carry and read; their information circulation speed is also not fast. As to e-books, they are easy to carry and convenient for readers to read; if they are applied to education, learning content will become digital and easily accessible by cell phones, which will be used as reading tools. By means of cell phones, e-books will present learning content in different forms to raise students' reading interest, and

students can read at any time and in any place (Dyson, 2004). Because the students in the current university student age group have grown up in an environment of audio-visual equipment since childhood, their acceptance of e-book readers and multimedia content tends to be higher than the older generation's. E-book readers and e-content can draw university students' attention, which can lead students to move a step further toward reading. As mentioned above, the new learning media have allowed many researchers to explore the perception and preferences of these new reading environments, which mostly include digital screens of various devices. The main goal of this study is to investigate the preferences of university students for their reading activities when they have the choice to read a text in a printed form or from an electronic text, especially for English-major students. The research questions are the following:

1. Is there a significant difference in English-major students' preference between the printed or electronic text for their reading activities based on gender (male and female)?
2. Is there a significant difference in English-major students' preference between the printed text or electronic text for their reading activities based on their English reading proficiency levels (high, intermediate, and low)?

Literature Review

Definition of e-books

E-books are a type of media transferring the words that we used to read in printed media such as books, newspapers and magazines into a digital form for viewing. Types of data are no longer limited to the narrow category of print media, whereas all of the data in digital form belong to the category of e-books. Therefore, e-books are displayed in various and dynamic ways, including not only words but also voices and images (Barker, 1992).

E-book reading tools

(1) Reader

Nowadays, e-books boast imitating the usage of the past reading habits, being able to adjust the size of words, being able to be read in either a horizontal type or a vertical type, and being able to add bookmarks, to make notes in the margin, and to underline specific words or phrases. Combining e-books with the features of e-files, users can search for specific words or phrases, make use of links quickly connecting

to specific pages, press buttons moving to the last and next pages, and even can access the Internet anytime to update the booklist (Barker, 1992).

(2) Personal Digital Assistant (PDA)

It is necessary to download free e-booklists with public copyright on the PDA manufacturers' websites; thus, what books are owned by the manufacturers can be viewed. Consumers do not have to pay until they intend to read the entire content of the book (Barker, 1992).

(3) Personal Computer (PC)

We are able to read free e-books mainly with direct access to the Internet to receive e-books and to install the relevant software. If we want to read e-books with copyright, we need to use special programs issued by the manufactures to view the encrypted e-books, in order to reach the target that consumers continue placing orders with them for e-books (Barker, 1992).

Reading from the printed text versus electronic text

Digital reading has been with us for a long time. Ever since the end of the last century, when personal computers became prevalent, people have already been able to use different technological devices for reading, including computer screens, web browsers, etc. Through digital technology, reading content contains words, as well as images, audio and video (AV), hypertexts, etc. Researchers started to explore what different forms are presented on either e-paper or traditional paper and what different reading experiences can be brought to people by digital reading as well as traditional paper reading (Ackerman & Goldsmith, 2011; Dundar & Akcayir, 2012; Noyes et al., 2004). Kerr and Symons (2006) conducted a study on the reading process of digital texts and found that digital reading led to shallow reading, such as scanning and skimming; in particular, online reading with hyperlinks could connect to other places anytime, so that hypertext reading could hardly gain the effect of immersive reading. Also, Johnson and Nadas (2009) obtained similar results in their study: when reading was done digitally on a screen, people spent more time browsing, scanning and keyword spotting, used non-linear and selective reading, while they spent less time doing profound or devoted reading. Kim (2013) investigated the space and properties of digital reading and analyzed expert readers' experiences of handling books, web pages and e-papers. He targeted a group of academic researchers and regarded them as expert readers. Through qualitative interviews, it was shown how expert readers dealt with and

used print and digital texts; the latter included the digital texts of multimedia, such as webpages, screens, audio and video. By doing so, the differences between digital reading and paper-based reading were explained. Furthermore, Kim (2013) divided the digital reading experience zone into “continuous reading” and “discontinuous reading” in terms of reading space allocation. The former means the space in which a book is read in order from beginning to end, like novels of the leisure type read in a continuously single way, whereas the latter is skimming, browsing, fragmental, repetitive, and even skimming among numerous articles, such as academic articles which need to be looked up repeatedly, thought about, memorized, or written and read at the same time, etc. As a whole, these scholars think that computer technology can increase the probability of more texts being presented, while for reading itself, hypertexts as well as multi-mode and multi-function webs are not beneficial to reflective and imaginative reading, as they reduce the feature of humanities immersion. Tseng (2008) claimed that students’ difficulties concerning reading from the screen are five-fold, including blurry eyes, overly bright background colors, the likelihood of skipping lines, small font size, and other reasons like the habit of reading printed text, radiation from screens, etc. Besides, Mercieca (2004) also stated that there are three reasons for people’s preference for print: the ease of use of paper, ability to highlight the text, and ease of carrying. Such findings constitute the implications for further research to improve screen readability. The argument and debate over the option of using the printed text or electronic text will probably be ongoing and there will be some reading preferences.

Method

Participants

The participants chosen for the study were 105 students from English reading classes at an English department. There were 47 male and 58 female participants in total. The English reading comprehension placement exam was measured by a test that was patterned on a basic level mock GEPT (General English Proficiency Test). There were a total of twenty-five questions in the reading comprehension exam, and the testing time was about 60 minutes. The total possible exam score was 100 points. Based on the exam results, the students were classified into three reading proficiency levels: low, intermediate, and high. Thirty-five participants who received scores below 60 points were classified into the low level group; 47 participants who scored between 60–80 points were classified into the intermediate level

group; and 23 participants who obtained a score above 80 points were classified into the high level group.

Instruments

For the purpose of finding out students' preferences for English reading from printed text or electronic text, the Chinese version of one quantitative instrument was employed: a questionnaire for online reading comprehension (cf., Appendix A). The questionnaire was translated into Chinese, so it was fully understood by the participants. It was originally developed by Tseng (2010). It is a 5-point Likert type scale (ranging from strongly disagree to strongly agree) consisting of 10 items. To measure the reliability of the questionnaire, Cronbach's alpha coefficient was calculated and it was found to be .84. The questionnaire is divided into three parts: statements 1,4,10 refer to paper-based preferences, statements 2,3,6,7,8,9 refer to electronic-based preferences, and statement 5 is neutral with no difference between paper-based and electronic-based preferences.

Data Collection and Analysis

All the participants completed the questionnaire during class time, and the survey questionnaires took about 30 minutes to complete. The students were informed that the survey would have no effect on their grades. In the questionnaire, relevant data extracted were analyzed using the SPSS 11.0 (Statistical Package for the Social Sciences). Internal consistency reliability (Cronbach's alpha) was analyzed to show how well a group of items measured the same concept, and the overall Cronbach alpha reliability was 0.92. An independent-samples t test was conducted to determine whether there was a significant difference of preference for printed text or electronic text of the English-major students for their reading activities based on their gender (male and female). A one-way ANOVA was performed to examine whether there was a significant difference of preference between the printed text or electronic text of the English-major students for their reading activities based on their English reading proficiency levels (high, intermediate, and low). The data were analyzed to obtain descriptive and inferential statistics, the results of which are reported below.

Results and Conclusions

The result of an independent-samples t test showed that there were no significant differences between genders (male and female) regarding the preferences for the printed text and electronic text due to $t(104)=1.52, p=0.13$, $t(104)=0.58, p=0.56$ respectively (cf., Table 1).

Table 1. An independent-sample t test of gender (male and female) for students' text preferences

text preferences	Male		Female		T value	P value
	M	SD	M	SD		
paper-based	2.75	1.21	3.14	1.36	1.52	0.13
electronic-based	2.84	1.11	2.97	1.18	0.58	0.56

The results of a one-way ANOVA showed that there were significant differences between proficiency levels (high, intermediate, and low) regarding the preferences of the printed text and electronic text in the male group owing to $F(2,44)=89.68, p<.0001$, $F(2,44)=107.43, p<.0001$ respectively (cf., Tables 2 and 3).

Table 2. One-way ANOVA of paper-based preference of various reading proficiency levels (high, intermediate, and low) in the male group

	SS	df	MS	F	P
Between Groups	54.510	2	27.255	89.68	<.0001
Within Groups	13.371	44	0.303		
Total	67.881	46			

Table 3. One-way ANOVA of electronic-based preference of various reading proficiency levels (high, intermediate, and low) in the male group

	SS	df	MS	F	P
Between Groups	46.642	2	23.321	107.43	<.0001
Within Groups	9.551	44	0.217		
Total	56.193	46			

Also, there were significant differences between proficiency levels (high, intermediate, and low) regarding the preferences for the printed text and electronic text in the female group because of $F(2,55)=120.64, p<.0001$, $F(2,55)=77.15, p<.0001$ respectively (cf., Tables 4 and 5).

Table 4. One-way ANOVA of paper-based preference of various reading proficiency levels (high, intermediate, and low) in the female group

	SS	df	MS	F	P
Between Groups	85.243	2	42.621	120.64	<.0001
Within Groups	19.431	55	0.353		
Total	104.674	57			

Table 5. One-way ANOVA of electronic- based preference of various reading proficiency levels (high, intermediate, and low) in the female group

	SS	df	MS	F	P
Between Groups	59.915	2	29.457	77.15	<.0001
Within Groups	20.998	55	0.381		
Total	79.914	57			

Interestingly, whether the male or female group, the results have shown that the students at a high proficiency level preferred to use the printed text rather than the electronic text, and the students at a low proficiency level preferred to use the electronic text rather than the printed text. (cf., Table 6).

Table 6. Comparison of paper-based and electronic-based preferences among various reading proficiency levels (high, intermediate, and low) and gender differences (male and female)

proficiency levels	high		intermediate		Low		F	P	Comparison
	M	SD	M	SD	M	SD			
All									
paper-based	1.56	(0.33)	3.23	(0.92)	4.57	(0.32)	147.2	<.0001	L-I, L-H, I-H
electronic-based	4.24	(0.39)	2.53	(0.72)	4.55	(0.31)	171.7	<.0001	L-I, L-H, I-H
Male									
paper-based	1.67	(0.32)	2.63	(0.76)	4.55	(0.31)	89.8	<.0001	L-I, L-H, I-H
electronic-based	4.17	(0.33)	2.41	(0.64)	1.68	(0.12)	107.4	<.0001	L-I, L-H, I-H
Female									
paper-based	1.47	(0.32)	3.67	(0.79)	4.58	(0.35)	120.6	<.0001	L-I, L-H, I-H
electronic-based	4.31	(0.43)	2.62	(0.77)	1.63	(0.47)	77.2	<.0001	L-I, L-H, I-H

According to some research projects done in this field (Dilevko & Gottlieb, 2002; Spencer, 2006; Liu, 2006), readers prefer the printed text to the electronic text for reading, especially in early literature reviews, but the innovations in computer and internet technology sometimes have contradicted these findings. Interestingly, we found that there was no significant difference between the preferences for the electronic text to the printed text in terms of gender. The finding of this study is consistent with Kazanci's finding (2015). Another finding has shown that the students at a high reading proficiency level preferred to use the printed text over the electronic text, partly because they could not use reading strategies effectively and could not concentrate on the screen. The finding of this study is similar to Solak's finding (2014). In conclusion, these results can provide educators and instructors

with text preferences for their students when they designate the reading medium so as to improve readers' reading comprehension in the long run.

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Appendix A: Questionnaire for Online Reading Comprehension (Adapted from Tseng, 2010)

1. It is easier to answer reading comprehension questions on paper.
2. It is easier to answer reading comprehension questions on computer screens.
3. If I had a choice, I would prefer to read articles on computer screens.
4. If I had a choice, I would prefer to read articles printed on paper.
5. To me, there is no difference between reading on computer screens and reading on paper.
6. I think hyperlinks are helpful when I read on computer screens.
7. I think the scroll bar is helpful when I read on computer screens.
8. I think the cursors are helpful when I read on computer screens.
9. I like reading articles on computer screens.
10. I like reading articles on paper.

Appendix A: 線上閱讀問卷 (中文版)

1. 用紙本的方式較容易回答閱讀測驗的問題。
2. 用電腦的方式較容易回答閱讀測驗的問題。
3. 假如我可以選擇，我寧可使用電腦的方式閱讀文章。
4. 假如我可以選擇，我寧可使用紙本的方式閱讀文章。
5. 對我而言，用電腦的方式或用紙本的方式閱讀文章，我覺得沒有差別。
6. 當我用電腦的方式閱讀時，我認為超連結是很有用的。
7. 當我用電腦的方式閱讀時，我認為捲動條欄是很有用的。
8. 當我用電腦的方式閱讀時，我認為游標是很有用的。
9. 我喜歡用電腦的方式閱讀文章。
10. 我喜歡用紙本的方式閱讀文章。