An Investigation of EFL Learners' Online Reading Skills

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Abstract

The purpose of this study was to investigate how EFL learners read on the Internet and to compare reading skills between printed text and hypertext. The Internet was basically a text medium until a few years ago, and reading is still one of the easiest skills to practice on the Web (Teeler & Gray, 2000). Most of the reading skills were formed and developed before the popularity of the Internet. It is of interest to see whether the reading skills still function well on reading texts on web pages through computer screens. In this study, the participants were fifty-four fourth-grade students at an institute of technology in Northern Taiwan. They were divided into the Experimental Group and the Control Group with equal numbers. The results shows the participants in the Control Group outperformed the Experimental Group in the reading comprehension questions. Findings and conclusions from this study may serve as implications and suggestions for web designers and for teachers who intend to introduce online text in the language classroom. The ultimate purpose was to explore the effectiveness of using printed text and online text in language learning and teaching.

Keywords: Reading Skills, the Internet, EFL learners, Skimming, Scanning

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外語學習者英文網路閱讀技巧之探討

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摘要

本研究之目的在於探討外語學習者在網路上閱讀英文時所使用之閱讀策略。實驗對象為五十四位就讀技術學院應用外語系四年級的學生，分為實驗組(線上測驗)及對照組(紙面測驗)。實驗結果顯示對照組之表現比實驗組佳。

關鍵字：閱讀策略、網際網路、外語學習者、略讀技巧、細看技巧

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1. Introduction

With the advent of technology, computers have become an indispensable part of daily life. Students access the Internet at home and at school on a regular basis. They browse different web pages, check emails and chat with friends. While browsing different web pages, they involve in a lot of reading activities. The Internet provides new text formats, new ways to interact with the information on the web pages. The new methods of interacting with information could overwhelm EFL learners in Taiwan, who are taught to read from traditional text printed on paper.

In Bolter's book 'Writing Space', he (1991) mentioned the web, new hypertext application radically change the relationship between authors and readers. Also, Wolfe (2000) mentions that the web places greater demands on the learner than traditional learning environment. At the level of text processing, the web places high demands on the reader's ability to make connections between new and existing knowledge. While our students face lashings of information provided on the Internet, it was of interest to investigate how students read printed text or hypertext text, and compared reading skills being utilized when reading text printed on paper and shown on computer screens.

2. Review of the Literature

2.1 Hypertext

Barnes (1994) states that hypertext is unique. This is because it enables readers to pick and choose blocks of text by interacting with the machine. It is a way of organizing information and browsing through electronic texts stored on individual computers and networks. Hypertext now includes "a wide range of computer applications such as interactive books, encyclopedias, online reference indexes, and other forms of nonlinear reading and writing which are created by means of computer technology" (p. 26). To read documents, readers cannot turn page by page as they do on a printed book. They have to learn to navigate and explore the electronic text. She said, "learning text navigational skills transforms readers into active information explorers" (p. 26).

A typical hypertext document opens with a top-level menu or homepage. On selecting or clicking highlighted or colored words or phrases on the hypertext document, a further screen which includes more words and images comes out, and so on,

potentially indefinitely (McHoul & Roe, 1996). Intrator (2000) points out that hypertext can be seen as a kind of informational environment where ideas are knitted together in different ways.

2.2 Hypertext and Reading Skills

In a school context, the reading activities usually include the following skills: (A) prediction, (B) scanning for specific information in a text (C) skimming a text or parts of a text to quickly establish a general idea of the content, (D) guessing the unknown words, and (E) critical reading (Clarke & Silberstein, 1987; Nuttall, 2000; Brown, 2001). So how do these relate to hypertext?

2.2.1 Prediction

Readers are encouraged to predict as much as possible about what they are reading (Widdowson, 1979). They can make predictions about the content of a passage from the title and subtitles of an article or a book, and they can use their own knowledge of the topic. The pictures in an article or book tell them the topic of what they read. In longer texts both structure and meaning help readers to predict; meaning assumes more importance as they become more familiar with the topic and the writer's way of treating it. If readers can predict that the writer is likely to present opposing arguments, they will not be confused. This kind of prediction is one of the attractions of stories. Curiosity about what will happen urges them to read to the end (Nuttall, 2000). Hypertext design employs linked texts based on a theme or topic. Readers are able to select texts on a related topic or theme. "By enabling them to select texts based on a related topic, they will not be overwhelmed with information. In contrast, they can gain a greater sense of control that will maintain their interest in the texts" (Barnes, 1994, p. 28).

2.2.2. Scanning

Scanning is a type of speed reading technique, which is used when the readers want to locate a particular piece of information without necessarily understanding the rest of a text or passage (Richards, Platt, & Platt, 2003). In other words, it is reading for the purpose of extracting specific information. Scanning trains readers to run their eyes over a text quickly in order to locate specific information (Grellet, 1981). The reason scanning is useful is when readers read something, they usually do not need to read the whole text. What they have to do is to find the information that they are looking for.

When they find the desired information, they read it with more attention. They can do this by asking themselves what exactly the writers mean, what the writer's intention is...etc. When reading text on computer screens, readers also tend not to read the whole text. Instead, they scan the text, and select some keywords, sentences or paragraphs of their interest while passing over those parts of the text they care less about (Nielsen, 1997). Graphics and other visual cues also help them to scan.

2.2.3. Skimming

Harmer (1991) suggested that readers could try to learn to get the general picture of a text, which is also called skimming. What is skimming? "Skimming is a type of rapid reading, which is used when a reader wants to get the main idea or ideas from a passage" (Platt, Platt & Richards, 1992, p. 403). To instill the skill of skimming teachers try to train readers to recognize the key sentence of a passage. Grellet (1981) states that the skill of skimming will show readers that (a) one sentence usually sums up the gist of each paragraph, and (b) this key sentence often appears at the beginning of each paragraph. The purpose of doing this is for the readers to have an idea of the main points of the text. It entails their' ability to pick out main points rapidly and to disregard what is not essential to that general picture. According to Smith (1999), when a web page appears, readers often skim the whole page first without opening any of the links. When they get a fair idea of the theme and argument of the text, they either choose to leave that certain web page or they go back to the beginning and work more slowly through the entire page. Then, they will click links to find more information.

2.2.4. Guessing the Unknown Words from the Context

As 70% of web pages are written in English (Moslehpour, 2002), the Internet is a convenient source for readers to obtain new vocabulary. Although readers are encouraged to increase their abilities with vocabulary and grammar, they still encounter some unknown words or phrases. It is advisable that they try to guess the meanings of the words that they do not know or simply ignore them if they do not look important to understanding the text. There are many clues to guess the meaning of an unknown word (Ellis & Sinclair, 1989). For example, does the word use a prefix (un-, mis-, dis-, re-, pre-, pro-, etc), a suffix (-ly, -ive, -ment, -able, -ible ….etc.), or is it a compound word (swordfish, steamroller, etc.)?

2.2.5. Critical Reading

Critical reading means that readers need to react to readings with critical judgment. They should be able to argue a point of view or decipher the writer's message (Clarke & Silberstein, 1987). Hypertext contains a lot of hyperlinks that provide greater context for a reading. By clicking the mouse button, a linked source or author's note will appear on screen. Landow (1992) states that "the readers can follow the link to another text indicated by the note and thus move entirely outside the scholarly article itself" (p. 5). This type of access improves critical thinking skills because readers can decide when they want to explore a further reading or when they should return to the main text. They find more relevant articles about the same topic and help them to judge their point of views or understand the writer's message. In contrast, printed texts tend to present a single vision (Barnes, 1994).

2.3 Teaching Hypertext Reading

Reinking (1997) states that the computer is merely a new device for displaying textual information or for teaching students how to read and write. However, Patterson (2000) brings up the notion that reading hypertext is really a different experience for students. Teachers must recognize this and help students to handle hypertext and think reflectively about the meaning they are constructing from that form of text. It involves as much as a printed text, but in a completely different format.

Since hypertext is different from print text, what can teachers do in the classroom? Patterson (1999) suggests several things. First of all, most students spend a lot of time playing games. They are dealing with a lot of English gaming texts. Also, they like to indulge in chat rooms and 'talk' with their pals around the world. Teachers need to recognize this fact, and even celebrate it. Teachers can do that by asking students to reflect, either orally or in response journals. For EFL learners, they are encouraged to chat in English with their friends or classmates, or with native speakers. Nevertheless, safety is the most important factor.

Secondly, as Murray (1997) mentioned readers feel a greater sense of agency with hypertext and teachers can help students to develop it through "scavenger hunts". Teachers can collect a series of web sites that deal with a particular facet of students in their classrooms, and they can give students some open-ended questions. Students can

search for answers in the web the teacher has collected. Patterson reminds us that it is important for teachers to understand that simple recall questions are probably not going to help students develop this sense of agency. Instead, teachers need to include thought-provoking questions.

Thirdly, teachers can also help students to write hypertext. Landow (1992) explains that hypertext blurs the boundaries between reader and writer. He claims that readers have to make choices and act upon those choices by clicking on a word or image, therefore becoming 'active'. Reading is not a passive activity. Hypertext reading demands the readers to make deliberate decisions about which path to take within a hypertext environment. One of the ways to help students to experience this blurring of boundaries between reader and author is to introduce Web forums and discussion lists, where students might discuss a literacy work. Students are encouraged to engage in discussion forums on smaller scale. Many chat programs allow students within one classroom to discuss a particular topic. Students use a computer to type their comments and questions instead of their 'voices'.

The present study attempted to answer the following research questions:

1. When reading text on the computer screens and paper, was there any difference of prediction skill in use?
2. What were the results of using skimming skill, scanning skill, guessing-word skill when reading text on computer screens and paper?
3. What, if any, were students' attitudes toward reading hypertext? What were their reported difficulties in reading hypertext?

3. Methodology

The current study investigated reading hypertext on the Internet and reading comprehension between printed text and hypertext. A reading comprehension test and one questionnaire were administered to acquire data needed to elicit the answers of the research questions.

3.1 Participants

Fifty-four students who studied at the fourth-grade of the Department of Applied Foreign Languages of an institute of technology in northern Taiwan joined this study.

They were equally divided into two groups, the Experimental Group and the Control Group, according to their scores in the Mid-term Examination of 'Advanced Reading'.

3.2 Materials

Three articles were adopted from the book "*Master GEPT (General English Proficiency Test) Cloze & Reading"* written by Osman (2002) although some of the questions had been modified in order to conform to the purpose of the study that tested their prediction, skimming, and scanning skills.The content covered animal, E-commerce, and tourism. There were 120 words in the Article I, 144 words in Article II and 291 words in Article III. In each article, three parts were included: pictures & relevant vocabulary, the text and reading comprehension questions. Four to six pictures, and four to five words were provided in the prediction part, and five reading comprehension questions were included after each article. A questionnaire was also prepared for participants to fill out after the reading comprehension test. Participants were given thirty to forty minutes to finish the test.

3.3 Procedure

The participants were tested on their reading skills by being asked to read three articles. Before they read the first article, they were given pictures and relevant vocabulary to help them to predict the article. An opening question was given and they had to write down what they thought from the pictures and vocabulary while such a task in principles required their reading skills of prediction. The participants in the Experimental Group answered the questions from viewing the pictures on the computer screens while the ones in the Control Group looked at the pictures on paper. It was also of interest to see whether the representation of pictures would affect students' performance to predict the pictures since the pictures on the computer screen was colored but they were usually black and white on paper because of the high color printing cost. Next, participants read the article and then answered five questions containing the requirement of using skimming skill, scanning skill, and vocabulary knowledge. After finishing the first article, they followed the same pattern on Article II and Article III. After finishing the three articles, all participants were asked to fill out a questionnaire regarding the reading tests.

4. Results

The results of the study were divided into five parts: prediction section, skimming section, scanning section, vocabulary section, and factors that affected student's reading performance. The results of the first four parts were elicited from the reading comprehension test, and the last section was induced from the questionnaire.

4.1 Prediction Section

All the students were given the same pictures and vocabulary via paper and computer screens. All the examples were directly duplicated from participants' answers. Grammatical errors were not corrected.

Article I

In the Experimental Group, which read texts from computer screen, students' answers were divided in to the following ones.

Excerpts from participants' answers:

"The article introduces the type of snakes and how to distinguish poisonous ones and unpoisonous ones."

"The article introduced how to react while confronting snakes."

"The article says that some snakes are poisonous. People will die if the snakes bit them."

"The poison can be extracted to make serum to save people's life."

"The snakes are fighting each other to see who the winner is."

"Snakes have poison and they bite people."

"These snakes are very hungry and they look for food to eat."

"A man went mountain climbing or an adventurer and a poisonous snake bit him."

In the Control Group who read texts from paper, their answers were as the followings:

Excerpts from participants' answers:

"The article introduces the type of snakes and how to distinguish poisonous ones and unpoisonous ones."

"Snakes have poison and they bite people."

Article II

Both of the students in the Experimental Group and the Control Group provided similar answers.

Excerpts from participants' answers:

"People can do business via Internet."

"Internet connects people."

"Internet provides lots of information."

Article III

Also, both of the students in the Experimental Group and the Control Group provided similar answers.

Excerpts from participants' answers:

"There are many people in Hong Kong."

"Hong Kong is a trading city."

"Introduce Hong Kong."

"History of Hong Kong."

"There are many tall building."

"Tourist spots in Hong Kong."

"Hong Kong is a shopping paradise."

"Introduce China."

4.2 Skimming Section

In the three articles, Q1 was designed to test student's skimming skills. They were asked to find out the main ideas of each article. Table 1 shows the results of right and wrong answers for the two groups. The Control Group received 52 right answers but 29 wrong answers, whereas the Experimental Group obtained 49 right answers but 32 wrong answers. The Control Group outperformed the Experimental Group in Article I, Article II, and Article III.

Table 1

Right and Wrong Answers of Skimming Questions

	The Experimental Group		The Control Group	
	Wrong answers	Right answers	Wrong answers	Right answers

Article I	6	21	6	21
Article II	18	9	18	9
Article III	8	19	5	22
Total	32	49	29	52

4.3 Scanning Section

In every article, Q2, Q3, and Q4 were testing student's scanning skills. The answers were accumulated together (See Table 2). The Experimental Group achieved 148 right answers but 95 wrong answers while the Control Group made 159 right answers but 84 wrong answers. The Experimental Group did not perform as well as the Control Group.

Table 2

Right and Wrong Answers of Scanning Questions

	The Experimental Group		The Control Group	
	Wrong answers	Right answers	Wrong answers	Right answers
Article I	27	54	20	61
Article II	37	44	36	45
Article III	31	50	28	53
Total	95	148	84	159

4.4 Vocabulary Section

Students had to guess the meaning of the word by its context in the passage. The Experimental Group made 28 right answers but 53 wrong answers whereas the Control Group received 32 right answers but 49 wrong answers (See Table 3). The Control Group performed better than the Experimental Group.

Table 3

Right and Wrong Answers of Vocabulary Questions

	The Experimental Group	The Control Group

	Wrong answers	Right answers	Wrong answers	Right answers
Article I	16	11	15	12
Article II	21	6	20	7
Article III	16	11	14	13
Total	53	28	49	32

4.5 Factors which Affect Student's Reading Performance

Among the five questions in each article, 10% of students thought Q1 which tested their skimming skill was the most difficult question. 61% of them chose Q2 to Q4, which tested their scanning skill, and 29% of them chose Q5, the vocabulary question, as difficult question. Table 4 shows the difficulty level for all participants. For participants, the lack of vocabulary was a problem when they read text on the Internet and paper.

Table 4

Difficulty Level of Reading Comprehension Questions

	Q1	Q2	Q3	Q4	Q5
The Experimental Group	8%	17%	20%	23%	33%
The Control Group	12%	18%	23%	23%	24%
Total	10%	17%	21%	23%	29%

Another question asked students how long their eyes felt tired while they were reading via computer screens (See Table 5). No one chose over 10 minutes, 21% of students chose over 20 minutes, 31% of them chose over 30 minutes, 19% of them chose over 40 minutes, and 29% of them chose over 50 minutes. The length of the text time in this study was about 30 minutes. It means that almost half of students felt tired. It did affect the way when they read hypertext, because when they felt tired, they wish no longer reading anything on the computer screens.

Table 5

Eyestrain of Reading Hypertext on the Internet

	10 minutes	Over 20 minutes	Over 30 minutes	Over 40 minutes	Over 50 minutes
The Experimental Group	0%	28%	28%	28%	16%
The Control Group	0%	15%	33%	11%	41%
Total	0%	21%	31%	19%	29%

Next, students were asked whether they liked to view the pictures via computer screens or paper in the prediction section. 69% of students in the Experimental Group chose computer screens because they were colored, and clearer; 31% of them chose paper because their eyes would not get tired, and they did not have to use scroll bar to see the all the pictures. In the Control Group, 90% of students chose computer screens and 10% of them chose paper. In general, 81% of the whole class chose computer screens and 19% of them chose paper.

Participants were also asked whether they preferred computers screens or paper to read for fun or for leisure? 41% of participants preferred to reading text on computer screens whereas 59% of them preferred to reading text on paper.

While taking a test, students were asked whether they preferred to read the texts from computer screens or paper. With the pressure of taking a test, 85% of students still preferred to do a test on paper. Only 15% of students were willing to take a test via computers.

Furthermore, students were asked some questions regarding reading text via computer screens:

(1) What were the factors, which would affect reading text via computer screens? 18% of students chose the size of the font, 17% of them chose the background color of the web pages, and 67% of them chose the download speed.

(2) In the background color of web pages, 18% of the students chose dark background with white words, 70% of them chose white background with black words and 4 % chose either ways. The results might be speculated that students extended their reading inclination to computer screens, because most of the paper was white, and printing color was black.

(3) The students were asked whether they preferred to read through computer screens or paper. In the Control Group, 30% of them chose screens and 70% of them chose paper; in the Experimental Group, 33% of them chose screens and 67% of them chose paper. Totally, 31% of the whole class chose screen and 69 of them chose paper.

5. Discussions

Students used their schemata, imagination, the connection of the vocabulary and pictures to predict the students. Also, every student predicted that the snakes were poisonous. According to the answers, one kind of answers caught our attention. We found those ten students in the Experimental Group and one student in the Control Group used story-telling way to predict the texts. The results conformed to Bolter's theory (1991) that the electronic texts were like dramas or musical scores. It made reading an experience that was more spatial and more performative. Students' minds were flying into their imagination world. However, in the Article II and III, no students used story-telling way. The speculations were that the topics were not the ones that would activate their imaginations, and the other reason was that teacher reminded them the time limit and this time reminder woke them up from the spatial world.

In the skimming section, students in the two groups made the same numbers of right and wrong answers in reading Article I and II. In Article III, students in the Control Group performed better. In the scanning section, students in the Control Group performed better than the ones in the Experimental Group. For students in the Experimental Group, they had been staring at the computer screens for a period of time, and they felt eyestrain. Among the five questions, Q5, which was testing their vocabulary, was the most difficult one for them, especially for the ones in the Experimental Group. As mentioned, students felt tired with eyes to locate each individual word on the screens.

Students were asked whether they liked to view the pictures on the screen. 81% of participants preferred to view them via computer screens because the pictures were colored, and clear, whereas the pictures were black and white and unclear due to the bad printing quality. Comparing with the test results, students in the Experimental Group indeed provided a variety of answers. For reading preference, 69% of them still

preferred to read texts via paper, but the percentage dropped 10% as they were asked whether they preferred to read text via paper for fun or for pleasure. Students said they usually read some news about their idols or any entertainment news via the Internet. However, while they were asked whether they chose paper or computer tests, a high percentage of 91% students chose paper. It conformed to the results that 'the reality of the day shows that paper still continues to be the preferred medium for much of our reading activity (O'Hara & Sellen, 1997)'

When students in both groups were asked which factor would affect their reading via computers, they chose the download speed. In the background and text color, 70% chose white background and black words. The result was different from that Leonard's suggestions (1985) "

> "Dark letters on a light background are known to be more legible, but when a user is sitting close to the computer for any length of time, the glare from a bright screen can be uncomfortable. Some research evidence suggests that, for prolonged use, amber letters on a dark background cause least fatigue (Higgins and John, 1984)."

Nevertheless, students' likeness and the result of experiments or research were quite different. Next, another question asked students how long their eyes felt tired while they were reading via screens. No one chose over 10 minutes. In the Experimental Group, which students just finished the test after watching the screens for thirty minutes, 1/3 of them felt tired with their eyes, whereas students who read texts via paper, 41% of them thought they would have tired eyes after watching screens over fifty minutes. The view time was different from age or the topic of the content. For doing a test, 1/5 of students would feel tired with eyes over 20 minutes.

6. Conclusions and Pedagogical Implications

The results of experiment shows us that even screen technologies have rapidly improved in recent years, our students still prefer to read text on paper, especially while doing a test. It is not to say reading hypertext is less efficient. It is rather a good suggestion to web programmer or program designer while they design the layout or the

content of the program, and for teachers while designing lesson plans. The colorful pictures indeed help students to predict and understand the text, but the font size, the background color, and download speed affect their text reading. Also, if they stare on the screen over thirty minutes, they get tired eyes. Nevertheless, there are some solutions for this, for instance, enlarge the font size by simply clicking 'view' on the menu and choose 'font size', or download 'timer' from free websites to remind to let their eyes take a rest. Since we know the factors affect reading, we will try to find solutions and hope there will be a 'paperless' and 'healthy eyes' future.

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