
THE EFFECT OF ONLINE READING ON IRAQI EFL STUDENTS' READING COMPREHENSION

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ABSTRACT

This study aimed to examine students' perceptions of reading hypertext on computer screens and the difficulties they encountered. This paper studies how online reading influenced EFL students' reading comprehension and mentioned the hardships eighty-eight Iraqi EFL students admitted in the first-year English course at Wasit University experienced during the process of hypertext reading. The results show that students did not like reading from computer screens. The factors that influenced students when reading hypertext were font size and background colour of web pages. The main difficulties involved eyestrain, disability to take notes or highlight text, and missing lines when reading online. Results, in addition, promote the demand that students found hypertext reading to be harder than print reading.

Key Words: Reading Comprehension Internet Hypertext Iraqi EFL Learners Online Reading.

1. INTRODUCTION

Nowadays, the unlimited access is becoming very important for attaining jobs, expanding knowledge and standing contentious all over the world. Access becomes a concern with the increased innovation and technological developments. The high-level trends of technology innovation are those that vitally changer the place of technology in the lives of people. What counts is not the technology by itself, but its relationship to us. So, along with this revolution in the technology of communications as well globalization, English is promoted to be the first international means of communication, education, and business for most of the people of this world. Consequently, various English learning internet websites, CD-ROMs, and software have appeared. Students access the internet at home, office, and at school on a regular basis. They browse different web pages, check emails, and chat with friends. While browsing different web pages, they are involved in a lot of reading activities. The internet brings new text formats and different ways to interact with the information on the web pages. The recent methods of interacting with information could overwhelm EFL students in Iraq, who are taught to read from the traditional text printed on paper. From many of the students' responses and previous studies (Tseng, 2008), it was found that they disliked reading hypertext on computer screens. Is it because of the difference between traditional textbooks and new technology? Are there any other possible factors ?

2. REVIEW OF THE LITERATURE

Coomes and DeBard, (2004) report that recently, new students and beginner professionals are from the age acknowledged as "Millennials", born between 1982 and 2002. Rising up with technology and digital media, coverage has "fundamentally altered the way this growing generation reads learns, processes information, and solves problems" (Howe and Nadler, 2010a). At the moment,

university students are not only given exposure to technology at early ages, but also, they are appreciating internet and other tools at extreme rates and frequencies.

Barnes (1994) states that hypertext is incomparable because it permits readers to choose chunks of text by communicating with the computer as a device. It is a way of classifying information and screening through electronic texts saved on individual computers and networks. Hypertext now contains "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).

Many researchers have probed the differences between traditional reading and online reading processes. Ojala (2000) states that reading is not a linear task. A printed document boosts readers to begin at the top left-hand corner and end at the bottom right-hand corner, but electronic information encourages a completely different style. The eyes of readers move in a round motion rather than in a direct line. However, in such a nonlinear reading situation, it stands essential to separate the true from the false, reality from fantasy, and to discern cause and effect and to apply critical thinking skills. Teeler and Gray (2000) note that hypertext is well formatted, easy to look at and is often broken up by relevant pictures and graphics to aid comprehension. Hypertext can be printed out and easily saved or read offline. Moreover, hypertext has interactive associations, enabling readers to read the way the mind often thinks, in a non-linear track. The associations can involve exchange with other readers such as the authors or the publishers. They can conduct to assist materials that are not attainable online.

Nielsen (1995:154) shows that "reading from a computer screen is about 30% slower than reading from paper" (p.154), while Troffer (2001) states three main obstacles that affect reading from a computer screen:

1. Letters on a computer screen appear hard to the eye.
2. Printed text is high as compared to screen resolution.
3. Screen glare can hinder reading.

It is a well-known fact that desktop computers are not portable and are less applicable to use than printed materials. Britt and Gabrys (2001) also point out that texts on web pages are more complex contexts for many reasons. First, hypertext is a nonlinear hypertextual environment. It removes text tools essentially build chunks of various shorter ones. For readers, it expands the number of pages that must be integrated, putting increased cognitive needs on the readers. Lastly, even trivial studies of the text on web pages show awareness among sources that must be adjusted by the readers. Therefore, reading hypertext is more tiresome than print reading.

Studies on hypertext itself and the differences between hypertext and printed text for EFL students were rare, not to mention those on Iraqi students who were learning English as a foreign language. Thus, the current study aimed to answer the following research questions :

1. What were the student-perceived difficulties with online reading?
2. What were the Iraqi EFL students' perceptions toward online reading?
3. What were the factors that influence students' online reading performance?

3. METHODOLOGY

Subject

The subjects were eighty-eight students joined in the first year English course at the Department of English, College of Education for Human Sciences, Wasit University. The language level of the subjects varied between pre-intermediate and -intermediate. They were homogenous concerning age, level, and other circumstances.

Materials

A questionnaire was constructed for online reading comprehension (See Appendix A). It contained three parts. The first part covered ten multiple-choice questions, which were about the two tests and had been recently completed by the participants. The second part probed into the subjects' perceptions toward online reading by having them answer ten more multiple-choice questions after taking the test. The third part contained four open-ended questions. The questions constructed to search students' opinions and difficulties about reading from computer screens.

Procedures

The subject, first were asked to do the paper-based reading comprehension test. Thereafter, they took the online reading comprehension test. Following the two tests, they filled out the Questionnaire for Online Reading Comprehension. The SPSS (Statistical Package for the Social Sciences), 11.0 Programme was used to analyze the extracted data. In statistical processing, one sample t-test was utilised.

Results

A questionnaire of twenty multiple-choice questions and four open-ended questions was designed to explore what the students thought about reading hypertexts online. The Likert-scale of 1 to 5 (1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree, and 5 = Strongly Agree) was used to quantify the mean scores as shown in Table 1:

Table 1. Mean Scores of the Questions Opinions for the paper-based and online reading tests

Questions	1	2	3	4	5	6	Q7	8	9	10
Mean	2.42	3.43	2.93	2.57	3.45	3.22	2.78	3.33	3.36	3.38

Perceptions toward Online Reading

Questions	11	12	13	14	15	16	17	18	19	20
Mean	3.85	2.34	2.40	3.78	2.44	3.16	3.55	3.56	2.50	3.73

The average mean score for the twenty questions was 2.94. From questions 1 to 10, the mean score was 2.75, and from 11 to 20, the mean score was 3.13. The highest score was in question 11 (3.85) in which students were asked if it was easy to answer the reading comprehension questions on paper among the twenty questions. The second highest score was in question 14 (3.78) which requested students whether they would favour to read articles printed on paper if given the right to choose. The third highest score was in question 20 (3.73) which students were asked whether they preferred to read printed articles or not. On the contrary, the lowest mean score was in question 12 (2.34) in which students were asked if it was easy to read comprehension questions on computer. The second lowest mean score was in question 13 (2.40). The students were asked whether they would like to read articles on computer screens if they were given the choice. In addition, another low mean score was found in question 1 (2.42) in which students were asked whether or not the paper-based tests was more difficult to do than online tests.

In the questionnaire, questions 1 to 10 investigated students' opinions for the paper-based and online reading tests they had recently completed. In order to examine which reading comprehension question was particularly difficult for students, the researcher compared questions 1 and 2, 3 and 6, 4 and 7, 5 and 8 (Table 2). Except for questions 5 and 8, the other paired questions show significant differences. For questions 1 and 2, students believed that it was difficult to read articles on computer screens. For questions 3 and 6, students thought that the question, "What is the main purpose of the article?" was the most difficult in the online test. For questions 4 and 7, the questions asking when which, and who were more difficult on an online test. For questions 5 and 8, students thought the vocabulary question was the most difficult question in both of the tests and, therefore, had no significant difference.

Table 2. A Sample t-test between questions 1-2, 3-6, 4-7, and 5-8

Questions	1 - 2	3 - 6	4 - 7	5 - 8
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	P-value	P-value	P-value	P-value
All Students	.000***	.000***	.010*	.101

Note. * $p < .05$. *** $p < .005$.

In order to understand the students' reactions toward online reading, I compared the mean scores between Q11 and Q12, Q13 and Q14, Q15 and Q16, and Q19 and Q20 (Table 3). The three-paired questions show the significant difference at the .005 significant level. Students preferred reading text printed on paper rather than reading hypertext on computer screens whether they were asked to do a reading comprehension test or read an article. This also supports the results that students obtained worse scores on computer screens. Students' dislikes toward reading hypertext and the differences between paper and computer screen text presentations contribute to the poor reading performances.

Table 3. T-test results between questions 11-12, 13-14, and 19-20

	Questions	M	SD	t	p-value
	11 - 12	1.51	1.56	9.083	.000 ***
	13 - 14	-1.38	1.64	-7.854	.000 ***
	19 - 20	-1.23	1.48	-7.761	.000 ***

Note. *** $p < .005$.

For questions 16, 17, and 18, the researcher asked the students whether the hyperlinks, scroll bars, and cursors were helping them when they read hypertext on computer screens or not. The mean scores were 3.16, 3.55 and 3.56 respectively, suggesting these functions helped them in reading hypertext.

In the open-ended questions, students' answers synthesized into Table 4. Fifty-seven students thought that the scroll bar, cursors, and hyperlinks helped them when reading hypertext on computer screens. The top three influencing factors were the eyestrain, the font size, and the background colour of web pages. Students felt that their eyes got tired after looking at computer screens for a while; the font size was too small and the background color of the web pages—dark letters with white background—made them feel uncomfortable.

However, computers also introduced several advantages. Students thought it was suitable to bring computers wherever they went. They could read articles on computer screens instead of printing them out, thus saving paper. On the other hand, the disadvantages that computers

brought were eyestrain, the inability to leave marks or make notes and, how easy it was to skip lines accidentally when reading hypertext on computer screens. .

Table 4. Students' Responses to the Open-Ended Questions

Number of Responses	Reported Times
The use of scroll bar, cursors, and hyperlinks	
The functions assisted me when reading hypertext	57
The functions did not help me when reading hypertext	8
There are no differences with or without these functions	5
The influencing factors contributing to reading hypertext	
Eye strain	24
Font size	18
Background colour	11
Disability to leave marks or make notes	6
Skipping lines	3
Student-perceived advantages of reading on the Internet	
Appropriateness	21
Save printing paper	10
Obvious screen without bad quality of printing	5
Online quick translation	2
Student-perceived difficulties of reading from a computer screen	
Eyestrain	24
Inability to put marks and make notes	16
Skipping lines	11
Fatigue	8
Confusion	3

4. DISCUSSION

From the above results of the questionnaire, it was found that students did not like to read hypertext on computer screens. It was noticed that when reading printed texts, students moved their eyes hastily over the text and answered the questions. Some students used pens and pencils

to aid them read the text. They might highlight certain lines, encircle some words, phrases, or put some signs on paper. However, when reading online, students looked at the screens and passed their eyes by using the scroll bar to change the web pages. When they read over the text, their eyes blur, and lose concentration. As Britt and Gabrys (2001) said, hypertext removed the text devices that typically build coherence in learner texts such as textbooks. Students had to integrate what they had read before with what they were going to read, thus increasing the cognitive demands on the students .

Of the probable causes that may have inspired students' performances when read hypertexts, the first and the most apparent one is eye strain—the biggest complaint from students. After reading hypertext on computer screens for a while, their eyes become tired, imposing many students to rub their eyes. The second influential factor was the background colors of web pages. Students did not like a bright background. There has been an intense debate about the dark-on-light or light-on-dark design of web pages (Allen, 2005; Gillespie, 2000; Leonard, 1985 .(

Morris (2009) d that when reading online, a dark letter font on a light background

Pedagogical Implications and Recommendations

The pedagogical implications of this study for reading hypertext incorporated at least three points. First, the importance of selecting suitable web pages for students is paramount. There are too many different kinds of web pages on the internet. They fulfill as good resources for leading students into a new topic or doing critical thinking. However, some of them may have backgrounds or pictures and may not be designed for educational or language learning purposes. Teachers should choose appropriate web sites, which provide clear instructions and have proper content for students do not need to waste time searching for websites; instead, they should concentrate on reading the content. Second, adapting the position of computer screens and of a web are equivalently necessary. In this study, results attained obviously propose that students felt visibly tired after finding out reading information from computer screens. They encountered eyestrain, which in turn, is usually better, but it tends to create eyestrain. When a user is sitting close to the computer for any period, the glare from a bright screen can be uncomfortable (Leonard, 1985). Some research evidence suggests that, for prolonged use, amber letters on a dark background cause the least amount of fatigue (Higgins & Johns, 1984 .(

The third influential factor is skipping lines. On paper, there are 38 lines on one page using a single space format. A student can read the questions and find answers from the passage. When the text is short, some students might still recall where on the page or. However, on a web page, there could be indefinite lines. When students endeavour to detect a certain word or line, they must move from the top of the page and look for the answers. This could be perplexing and let them to become lost between lines. Therefore, it affected the way the students read in this study .

Although reading online exhibited some evident obstacles, the participants of this study still acknowledged that it was convenient for them to look for data on the internet. They were also able to save a lot of paper by not printing, and they did not need to worry about poor printing quality to affect their performance in reading. There are many clues to decrease eyestrain (Natural Eye Care, 2009; Poynton, 1997; Ankrum, n.d.). Factors affecting the ability to see are glare, the

brightness difference between what they look at and its environment, the quantity of light, the distance between the eye and the screen and the document, the legibility of the screen and document, and students' vision and their corrective lenses (Ankrum, n.d.). Therefore, it is important to adjust viewing conditions that minimize stress to the eyes such as brightness and contrast and convergence of computer screens (Poynton, 1997). Third, teaching students how to read hypertext is critical. Students who feel comfortable reading traditional texts printed on paper may not be familiar with reading hypertexts. In such cases, it behooves teachers to guide students through the process of reading such texts and thus help them avoid some of the pitfalls of online reading. Furthermore, schools could present custom-made curricula to train students how to look for and dig for information on the internet and how to comprehend its many hyperlinks. Combined, these three implications alone should greatly benefit students interested in offline and online reading attempts .

The results of the study reported here clearly show that Iraqi EFL students did not like to read texts online, which, in turn, hindered upon their reading performance. Further research is, therefore needed to evaluate how the eyestrain or visual fatigues and background color of the web pages influence the way students read online. A future experiment could be designed to ask students to read articles, play games, or chat with friends for the same period of time and measure the level of eyestrain within the three different online contexts. Results from such targeted experiments could then reveal whether the eyestrain happens from reading text or whether it is because students just do not like to read English texts online. Similarly, such experiments could further show how online reading increases or decreases students' use of reading strategies, an outcome worth exploring more systematically.

5. CONCLUSION

It is a well-known fact that the internet is one of the great innovations of new media technologies. As such, it has had an intensive impact on the teaching of foreign languages. Many publications, conferences, and meetings are full up with papers and presentations that promote the advantages of teaching and learning via the internet and computers. Despite such emphasis, findings obtained in this study showed Iraqi students' dislikes of reading hypertexts on computer screens. English is a required course, taught at every study programme in Iraq from the primary school up to the higher studies at universities. A lot of online articles, journals, papers, and research databases are \written in English online reading is thus crucial for Iraqi students. It is therefore, vital for teachers and researchers to examine the differences and characteristics of hypertexts and shape the findings to the needs of developing programs or websites suitable for students who are studying English as a foreign language.

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Appendix A. Questionnaire for Online Reading Comprehension

Part One: Opinions for the Printed Text Version and the Hypertext Version

No.	Questions
1.	Paper-based test is more difficult to read than online test. 1 2 3 4 5
2.	The online test is more difficult to read than paper-based test. 1 2 3 4 5
3.	In the paper-based test, the question "what is the main purpose of the Article" is the most difficult.. 1 2 3 4 5
4.	In the paper-based test, the questions asking when which, and who are more difficult than the other questions .
5.	In the paper-based test, the vocabulary question is the most difficult. 1 2 3 4 5
6.	In the online test, the question "what is the main purpose of the article?" is the most difficult. 1 2 3 4 5
7.	In the online test, the questions asking when which, and who are more difficult than the other questions 1 2 3 4 5
8.	In the online test, the vocabulary question is the most difficult question. 1 2 3 4 5
9.	When doing the online test, the scroll bar helps me read the articles. . 1 2 3 4 5
10.	When doing the online test, the mouse helps me read the articles . 1 2 3 4 5

Part II. Perceptions toward Hypertext

11.	It is easier to do the reading comprehension questions on paper. 1 2 3 4 5
12.	It is easier to do the reading comprehension questions on computer screens
13.	If I have the choice, I would prefer to read articles on computer screens 1 2 3 4 5
4.	If I have the right, I would prefer to read articles printed on paper. 1 2 3 4 5
15.	To me, there is no difference between reading on computer screens and reading on paper. 1 2 3 4 5
16.	I think hyperlinks are helpful when I read on computer screens. 1 2 3 4 5
	I believe the scroll bar is helpful when I read on computer screens. 1 2 3 4 5 17.
	I consider the cursors are helpful when I read on computer screens. 1 2 3 4 5 8.
19.	I prefer to read articles on computer screens. 1 2 3 4 5
20.	I like to read articles on paper. 1 2 3 4 5

Part III. Open-discussion Question

1. When reading the hypertext, did you use the scroll bar, cursors, and hyperlinks? Do they help you in reading articles on computer screen?
2. What are the factors contributing to reading articles on the Internet?
3. What are the advantages of reading on the Internet
4. What are the difficulties of reading from a computer screen ?

Thank you.

