AN INVESTIGATION OF EFL TECHNICAL COLLEGE LEARNERS' HYPERTEXT READING

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ABSTRACT

This study was an analysis of forty-six technical college English as a Foreign Language (EFL) freshmen, non-English major, in central Taiwan with their reading experiences and reading strategies committed to reading hypertext from English CD-ROM materials. Interview and questionnaire data were collected for the data analysis. Schema theory, readers' use of information processing strategies, and bottom-up and top-down reading process were used to present different learning styles and strategies. The reading materials used were CD-ROMs published by LiveABC publishing company. The results of this study showed that readers' motivation of learning increased through the use of hypertext reading from CD-ROM materials; therefore, factors such as interest and needs of readers of a reading material deserve teachers' and publishers' attention in selecting suitable reading materials for EFL readers. The lack of enough vocabulary and grammar knowledge restrained technical college readers' reading motivation. Thus, reading materials should centre on the purpose of building new schemata and activate readers' existing ones.

Introduction

The term hypertext was first developed by Ted Nelson in the 1960s. Referring to hypertext as a form of electronic text, Nelson (1965) explains that hypertext is non-sequential writing-text that branches and allows choices to the readers, best read at an interactive screen. Hypertext is a series of text chunks connected by links which offer the readers different pathways. Hypertext reading is aimed at allowing more random access, tends to be more interactive, and offers overt ways of reading (Tierney, 1994).

According to Goodman (1967), reading is a psycholinguistic guessing game. For the problems in EFL reading, there have been a large number of researchers trying to analyse and resolve them from various perspectives (Koda, 1992). Some researchers argue that EFL readers' possession of appropriate schema is a vital factor that has an influence on EFL readers' reading performance (Ruddell, 1965). Some researchers focus on the examination of EFL reading comprehension and processing strategies (Koda, 1992).

The present study was intended to inquire into the reading process of EFL readers from a psycholinguistic view. The researchers first adopted Goodman's psycholinguistic perspective on reading traditional paper-based materials, and then refered to EFL technical college readers' experience on hypertext reading materials. In order to conduct this study, three research questions were explored as follows:

1. What are the similarities/dissimilarities of reading habits/experience/strategies committed by EFL college readers between paper reading and hypertext reading?
2. How do different ways of reading vary in their use of information processing strategies?
3. How do participants perceive the importance of hypertext reading as EFL learners?

Literature Review

The current study was concerned with the hypertext reading process from three perspectives, which are interaction between readers and text, schema theory, and bottom-up and top-down reading process committed by 46 EFL technical college readers. According to Goodman, reading strategies refer to initiating and sampling strategies, predicting strategies as well as confirming strategies in the transaction between the reader and the author (Goodman, 1996). Grounded on schema theory, the comprehension of a text is considered an interactive process between readers' background knowledge and the text (Carrell, 1983). According to Lin (2003), Taiwanese students seldom sound the word out or use the sound as a clue to guess the meaning of the word. She further went on to state that many college students rely on spelling and grammar greatly. For most EFL college learners in Taiwan, English has already been taught at least six years during high schools. However, it is not common for most students in Taiwan to be successful in reading traditional English materials. In contrast to more traditional ways of reading, technology offers greater opportunities for interactivity and learner control (Kozma, 1991; Land and Hannafin, 1996). It is a trend that more and more language teachers are begining to get access to the language teaching via multimedia CD-ROM coursework and online reading websites in Taiwan. More importantly, the invention of CD-ROM even makes it possible to reinforce reading skills and then improve reading comprehension through its range of activities. By means of including a variety of media, it presents a non-linear, dimensional and flexible access to information and material (Carver *et al.,* 1992). Thus, it is significant to investigate EFL readers' reflections on their CD-ROM reading experience and strategies to provide some suggestions on curriculum design and teaching strategies.

Bottom-up and top-down have become common reading strategies for two different paths to comprehension. The models claim that readers perceive every letter, organise the perceived letters into words, and then organise the words into phrases, clauses, and sentences (Silberstein, 1994). Meaning, at any level, is accessed only after processing at previous and lower levels has been completed. Thus readers will process all the letters in a word before the meaning of the word is accessed; likewise, readers will process all the words in a phrase or a clause before constructing its meaning.

Top down models, in contrast, state that comprehension begins with readers' contribution, from higher levels of processing, and proceeds to use the lower levels selectively. Readers use prior knowledge to make predictions about the data they will find in a text (Silberstein, 1994). The process involves creating a mental representation of the text, a gist including the writer's intent and the text content, shaped by the reader's prior knowledge and goals. Goodman (1967) claims that readers do not read every word, but sample the text, make hypotheses about the next word to be encountered, sample the text again to confirm their predictions, and so forth.

The role of vocabulary knowledge in the context of reading comprehension in a foreign language is controversial. Coady (1993) proposes a strong relationship between vocabulary knowledge and reading ability, with those who know more vocabularies being better able to comprehend. In addition, Huckin and Haynes (1993) pointed out that "a contextual guessing approach to reading and vocabulary building invite a host of bottom-up problems." Conversely, according to Swaffar *et al.* (1991), "Although the ability to decode vocabulary…is a key facilitator in both L1 and L2 reading, this ability is no guarantee of understanding." However, many previous studies commonly agree that proficient readers utilise both bottom-up and top-down processing, and that successful comprehension is the result of an interaction between both types of processing (Swaffar *et al*., 1991; Coady, 1993; Lawless and Kulikowich, 1996).

Methodology

Participants

This study included two interviews followed by questions directed at different perspectives when they read hypertext on English CD-ROM reading materials. The forty-six participants in this study were all EFL technical college freshmen from a non-English major department. First, each participant was asked the questions adopted from Burke Reading Interview (see Appendix) to assess their usual reading

habits and reading experience. Next, they were asked to read an English article on CD and retell what they had just read followed by an interview to evaluate their reading comprehension. The readings on CD were published by LiveABC publishing company. It has various activities on the CD such as reading passage, conversation practice, and movie script.

There were two interviews and a questionnaire for each participant within two months. All interview contents were audio recorded. Additionally, there were two researchers at the same time during interviews to reach reliability and build up mutual consensus. Glaser and Strauss's Constant Comparative Method (1967) was adapted to analyse the collected data.

Procedures
The procedure of individual reading interview was designed for gaining access to the ways in which individual participants viewed reading and how their views exert influence upon their reading. Readers' responses to the reading interview can provide not only the information about readers' views of reading but also the clues to explore how readers operate the information processing strategies while reading. The individual reading interview comprises several questions asked about each participant's reading experience and reading strategies. The section began with the comparison of reading interview responses to those questions on participants' reading experience and reading process. The researchers collected each participant's questionnaire, and the interviews were tape-recorded. The length of interview for each participant was about half hour per time. The whole set of data was collected with two interviews along with a questionnaire within two months in spring semester in 2006.

Results

The researchers analysed the data collected and arrived at the following findings.

Advantages of Reading Hypertext
Both teachers and students indicated that computers transform what could be a boring reading task into a novel and dynamic adventure. Language learners would be motivated to learn and read without complaining the static presentation of text. Two teachers gave the following comments. Mai-Ru[1] perceived the traditional books to be inherently static, that is, it is impossible for readers to rearrange the structure of the printed material and further fit in their own schemata. Furthermore, in the paper documents, readers have less chance to access the illustrations,

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diagrams, tables, and other non-prose material. In contrast, the capacity of computers to animate illustrations is particularly useful. The other participant, Yu-Ting also agreed that the dynamic storybook format can encourage greater student participation and trigger learners' interests.

Another important characteristic of hypertext reading is that it can build students' schema. Mei-ru stated that the skit or episode helps students scaffold the background knowledge. Compared to reading printed papers, she stated that CD-ROM reading bridged the gap between students' known and unknown knowledge by demonstrating the authentic context that helped students comprehend more easily from the reading. She gave an example of hypertext reading that made it possible to display the virtual reality of oceans, rainforests, pyramids, volcanoes and so on through simulations of pictures, sound voice, and motion. Yu-ting's students always took advantage of unlimited repetition and representations that were real to them as well. She added that hypertext readings were interactive and also provided pathways for multiple ways of knowing and learning. Yu-ting further articulated that it would be easier to explain the foreign cultures by animation aids from CD-ROM reading. She emphasised how the CD-ROM reading could contribute to their scaffolding of cultural and conceptualised schemata. Yu-ting further explicated that multiple options such as larger print, audio and visual simulations, live motion examples and multiple branching options all enhanced the learner as new vocabulary and concepts link to the existing schema.

Reading Tools
Mei-ru further stated that readers usually have several tools such as dictionary, glossary, thesaurus, and index to help them comprehend difficult reading material. However, based on her investigation from several years of teaching experience, students prefer not to use those. She reported that her students perceived those resources as intruding on the reading task. As it takes a few minutes to look up a word in a dictionary, it interferes with the continuity of the material being read. However, she emphasised that when text was presented by computers like CD-ROM or the Internet, readers can consult the word definition, and it appears in a corner of the screen without disrupting the main text. Similarly, computers can synthesise the previous appearances of any word in the text or provide a list of commonly used synonyms. Yu-Ting also suggested several features that enhance readers' reading comprehension in regard to on-line help based on her experience of

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[1] All names have been changed to preserve anonymity. Mei-ru and Yu-ting are teacher participants.

utilising CD-ROM in her class. She pointed out that video viewing may fill readers with proper background knowledge while picture illustration can offer certain background knowledge. What is more, a reader may consult an explanation of a difficult new word by clicking the keywords devised in the form of a hypertext. These immediate aids resolved the vocabulary problems of the readers. Likewise, if readers have difficulty translating a certain passage,they can consult one other on-line help —translation. Moreover, readers have verification of their comprehension ability by using paragraph exercises that stress vocabulary, dictation and multiple choices. Besides, readers may simultaneously listen to text reading aloud, or readers may want to strengthen reading by using the repetitive function.

Individualisation
Most participants stated that the non-linear hypertext presentation allows readers to choose their own patterns of reading and enhances their reading comprehension. Mei-ru suggested her students would re-read the same passage several times and click the interesting animations to help them get the meaning across in the reading passage. The students expressed to her they did not feel bored in the class with hypertext reading any more because they can find something to interest them at different times and thus they can explore the reading more and listen to the authentic pronunciation immediately. Their needs can be met individually. Similarly, Yu-ting claimed that there are usually fifty students in one classroom. Most of the students in the elementary school cannot pay attention to their teachers in class for more than fifteen minutes. She described that the students are just like worms in the can and it is very difficult for her to control the whole class. She used to spend much time on discipline. Compared to the traditional reading instruction, she stated that she was amazed how students could concentrate on hypertext reading for a 40-minute class period. She described that she always spends twenty minutes navigating and demonstrating the main paths and content of reading and pinpointing the key ideas to students. Next, she allows students ten or fifteen minutes to explore or read intensively the passage they are interested in. From her observation of students' reading in hypertext context, she found CD-ROM's hypertext reading to cater individual's needs, allowing for individual instruction because each student would spend time reading the session s/he is not familiar. Besides, she noticed students are motivated to practise the reading exercise on the format of games in CD-ROM presentation due to the fact that it gives immediate feedback, interesting animation and interactive response. Both the participants mentioned that hypertext reading context shifts the teacher-centred classroom into a learner-centred one that cultivates students' autonomous learning and reading strategy.

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Reading Patterns in Hypertext

The student participants reported that using CD-ROM reading coursework as a supplement for the reading class was more interesting than using the paper-based reading materials. Based on the observation in their classes, the researchers synthesised their conclusions into six major patterns their students have developed in the hypertext context: (i) Skimming, (ii) Checking, (iii) Reading, (iv) Responding, (v) Studying, and (vi) Reviewing. One of the teachers described that after the students went through the schemata building stage for 10-15 minutes, she would instill orientations of navigating and hypertext reading skills into students. After the orientation, she noticed the students usually skim the text at a very rapid pace. Next, the students would systematically scroll through the text and check out the interesting portions. Furthermore, the students would read through the text carefully. After that, the students would look up interactive resources such as on-line aids and practice the exercise such as puzzles or multiple choices. Moreover, the students would study the text again and use the resources in an integrated manner. At last, they reviewed the text or the parts unfamiliar to them and revisited the resources.

Limitations of Hypertext Reading

In these two interviews, both the teacher and student interviewees admitted that there are still some limitations worth teachers' considerations in hypertext reading. Similarly, both the interviewees agree the availability of multimedia classroom in public schools is very limited. Traditionally, reading classes were offered in normal classrooms. Furthermore, Mei-ru indicated that due to the fact that computerised presentation text cannot allow students to jot down their notes or to highlight on their textbooks, students tended to forget easily what they have already learned in the hypertext reading. She further explained she would prepare the printed papers with the same passage or article for students so that they could write down the explanations or what they have learned from the hypertext context. From a different perspective, Yu-ting declared that her students sometimes experienced disorientation in hypertext reading. She thought it was necessary for the teacher to orient the students several times before they become familiar with the hypertext reading context.

Conclusion

Based on the participants' perceptions, the hypertext reading context is found beneficial for readers to enhance their reading comprehension in many ways. The advent of hypertext, a combination of both linear and non-linear text, opens new dimensions for readers. Readers of electronic hypertext are not bound to the limita-

tions of traditional linear text. They can easily navigate complex documents in a variety of ways, visiting any portion of the material in any order. Furthermore, electronic links can be used to access numerous resources designed to enhance document comprehension and appreciation. Similarly, authors of hypertext are not bound to the linear presentation of text. They can create documents with multiple sequences, each presenting an alternative representation of a complex idea. Being designed to be read multiple times, hypertext documents can provide readers with enhanced environments for reading.

Furthermore, with computerised presentation, students can read their target language at their own comfortable and flexible pace and interact immediately and continually because it provides immediate feedback or animated images and thus contributes to reading comprehension. Additionally, teachers can utilise the computer coursework to enrich or supplement the basic instructions to create an optimal learning environment to facilitate learners' reading comprehension. In order to best make use of CD-ROM in reading class, teachers need to supplement paper prints for students' references.

Implications and Suggestions

One implication derived from this study is the consideration of suitability of a reading material. In order to motivate readers' reading interests, the selection of a reading material is undoubtedly of great significance. Factors such as interest and needs of readers of a reading material deserve a teacher's attention in selecting reading material for readers.

Another point on EFL readers is the lack of target cultural knowledge. Although it was not significant in this study, it is claimed by Carrel and Eisterhold (1988) that reading should strive for a balance between background knowledge and the text itself. In contrast to Ho's (2000) and Lin's study (2003), we might say that cultural knowledge was not a big issue among technical college students. As a matter of fact, most technical college students need more vocabulary to be able to read English materials. As a result, teachers should provide readers more comprehensive materials, giving them accessible cultural information for better understanding. Reading activities should centre on the purpose of building new schemata and activate readers' existing ones.

This study identified EFL college freshmen's reading process in English materials. Though most of the reading problems have been disclosed, the investigation of reading still offers fertile areas for researchers to explore further from different

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perspectives. The following suggestions were provided by each participant on the basis of this study:

a. Reading materials have to be interesting, comprehensible, and authentic.
b. Reading materials have their purposes, such as for entertainment or for real world use.
c. Reading materials should contain text and pictures, be colourful and interactive.
d. Reading materials should provide detailed explanation and serve as useful reference for readers.

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APPENDIX

Burke Reading Inventory

Reading Interview

1. When you are reading and you come to something you don't know, what do you do? Do you ever do anything else?

2. Do you think that (ask teacher's name) is a good reader? Or who is a good reader?

3. What makes him/her a good reader?

4. Do you think that she/he ever comes to something she/he doesn't know? What do you think she/he does about it?

5. YES - When she/he does come to something she/he doesn't know, what do you think she/he does about it?

    NO - Suppose/pretend that she/he does come to something that she/he doesn't know, what do you think she/he does about it?

6. If you knew that someone was having difficulty reading, how would you help them?

7. What would a/your teacher do to help that person?

8. How did you learn to read? What did they/you do to help you learn?

9. What would you like to do better as a reader?

10. Do you think that you are a good reader?