

Paper and Screen: Reading Strategies Used by Low-Proficient EFL Learners

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In the age of Information technology, online learning environment and its visual and audio applications require new literacy for learners and educators. According to this new literacy perspective, reading comprehension becomes an important issue to study (Cairo, 2003). The present study investigates metacognitive reading strategies used by low-proficient EFL (English as a Foreign Language) learners while reading paper-based documents and hypertext documents for general comprehension. The author of the paper tries to find whether these strategies are essentially different from each other. Data were collected from 32 students through SORS (Survey of Reading Strategies) and OSORS (Online Survey of Reading Strategies) questionnaires and from five students through think-aloud protocol. The result indicates that some of the metacognitive reading strategies observed in hypertext reading are similar to those used in paper-based reading such as “using reference materials” and “translating from English to Turkish”. However, there are few new emerging strategies while some of them are not observed in paper-based reading.

Keywords: metacognitive reading strategies, hypertext reading, online reading

Introduction

Since the 1970s, the importance of second language reading has been broadly recognized and the use of reading strategies have been the focus of successful reading comprehension despite the complex nature of reading process in the second language reading research (Bernhardt, 2005; Grabe, 2004). Additionally, various studies have been focused on understanding what proficient learners do while reading, including defining the strategies they use and how they use them (Sheorey & Mokhtari, 2001).

Although reading literature has conducted many studies about effective reading strategies to help students to read more productively (e.g., Anderson, 1991; Cohen, 1998; Zhang & Wu, 2009; Ozek & Civelek, 2006; Mohamed, Chew, & Kabilan, 2006; Sheorey & Mokhtari, 2001), few studies have been carried out on second language online reading strategies (Akyel & Ercetin, 2009; Anderson 2003; Konishi, 2003; Protopsaltis, 2008; Cairo & Dobler, 2007; Huang, Chern, & Lin, 2009). The most important finding arose from these studies is that students actively employ strategies to accomplish their language learning goals (Anderson, 2003).

During the past decades, computer technologies and multimedia tools have been integrated in educational settings in a very short time. Current literature has shown that information and communication technologies such as the Internet, email, wikis and online learning environments, have become more and more popular for learners

and educators, due to its multiple applications such as visual and audio representations (Hsieh & Dwyer, 2009). Additionally, these new applications require new literacies and have become important new context for literacy. According to this new literacies perspective, reading comprehension becomes an important issue to study (Cairo, 2003). Literature has been focused on reading hypertext and reading strategies that used in comprehending hypertext for two decades. Electronic documents and hypertext provide new text formats to reading and new ways to interact with information that can cause difficulties to readers taught to extract meaning from traditional paper-based documents (Cairo, 2003; Protopsaltis, 2008).

Chun (2001) defined hypertext as “Basically the same as regular text it can be stored, read, searched, or edited but with an important exception hypertext contains connections within the text to other documents or locations and allows for non-sequential reading” (p. 369). Since the reader is involved in a constant decision making process and the sources of information, use of strategies is especially important in reading hypertext documents. Moreover, hypertext document combined with audio or video may involve different strategic processing (Leu & Reinking, 1996, as cited in Akyel & Ercetin, 2009). Thus, Akyel and Ercetin (2009) stated that “Readers may transfer their print-based reading skills to hypermedia reading but they will also need to use additional strategies characterized by the features of environment” (p. 137).

Urquhart and Weir (1998) defined strategy as “Strategies represent conscious decisions taken by the reader” (p. 97). Anderson (2003) pointed out that strategies need active involvement of the second language learners in their selection and use. Reading strategies are divided into two categories: cognitive strategies and metacognitive strategies. Williams and Burden (1997) stated that “Cognitive strategies are seen as mental processes directly concerned with the processing information in order to learn, that is for obtaining, storage, retrieval or use of information” (p. 148). Cognitive strategies involves note taking, summarizing, paraphrasing, predicting, analyzing and using context clues (Singhal, 2001). On the other hand, metacognitive strategies are the strategies that function to monitor or regulate cognitive strategies. It involves thinking about the learning process, planning for learning, monitoring of comprehension or production while it is taking place, and self evaluation of learning after the language activity is completed (Skehan, 1993, p. 87, as cited in Ozek & Civelek, 2006). Strategies themselves are not inherently good or bad, but they have the potential to be used effectively (Williams & Burden, 1997). These strategies are used by the learners to enhance reading comprehension and overcome comprehension failures (Singhal, 2001).

Therefore, the aim of the present study is to investigate metacognitive reading strategies used by low-proficient EFL (English as a Foreign Language) learners while reading paper-based documents and hypertext documents for general comprehension. The author of the paper tries to find whether these strategies are essentially different from each other. The SORS (Survey of Reading Strategies) questionnaires from Mokhtari and Sheorey (2002), and the adapted OSORS (Online Survey of Reading Strategies) questionnaires from Anderson (2003), and think-aloud protocols are the main sources of data collection method for this study.

Literature Review

There are several studies that focused on the differences in reading strategy use among learners of different language proficiency levels in ESL (English as a Second Language) and EFL context. For example, Anderson (1991) conducted a study in order to investigate differences in strategy use by adult second language learners. Participants' proficiency level was assessed by a placement test ranged from beginning to advanced level. Based

on the result of both quantitative and qualitative data, the researcher found that there was no single set of processing strategies that significantly contributed to success on reading measures. The data showed that both high and low proficient subjects appeared to be using the same kinds of strategies while answering the comprehension questions on measures. On the other hand, the data revealed that high proficient level readers applied reading strategies more effectively and appropriately. According to the author, the study indicates that strategic reading is not only a matter of knowing which strategies to use, but the reader must know how to apply them successfully.

Another study that reveals the difference in reading strategy using among different levels of students belongs to Ozek and Civelek (2006). The purpose of this study was to find out which reading strategies are generally used by ELT (English Language Teaching) students while reading a text, and which reading strategies are need to be developed to understand the text better. First and 4th year students in ELT department were the participants of the research. A self-report questionnaire and think-aloud protocol were the main sources of data collection method. The researchers evaluated reading strategies under three headings for this study: pre-reading, while-reading and post-reading strategies. Analysis of both quantitative and qualitative data revealed that there were some significant differences on the effective use of cognitive reading strategies with regard to students' gender, age and proficiency in reading, school source and duration in learning English. The result of the study shows that for pre-reading strategies, high-proficient level subjects significantly used pictures and illustration and skimmed better than low-proficient learners. For while-reading strategies, the data revealed that proficient readers were more successful than low-proficient group in guessing the meaning of a word, skipping words, not translating word for word, visualizing events, and guessing the assimilating the text. Finally, for post-reading strategies, the author found that the excellent subjects were better than the poor ones in summarizing the main ideas.

Another important research that studied on differences of reading strategies belongs to Sheorey and Mokhtari (2001). The authors examined the differences in the reported use of reading strategies of native (L1 (first language)) and non-native (L2 (second language)) English speakers when reading academic materials. For this study, the SORS questionnaire was administered to US and ESL students. The result revealed that students reading ability was related to their awareness and use of reading strategies while reading. In both group, proficient L1 and L2 readers showed higher degrees of metacognitive awareness than non-proficient readers.

Moreover, some studies focused on metacognitive aspects on reading strategy use. These studies demonstrate that successful readers show a higher degree of metacognitive awareness, which enables them to use reading strategies more efficiently than unsuccessful readers (Zhang & Wu, 2009). For example, Carrell (1989) conducted a study to investigate the metacognitive awareness of L2 readers about reading strategies in both their L1 and L2. A metacognitive questionnaire was developed and administered to two groups of subjects of varying proficiency levels. Result of the data revealed that, for reading L2, some differences between Spanish L1 and the English L1 were determined. The ESL group (proficient level) tended to be more global or top-down in their perceptions of effective and difficulty-causing reading strategies. On the other hand, the Spanish (foreign language and lower proficiency level) tended to be more bottom-up.

Contrary to research into L2 paper-based reading strategies, few studies have been conducted for exploring online reading strategies. These studies explores three issues in L2: comparing paper and online reading strategies—the one used in this study—examining EFL/ESL learners' online reading strategies and examining

the effectiveness of strategy use in online environment. Many of these studies revealed that readers transfer their reading strategies that they have from one medium to another (Huang et al., 2009).

With regard to quantitative analysis, Anderson (2003) investigated EFL and ESL learners' online metacognitive reading strategies through an OSORS which involves global reading strategies, problem-solving strategies and support strategies. Anderson (2003) found that problem solving strategies such as rereading, reading slowly and carefully or visualizing information were reported most frequently, however, it was revealed that support reading strategies were identified as least frequently.

Another important study that examined online reading strategies belongs to Akyel and Ercetin (2009). This research investigated reading strategies while reading a hypermedia document. The researchers tried to find out whether these strategies are different from those reading strategies for printed text. Additionally, the researchers investigated the role of prior knowledge in relation to strategy use. Data were collected from 10 advanced EFL students through think-aloud protocols. Akyel and Ercetin (2009) found that processing strategies used in hypermedia reading were not essentially different from those seen for paper-based text. However, some strategies used in print text may not be essential for processing of hypertext. In addition, the study reveals that students with high prior knowledge used certain cognitive and metacognitive strategies more frequently than learners with low-prior knowledge.

In another study, Konishi (2003) investigated online reading strategies employed by Japanese ESL students while reading online texts on the Web. Data were collected through think-aloud protocol. This research investigated whether reading strategies used by learners in reading paper-based document could be applied to reading hypertext document on the Web. The researcher found that both local strategies such as commenting on the meaning of the word, pronunciation or grammatical interpretation and global strategies such as making inferences and utilizing background knowledge were used in tasks. Additionally, all participants monitored their comprehension and revised their strategies accordingly.

Huang et al. (2009) tried to identify online reading strategies used by EFL learners and they investigated the effects of strategy use on comprehension. Data were collected from 30 EFL students divided into high- and low-proficient level through four authentic online texts and students completed a written recall. Results from data analysis showed that, students used support strategies such as translating, using dictionaries or highlighting much more often than any other strategies. Moreover, the use of global strategies significantly contributed to better comprehension for low-proficient students.

Research Questions

The present study aims to investigate the following questions: (1) What metacognitive strategies used in paper-based document are also employed by low-proficient EFL learners in reading a hypertext document for general comprehension? (2) Do low-proficient EFL learners use new strategies in reading a hypertext document for general comprehension?

Method

Participants and Setting

This study was conducted in an English preparatory school in a state university, in Istanbul, Turkey.

Thirty-two EFL learners who were between the ages of 18 and 21 enrolled in the English preparatory school were asked to participate in this study. All of the students were involved as volunteer participants in the study. All students were identified as low-proficient learners of English because they were attended pre-intermediate level class during the present research. Moreover, all of the students reported that they used computers for email, word processing and surfing the Internet.

Participants have been in reading course for four hours in a week. In this course, two different course books, which supported reading skill, were used. These materials were also supported by online reading texts, which were assigned as homework to the students in every week.

Instruments and Procedure

The SORS, developed by Mokhtari and Sheorey (2002), was administered to these 32 participants to determine their metacognitive reading strategies while reading paper-based school related material. The SORS was based on a separate metacognitive reading strategy survey developed for native speakers on English, the MARS (Metacognitive-Awareness-of-Reading-Strategies Inventory). Mokhtari and Sheorey (2002) reported reliability for the MARS but not for the SORS. The internal consistency reliability coefficients (as determined by Cronbach's alpha) for MARS are: Metacognitive, 0.92; Cognitive, 0.79; Support strategies, 0.87; and Overall, 0.93 (Sheorey & Mokhtari, 2001). The SORS survey involves 30 items measuring three broad categories of reading strategies: global reading strategies (13 items), problem-solving strategies (eight items) and support strategies (nine items). Global reading strategies are the intentional and carefully planned techniques by which learners monitor or manage their reading. Problem-solving strategies are the localized and focused techniques used when problems develop in understanding textual information. Support strategies are the basic support mechanisms intended to aid the reader in comprehending the text. A five-point Likert scale following each item indicates the frequency of strategy use ranging from 1 (never do) and 5 (always do) Mokhtari and Sheorey (2002).

The second instrument used for data collection was the OSORS. This questionnaire was adapted by Anderson (2003) from the SORS questionnaire developed by Mokhtari and Sheorey (2002). OSORS was administered to 32 participants to determine their metacognitive reading strategies while reading hypertext documents. A total of 38 items were included on this questionnaire. The same three categories were maintained global reading strategies (18 items; 5 items were added), problem-solving strategies (11 items; 3 items were added), and support strategies (9 items). As mentioned in the SORS, a five-point Likert scale following each item indicates the frequency of strategy use ranging from 1 (never do) and 5 (always do) were maintained in the OSORS. Both SORS and OSORS were translated into Turkish by two researchers and administered in Turkish.

The SORS was administered at the beginning of November 2009, and the OSORS was administered to the participants six weeks later—mid-December 2009. In this six-week period, students were assigned six online reading documents, one document for each week, in order to familiarize the participants with hypertext. Each hypertext document was discussed in the classroom environment in the following week. After completing all hypertext assignments, students were administered OSORS.

Think-aloud protocol was used as another data collection instrument to analyze online reading strategies in the present study. Three volunteer students of 32 subjects who were already participated in SORS and OSORS

questionnaires were recruited for hypertext document reading in the present study.

A hypertext document reading, which was about “Bull Shark”, was available at <http://kids.nationalgeographic.com/Animals/CreatureFeature/Bull-shark>, for determining online reading strategies through think-aloud protocol. This site provided 11 small hypertexts, which was navigated by arrows, and amazing pictures about “Bull Shark”. These arrows helped students to go back and forward on the hypertext.

One week after administering OSORS, think-aloud sessions were started. In think-aloud protocol, each participant was met individually by two researchers for a one hour session. All sessions were tape recorded. Since students were low-proficient learners, all participants chose to speak Turkish, their native language. The researchers provided an orientation session to familiarize the students with think-aloud protocol. After receiving instruction on how to think aloud and seeing a sample by the researchers, they practice thinking aloud for a while with a similar reading task.

Data Analysis

The quantitative scores of both SORS and OSORS questionnaires were analyzed by SPSS (Statistical Package for the Social Sciences) 16.0 version. In order to identify the average scores and frequency distributions of the participants’ responses to the items in the SORS and OSORS questionnaires, descriptive statistics was used and the results were shown in tables. Furthermore, content analysis technique was used to analyze qualitative data obtained from think-aloud protocol. Qualitative think-aloud data were translated into English. The data were also transcribed and divided into segments based on cognitive and metacognitive reading strategies by two researchers.

Result

The overall average scores for the SORS and OSORS indicate how often subjects use all strategies in the instrument while reading paper-based text and hypertext (see Tables 1 and 3). Three levels of usage are identified: high (average score of 3.5 or higher), moderate (average score of 2.50 to 3.49), and low (average score of 2.49 or lower) (Mokhtari & Sheorey, 2002).

The statistical analysis of SORS questionnaire, which revealed how often low-proficient subjects use all strategies while reading paper-based text, showed that 13 of the 30 strategies (43%) fell in the high usage group (mean of 3.5 or above), 16 strategies (53%) had means between 2.50 and 3.49, indicating medium usage of these strategies, and only one strategy (4%) in the survey was reported to be used with low frequency (mean values below 2.4) (see Table 1). This means that majority of the respondents display high and moderate awareness of metacognitive paper-based reading strategies.

Based on the mean scores of SORS, the most and the least used paper-based reading strategies are listed in Table 2. According to the table, the most used paper-based reading strategies by low-proficient learners are “translating from English to Turkish” as support strategy, “trying to get back on track” and “rereading” as problem solving strategy. Additionally, three out of five top strategies are problem-solving strategies and two out of five top strategies are support reading strategies. On the other hand, “reading aloud” was identified the least used reading strategy. Moreover, four out of five bottom strategies are support strategies.

Table 1

Frequency of Paper-Based Reading Strategies Used the Most and the Least

Strategy	Mean	SD
SUP	4.09	1.07
PROB	4.03	0.92
PROB	3.94	0.97
SUP	3.88	1.22
PROB	3.84	1.06
PROB	3.72	1.07
GLOB	3.72	1.12
GLOB	3.72	1.07
PROB	3.72	0.94
GLOB	3.66	1.08
GLOB	3.66	1.08
PROB	3.63	0.93
GLOB	3.53	1.12
PROB	3.44	1.03
PROB	3.38	0.89
GLOB	3.38	0.96
GLOB	3.38	0.96
SUP	3.34	1.43
GLOB	3.31	1.26
GLOB	3.25	1.12
GLOB	3.19	1.07
SUP	3.19	1.24
GLOB	3.13	1.11
SUP	3.09	1.28
GLOB	3.06	1.30
SUP	3.00	1.30
SUP	2.97	1.31
SUP	2.88	1.29
GLOB	2.88	1.45
SUP	2.44	1.22

Table 2

Paper-Based Reading Strategies

Top five paper-based reading strategies	Bottom five paper-based reading strategies
1. When reading, I translate from English into my native language. (support)	1. When reading, I think about information in both English and my mother tongue. (support)
2. I try to get back on track when I lose concentration. (problem solving)	2. I ask myself questions I like to have answered in the text. (support)
3. When text becomes difficult, I reread it to increase my understanding. (problem solving)	3. I paraphrase to better understand what I read. (support)
4. I use reference materials to help me understand what I read. (support)	4. I critically analyze and evaluate the information presented in the text. (global)
5. When text becomes difficult, I pay closer attention to what I am reading. (problem solving)	5. When text becomes difficult, I read aloud to help me understand what I read. (support)

The statistical analysis of OSORS questionnaire, which revealed how often low-proficient subjects use all strategies while reading hypertext, indicated that only five of 38 strategies (13%) fell in the high usage group

(mean of 3.5 or above), 27 strategies (71%) had means between 2.50 and 3.49, indicating medium usage of these strategies, and six strategies (16%) in the survey were reported to be used with low frequency (mean values below 2.4) (see Table 3). This means that majority of the respondents display a moderate awareness of metacognitive online reading strategies. Therefore, in general, the respondents can be categorized as moderate strategy-users.

Table 3

Frequency of Hypertext Reading Strategies Used the Most and the Least

Strategy	Mean	SD
SUP	4.03	1.29
PROB	3.91	1.07
GLOB	3.66	1.43
PROB	3.59	1.25
GLOB	3.50	1.30
PROB	3.44	1.30
PROB	3.38	1.27
PROB	3.38	1.11
PROB	3.34	1.31
PROB	3.31	1.31
PROB	3.31	1.18
SUP	3.16	1.39
GLOB	3.16	1.30
GLOB	3.09	1.21
PROB	3.09	1.38
GLOB	3.06	1.22
PROB	3.06	1.12
GLOB	3.03	1.45
GLOB	3.00	1.30
GLOB	2.94	1.25
GLOB	2.88	1.32
GLOB	2.84	1.12
SUP	2.84	1.28
SUP	2.84	1.42
GLOB	2.75	1.15
GLOB	2.72	1.23
PROB	2.72	1.23
GLOB	2.69	1.21
GLOB	2.53	1.17
PROB	2.53	1.09
SUP	2.50	1.12
GLOB	2.50	0.97
SUP	2.47	1.20
SUP	2.41	1.20
SUP	2.28	1.48
GLOB	2.19	1.33
GLOB	2.16	1.15
GLOB	1.91	1.16

Based on the mean scores of OSORS, the most and the least used hypertext reading strategies are listed in Table 4. According to Table 4, the most used online reading strategies by low-proficient learners are “using reference materials” as a support strategy, “reading slowly and carefully” as problem solving strategy and “having a purpose in mind while reading” as global strategy. On the other hand, “using typographical features like bold face and italics” was indicated as the least used online reading strategies by low-proficient readers in the OSORS.

Table 4

Hypertext Reading Strategies

Top five hypertext reading strategies	Bottom five hypertext reading strategies
1. I use reference materials to help me understand what I read. (support)	1. When text becomes difficult, I read aloud to help me understand what I read. (support)
2. I read slowly and carefully to make sure I understand what I am reading online. (problem solving)	2. I print out a hardcopy of the online text then underline or circle information to help me remember it. (support)
3. I have a purpose in mind when I read online. (global)	3. I participate in live chat with other learners of English. (global)
4. When reading online, I translate from English into my native language. (support)	4. I participate in live chat with native speakers of English. (global)
5. I use tables, figures, and pictures in the online text to increase my understanding. (global)	5. I use typographical features like bold face and italics to identify key information. (global)

According to the analysis of think-aloud protocol, several similar results supported to the quantitative analysis of the OSORS survey. First, “translating from English to Turkish” and “using reference materials such as dictionary” were the most used metacognitive reading strategies for reading hypertext. The result of think-aloud protocol in the present study supported these findings too. Here are the quotations from the participants who translated the text and used reference materials as support strategy (see Examples 1-2).

Example (1) “Shark means ‘kopekbaligi’ in Turkish, doesn’t it?” (translating)

(2) “I do not know what ‘prey’ means. I would like to look it up in a dictionary.” (using reference)

Secondly, in addition to OSORS, few different findings were revealed that low-proficient EFL learners also employed different reading strategies while reading online reading documents. These were using background knowledge, monitoring of not understanding, and goal setting for skimming. Following quotations from the students illustrated their standpoint (see Examples 3-8).

Example (3) “We read something about sharks in our reading class before.” (using background knowledge)

(4) “I remember that I watched a documentary about this kind of shark.” (using background knowledge)

(5) “I don’t understand this. I don’t know what does it mean. Let me reread it again.” (monitoring of not understanding)

(6) “I am not familiar with these words. How will I understand this text without knowing the meaning of the words.” (monitoring of not understanding)

(7) “I think I am going to read something about sharks.” (goal setting for skimming)

(8) “I understand what this text is about. I will read a text about sharks.” (goal setting for skimming)

Discussion

According to Table 4, the most used online reading strategy by low-proficient learners is “using reference

materials” as a support strategy. The participants in SORS also mentioned this strategy as the most used paper-based reading strategy. Moreover, “translating from English to Turkish” was again mentioned as the most frequently used reading strategy in both paper-based and hypertext reading. Therefore, for the first research question, the results showed that “using reference materials” and “translating from English to Turkish” (support reading strategies), which were used in paper-based reading, were also employed by learners in reading hypertext document for general comprehension.

One of the differences between SORS and OSORS was, although two global reading strategies—“having a purpose in the mind” and “using tables, figures and pictures”—were indicated as the most used strategies in OSORS, none of the global reading strategy was mentioned as the most used one in the SORS. Besides, “reading aloud” was mentioned as the least used support reading strategies in both SORS and OSORS.

For the second research question, both quantitative and qualitative data indicated that low-proficient learners used new metacognitive reading strategies such as reading slowly and carefully, having purpose in the mind, using tables, figures and pictures, using background knowledge, monitoring of not understanding, and goal setting for skimming while reading hypertext documents. Most of the metacognitive reading strategies observed in hypertext reading were similar to those used in literature. However, there were few new emerging strategies while some of them were not observed in other studies.

First, although “reading aloud” was used as the least used hypertext reading strategies in the present study, Anderson (2003) and Zhang and Wu (2009), it was preferred as the most used strategy in Hua and Lai’s (2009) study. Secondly, although “using reference materials” was determined as the most preferred strategy in the present study, in Anderson’s (2003) study it was used as the least one in hypertext reading. Thirdly, “reading slowly” and “translating from English to Turkish” were preferred as the most used metacognitive reading strategies while reading a hypertext in the present study and Hua and Lai (2009). On the other hand, “having a print out hardcopy of the hypertext” and “participating in live chat with other learners of English and native speakers” were determined as the least used hypertext reading strategies in the present study and in Anderson (2003) and Hua and Lai (2009).

Conclusions

The present study investigates metacognitive reading strategies used by low-proficient EFL learners while reading paper-based documents and hypertext documents for general comprehension. The author of the paper tries to find whether these strategies are essentially different from each other. The findings of this study indicates that some of the metacognitive reading strategies observed in hypertext reading are similar to those used in paper-based reading. For example, “using reference materials” and “translating from English to Turkish”. However, there are few new emerging strategies while some of them are not observed in paper-based reading. For example, these are “reading slowly and carefully, having purpose in the mind, using tables, figures and pictures, using background knowledge, monitoring of not understanding, and goal setting for skimming” while reading hypertext documents.

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