The effect of using hypertext materials on reading comprehension ability of EFL learners

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Abstract

One of the significant advantages that internet technology offers to English language learners is the abundance of hypertext materials where unfamiliar and ambiguous concepts can be followed through the hyperlinks. This study aimed at investigating the effectiveness of using hypertext materials on reading comprehension ability of learners as compared to the normally written materials. A total of 49 Iranian EFL learners were randomly assigned to two experimental and control groups. The homogeneity of the group was confirmed based on their scores on a proficiency test. The experimental group worked with hypertext materials, while the control group was provided with and taught through normally written materials for four weeks. The TOEFL reading comprehension test was given to both groups as the post-test. The findings indicated that participants in the experimental group assumed more gain in reading comprehension ability as a result of working with hypertext materials as compared to non-digital materials. It is suggested that the result of this study, therefore, might be used by language teachers who are interested in integrating internet technology in language teaching.

Keywords: Internet-based instruction, reading comprehension, hypertext materials, digital materials

1. Introduction

Recently, computers and Internet have become so widespread in schools and homes and their uses have expanded so dramatically that the majority of language teachers must now begin to think about the implications of computers for language learning (Chapelle, 2002). Although Computer-Assisted Language Learning (CALL) has developed gradually over the last 40 years, this development can be viewed in terms of three somewhat distinct phases which Warschauer (1996) refers to as behaviouristic, communicative, and integrative CALL.

In behaviouristic CALL, main frame computers were used as tutors for extensive drills, explicit grammar instruction and translation tests. In this phase, the majority of CALL functions revolved around repetitive language drills known as the drill-and-practice method (Lee, 2007). In communicative CALL, on the other hand, the main frame was replaced by personal computers, this form of computer-based instruction corresponded to cognitive theories. Communicative CALL used software systems with programs focusing on simulations and applied uses of the forms of a new language (Lee, 2007).

A more sophisticated use of computer was introduced through Integrative CALL. It changed the role of the computer from a tutor, stimulator or information processor to a tool for interactional communication with extensive
multimedia use and much more use of the Internet (Browne & Fotos, 2004).

A variety of approaches was introduced to take the best advantage of integrative CALL and the Internet technology. However, as a general advice, Warschauer and Whittaker (1997, p. 1) proposed five guidelines to help teachers in the implementation of the Internet in EFL/ESL classrooms: 1) Consider your goals carefully, 2) Think integratively, 3) Do not underestimate the complexity, 4) Provide necessary support, and 5) Involve students in decisions.

One area of language learning for which rich resources can be found on the Internet, is reading comprehension. Reading is a source of learning and a source of enjoyment. It provides important opportunities for second language (L2) development (Day & Bamford, 1998). However, sources of L2 input are often limited for learners in EFL setting especially in Iranian language learning system. Other factors influencing the reading comprehension achievement might be due to environmental constraints such as students’ diversity in reading abilities, the socio-economic gap between urban and rural students, class size, time constraints, and available resources such as audio-visual materials and more recently Internet resources usage in classroom which are highly important in student motivation and achievement.

The Internet resources, according to Godwin-Jones (1998), can solve these problems. It can be used as a supplement to, and improvement of, traditional EFL teaching. It provides native speakers’ voice and motion picture which are interesting and learners work with it enthusiastically.

Although extensively welcomed by teachers and institutions and despite all constructive and distinctive characteristics of the Internet, some disadvantages of using the Internet in the field of education should also be taken into consideration. According to Chafe (1999, as cited in Cosgun & Gamze, 2009), the enormous quantity of information found on the Internet makes learners confused when they try to find specific information, it may not be easy to obtain the explicit information while searching for the required topic. When the information has been obtained, learners may not be able to analyses it critically or make assumption whether the information is suitable, reliable, or valuable for them to use (Wood, 2004). Learners may start using the Internet unconsciously without being equipped with the skills for searching on the Internet. So teaching the Internet skills and refreshing those skills throughout the courses are included into the related courses (O’Hanlon, 2002). Another drawback is the lack of accessibility to the Internet all over the world due to the technical and financial problems, such as long waiting time to access information and costs related to the acquisition of computers, programmers, training, telephone lines and other expenses. One more problem is the incapability in using the Internet on the part of both teachers and learners that can lead to frustration, instead of offering motivating learning experience. Moreover the multimedia feasibilities in education institution may not be provided due to the costs. The other and most striking disadvantage of the Internet is that the Internet is available for ready materials; that means learners mostly use these resources in the course for their tasks instead of creating their own products. For instance, learners may prefer using the prepared coursework as their own products or reading the summaries of any novel or critical writings on the book instead of reading the whole book. This may be judged as intentional or unintentional plagiarism.

If the use of Internet is found feasible taking the disadvantages into account, and if the students take the necessary training for an effective employment of the resources, the role of the Internet can be a contribution to the language teaching enterprise. As this study is limited to the use of hypertext materials, they are characterized in the following lines. The internal language of the web, that which holds it together, is hypertext. Since the 1980s there has been an increased focus on reading and learning from hypertext (Shapiro & Niederhauser, 2004). The original concept for hypertext was proposed by Vannevar Bush. Bush (1991) wrote the article about the problem of organizing vast amounts of information. During the 1940s, the growing numbers of published articles made it impossible for scientists to follow developments in an individual discipline. To solve this problem, Bush (1991) introduced Memex or Memory extender. “A memex is a device in which an individual stores his books, records, and communications, and is mechanized so that it may be consulted with exceeding speed and flexibility” (p. 102). In the 1960s, Theodore Nelson coined the term “hypertext” to describe non-linear reading and writing displayed on a computer screen. Nelson (1992) defined non-linear reading as a text that branches and allows the reader to pick and choose blocks of text by interacting with a computer. The most significant feature of hypertext is its non-linear organization in presenting information. It has been argued that hypertext is distinguished by the richness and depth of the information it provides through nodes or chunks of information that are linked together (Preece, 1993). According to Bolter (1996, as cited in Akyel & Ercetin, 2009), hypertext is “flexible” because the reader can choose
his/her own path and “fluid” because the order of presentation of the pages is not fixed but determined according to the decisions made by the reader. Therefore, the order is unstable and unpredictable, which gives the reader control over his/her reading process. Such active engagement in the reading process leads to deeper processing of information (Patterson, 2000). However, it should be noted that it is possible to encounter hypertexts that are hard to distinguish from traditional texts that are organized with many non-linear characteristics such as visuals or footnotes. Moreover, flexibility and control are only possible within the limits of available links and nodes since their structures are determined by the author (Shapiro & Niederhauser, 2004).

Hypermedia, on the other hand, according to Dillon and Jobst (2005, as cited in Akyel & Ercetin, 2009), incorporates multimedia features into linked texts and presents information in multiple forms of media such as texts, pictures, graphics, audio, video, and animation. Hypermedia provides a number of advantages for language learning. First of all, a more authentic learning environment is created, because listening is combined with seeing; just like in the real world. Secondly, skills are easily integrated, because the variety of media makes it natural to combine reading, writing, speaking, and listening in a single activity. Third, students have great control over their learning, because they can not only go at their own pace but even on their own individual path. Finally a major advantage of hypermedia is that it facilitates a principle focus on the content, without sacrificing a secondary focus on language form or learning strategies. However, the terms hypertext and hypermedia are often used interchangeably.

Hence, the purpose of this study is to investigate the impact of the Internet on the reading comprehension ability of Iranian EFL learners. More specifically, this study sets out investigate the effect of using non-linear hypertext materials on the reading ability of Iranian students.

2. Method

The freshman students of ELT program in BA level who were spending 4-credit Reading Comprehension I course were selected for the purpose of this study. Their homogeneity was already determined through a nationally administered English Language Proficiency test. A total of 49 male and female students was assigned to two groups; experimental and control. An orientation session was held where instruction on how to operate on computers and work with the hypertext materials. They were given information about how to access the Wikipedia pages on the Internet and use of online dictionaries. The treatment started for both groups at the same time and lasted for six weeks, totaling 24 hours. The reading materials were the same for both the experimental and control groups, but they were treated in two different ways.

The experimental group received EFL reading instruction through Internet by using non-linear hypertexts (Wikipedia texts). For each session a text from Wikipedia was chosen. Before learners were required to read the text, they received some information about the selected topics. Then they were asked to read each part of the text within the time constraint announced by the teacher matched to the length of each part. During the reading, the experimental group learners had the opportunity to follow hyperlinked words and phrases that contained definitions and further prose and pictorial explanations besides normal access to other resources like the control group. The connection was a high-speed one and the materials were selected in a way that all supposedly ambiguous words and concepts were hyperlinked. After reading each part of the text, learners were required to answer the comprehension questions developed by the teacher. These comprehension questions were only for instructional purposes and the data related to the reading materials of the treatment were not gathered. If learners had questions, they could ask and discuss them with the teacher and their classmates.

In the control group, however, the procedures were followed according to traditional practices. The printed version of the same reading materials (Wikipedia texts) was used. The placebo included reading the passage and translating some sentences by teacher or students. Desktop dictionary was used to find the definition of the new words. At the end, they were asked to answer the comprehension questions of the text which was not graded. After six weeks of treatment, learners in both groups were given a 10-passage TOEFL reading comprehension test as a post-test that was identical in theme to the materials given to both groups during the treatment sessions. Each passage had 10 questions which made 100 items with each weighing 1 for the final score. Through this test, the difference between the performance of learners who were taught through hyper-text materials and that of those who
were taught via traditional method was investigated.

3. Results and discussion

The test was scored and the scores were examined which produced the following descriptive statistics as appear in Table 1, below.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>24</td>
<td>76.3500</td>
<td>7.78812</td>
<td>1.58974</td>
</tr>
<tr>
<td>Control</td>
<td>25</td>
<td>61.8200</td>
<td>9.31634</td>
<td>1.86327</td>
</tr>
</tbody>
</table>

The data was then analyzed through the independent sample t-test procedure, the results of which appear in Table 2, below.

<table>
<thead>
<tr>
<th>Levene's Test</th>
<th>t-test for Equality of Means</th>
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<tbody>
<tr>
<td></td>
<td>F</td>
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<tr>
<td>Posttest</td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.350</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>5.932</td>
</tr>
</tbody>
</table>

As can be seen in Table 2, the difference between the two groups was found to be significantly different which shows that the experimental group had an advantage due to the use of hyperlinked materials.

The obtained results of current study are comparable to those of previous studies. The findings of this study confirmed the findings obtained by some previously done research studies (e.g., Huang & Pan, 2009; Lan, Sung, & Chung, 2006; Simsek, 2008). Simsek (2008) investigated the students’ attitudes toward integrating of ICTs in a reading course and found that the students were satisfied overall with the application of ICTs in their reading course and developed positive attitudes toward online course. Findings of the present study are also in line with those of Lan, Sung, and Chung (2006) who claimed that Internet-based EFL reading may emerge as a flexible and portable solution to the pedagogical challenges that exist in conventional EFL reading and teaching environment. By analyzing qualitative and quantitative data of their research, they concluded that with the support of wireless peer-assisted learning system, students made greater progress in learning to read compared with who did not use the system. Huang and Pan (2009), also, indicated how Internet-based learning system had positive impact on students reading comprehension and motivation. On the other hand, the results of the current study are different from those of some other which reported that online EFL learning systems did not benefit students’ English reading comprehension (Liu, 2007; Yang, Wong, & Yuh, 2008).

One great advantage of the Internet is its highly flexible feature that can satisfy the individual needs of the learners. For example, the Internet offers individualized attention and allows learners to work at their own pace. According to Warschauer (1996), learners working with the Internet show positive attitudes, increased attention span, and attendance in the class.

Using the Internet in language teaching and learning offers the following benefits including: It motivates students
and teachers (Frizler, 1995; Warschauer & Whittaker, 1997); increases their participation (Singhal, 1997; Warschauer, 1996) and interaction in the classroom (Singhal, 1997); allows for a deeper integration with the culture of the target language (Leloup & Ponterio, 1995); provides students with a more active role in their learning (Kasper, 1999); helps to facilitate cross-curricular work (Leloup & Ponterio, 1995).

Beside the above advantages, we can assume the following specific advantages which privileged the students working with hyperlinked materials in this study. In the first place, the readily available definitions and explanations through hyperlinked materials encouraged students to go deep into the themes under discussion which removes lexical and conceptual ambiguities leading to clearer understanding of the materials. Secondly, the zeal to integrate learning and technology on the part of our students provided further drive for the effective use of such materials.

The results of this study can be applied by teachers where appropriate access to Internet exists. In technology-rich areas, this procedure can be considered by curriculum developers to promote effective use of Internet in EFL situations.

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References


