Model of E-Reading Process for E-School Book in Libya

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ABSTRACT

Defining the stages which the reader follows when reading e-resources is one of several factors which can provide significant insights into actual reading behaviours and cognitive processes of readers. Two different samples of students who study in Libyan primary schools, aged 9 to 12, were selected to investigate how students use and interact with both print and digital school books, identify the e-reading process, outline the aims of using the internet and technology, and define what students like and dislike in both versions. Furthermore, students found using the e-textbook to be more difficult than paper book and a significant difference is found in the reading process between paper books and electronic books. In addition, two reading strategies were used to read school book in both versions (electronic and paper): (1) view the text then answer the questions, or (2) view the questions than search for the correct answers.

Keywords: Cognitive Process of Reading, E-Textbook, Reading Behavior, Reading Online, Reading Process

1. INTRODUCTION

Reading e-texts brings several challenges to readers, such as the difficulty of reading on the screen in the case of long lines, difficulty browsing and moving from page to page, and the inability of the search tools to satisfy the needs and requirements of the reader. These aspects have drawn the attention in many research areas, such as information science, computing science, and human science. Thus, there are three categories of digital reading research:

• Research focused on the usability of e-text, e.g., comparing reading on-screen to paper reading; measuring the legibility and comprehension of text (Davis, Tierney, & Chang, 2005; Dillon, 2001); and examining user behaviours in digital environments.
• Research presented the ‘new approach of technologies support reading on screen’ which concentrated on new software and hardware, hypertext, and interface design (Godoy, Schiaffino, & Amandi, 2004; Scane, 2003; Thissen, 2004).
• Finally, research focused on the phenomenology of reading, such as studying human interaction with e-resources and the reading process in both linear text and hypertext (Carusi, 2006; Miall & Dobson, 2001).

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Generally, reading is a complex activity. It requires different skills according to the purpose of reading. Furthermore, the reading scenario changes based on the type of e-materials, starting from short text reading (i.e., e-mail) to long text reading (i.e., e-books). For instance, scholarly articles are not similar to books. In the first case, readers usually skip the abstract of an article, skim the introduction, read the research problem, and subsequently read various paragraphs for the theoretical perspective. These differences in actions lead to the creation of several functions and tools to meet all reading requirements.

The aim of this study is to observe how students read school books in e-format, to accordingly investigate reading behaviours adopted by students so as to examine how students’ reading behaviours change in both versions. However, understanding these changes in the reading process would support designers in their effort to design an effective computer-based learning environment.

In this work, we will attempt to build an e-reading strategy based on users’ cognitive and behavioural processes. The remainder of this paper is organised as follows. First, we illustrate related work in reading e-resources behaviours. Second, we define the methodology of research and dataset for analysis. Third, we provide two reading strategy models. Finally, we summarise findings and make generalisations and recommendations for the reading process.

2. RELATED WORKS

With the increase in the number of students who read e-text for pleasure or learning, there are still deficiencies in studies that seek to understand how people deal with the digital text as previous studies have shown, i.e., most researchers in e-reading are just focused on comparing issues without having a clear idea about how readers deal with e-text or if this technology has affected the way that readers read e-text (Livingstone, 2003; Anuradha, 2006; Cavanaugh, 2006; Han, 2008; Hines, 2009; Segal-Drori, Korat et al., 2009; Shin, 2011).

Thus, researches in the field of usability are concentrated on addressing questions such as why, what and how do people read a document to be used in the first stage with any research interest, in reading generally and e-reading specifically. Also, research is focusing on cognitive and behavioural aspects of the reader by asking questions that bring issues related to the context which appears in certain factors affecting the presentation of the medium such as text layout (Hartley, 2004; Wastlund, Norlander et al., 2008; Yao-Ting Sung, 2010) and text size (Feely, Rubin et al., 2005; Alotaibi, 2006; Haboubi, Maddouri et al., 2006; Lee, Shieh et al., 2008).

Otherwise, the reading process differs according to the purpose of reading and the type of material, where Kol and Schcolink (2000) argued that understanding reading strategy and teaching students how to deal with e-text could help students read effectively from screen. This argument was supported by several empirical researchers in the reading process. For instance, Dillon (2001) built two models of the reading process, one for reading academic journals and the second manual can be seen in Figures 1 and 2. Researchers noted that there was a distinction between text types in the characterisation of usage which led to the use of various techniques when using these materials. In Dillon’s case, the difference becomes clear in terms of searching the text, e.g., when reading a journal the reader starts with the title and the abstract using skim strategy, whereas in the manual the reader uses the scan technique to scan the index then select the section that contains the information required.

Moreover, Terras (2005) suggested a model relating to the process of reading ancient texts by experts through understanding a complex process in the humanities. Based on content analysis, focused interviews and think-aloud protocols, the model were built. In addition, studies reported that three experts use different methods to examine the document; they spent a lengthy period of time checking the text and the words in different orders. In
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