

Introduction

Although reading is a complex behaviour, it can be decomposed into two elements: decoding and linguistic comprehension (Joshi & Aaron, 2000). Both are necessary for skilled reading. Perfetti (2010) proposed a decoding, vocabulary, and comprehension (DVC) reading skill model. In the DVC model, elements of reading skills are decomposed into vocabulary and decoding, both affecting each other. In addition, reading comprehension depends on decoding and vocabulary to access the meaning of the words.

Past researchers have used information and communication technology (ICT) to help students to learn vocabulary and vocabulary knowledge. The results showed that using ICT was helpful for vocabulary learning (Gordani, 2013; Ma & Kelly, 2006). Meanwhile, some benefits of using ICT to improve students' reading comprehension were proposed (Abraham, 2008; Wijekumar, Meyer, & Lei, 2013).

Using ICT could provide immediate individual feedback, and help students to control the pace of learning. Due to multi-media, students may have opportunity to learn independently and strengthen their motivation (Ecalte, Bouchafa, Potocki, & Magnan, 2013).

Although there are advantages of using ICT to help students improve reading ability, there is a common shortcoming in the above studies. Indeed, these researches lacked of consideration in students' individual differences when providing reading materials. This study proposed a new learning model combined with advantages of table personal computer (TPC), online diagnostic test, online remedial instruction, and latent semantic analysis (LSA) based books recommendation system to enhance students' reading literacy. The model provided the reading and extended learning materials with adaptability in order to allow each student to gain more reading skills.

The research questions were listed below:

1. After the experiment, does the improvement of reading comprehension abilities in experimental group is better than that in the control group?
2. Is the learning achievement of the experimental group students better than that of control group after the experiment?

Literature Review

Extensive Reading

Extensive reading (ER) could be defined as reading of large amounts of material over time for personal pleasure or interest (Hafiz & Tudor, 1989). It is also named as reading for pleasure, free reading or book flood. Krashen (1982) proposed that under the three conditions of interesting reading material, a relaxed and tension-free learning environment, and adequate exposure to the language, readers acquire more language. ER is an “approach to the teaching and learning of reading in which learners read large quantities of material that is within their linguistic competence” (Grabe & Stoller, 2002).

Meanwhile, the reading process can decompose into two elements; they are decoding and linguistic comprehension (Joshi & Aaron, 2000). Both are necessary for skilled reading. Perfetti (2010) proposed a DVC reading skill model. In the DVC reading model, linguistic comprehension was dependent on vocabulary skills and decoding. In addition, vocabulary skills and decoding were affected each other. Past research (Graves, Juel, & Graves, 2000) indicated that ER could help students to expand the quantity of vocabulary and vocabulary knowledge. Mason (2004) also discovered average words that students had learned would increase if they read a thousand pages of graded readers every semester. Meanwhile, both Grabe (1991) and Paran (1996) discovered ER could help students to promote the ability of automatic word recognition and decoding symbols. Moreover, Stotsky (1983) and Krashen (1984) discovered that students who were avid readers in their pre-college years would have better writing skills. ER even had positive impacts in reading comprehension. Bell (2001) reported reading speeds of students were significantly faster, and reading comprehension scores of students were significantly higher by means of reading large quantity of books. Based on the above reading theories and research, ER had positive influences in promoting the reading abilities of students.

Through past-proposed ER related systems, Sun (2003) built an online ER website. The system enhanced learner autonomy, independence, and long-term interest. Pino-Silva (2006) also built an online ER website, the vocabulary ability of learners was enhanced. Also, Arnold (2009) constructed an online ER program and discovered that both learners' reading ability and motivation were improved.