Wang et al., 2015

Volume 1 Issue 1, pp.185-196

Year of Publication: 2015

DOI- https://dx.doi.org/10.20319/pijss.2015.s21.185196

This paper can be cited as: Wang, B., & Yu, P. (2015). Practicing Text Summary With Online E-Book System. PEOPLE: International Journal Of Social Sciences, 1(1), 185-196.

PRACTICING TEXT SUMMARY WITH ONLINE E-BOOK SYSTEM

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Abstract

The improvement of information and communication technology (ICT) enhance the change of reading behavior from printed books to e-books. The prevalence of internet also encourages the prosperity of online e-book reading. The present study proposed an online e-book reading system that could import reading content in "EPUB" format and export the modified content in "EPUB" format as well. It did not only provide reading and noting tools for reading activities but also utilized the concept of online learning and scaffolding theory to build a model of scaffolding with summary practice. When students were asked to do the summary practice, they simply used the selecting and highlighting tool to identify keywords or main ideas among these texts. Then, teachers guided these students to learn the principle of summary construction through online interaction. The monitoring tool informed teachers to realize the progress of students and adjusted the way of guiding students in selecting keywords ubiquitously. The system

is capable of displaying the combined text highlights that marked by students and teachers. Then students might correct and improve their works under such a visual comparison policy. The system also embeds scaffolding functions that can support teachers to setting online learning stages for summary practice.

Keywords

E-Book, Scaffolding, Summary Strategy

1. Introduction

Since the reading materials are created in digital format exponentially, the concept of printed materials in supporting reading progress should be changed (Karim & Hasan, 2007). The reading habits have been promoted from paper contents to digital contents with the prevalence of information and communication technology (ICT) (Subba Rao, 2003). To link the reading experience between printed materials and digital materials, E-Books, book-length publications in digital form (Fong & Wong, 2013), provide the solution to fulfill the demand of reading on display devices (Lemken, 1999). Thus, the development of ICT facilitated the new reading experience from E-Books that users can download E-Books ubiquitously, share or edit their notes and bookmarks freely, and acquire related resources quickly. Users can access E-Books from their personal digital devices or personal computers in online reading mode or offline reading mode. To reading these digital materials in offline mode, the e-books have to be downloaded and stored in the digital devices. The storage of devices and time for downloading will be the important factors when considering the benefits of online reading modes. For the advanced improvement on internet technology, the online reading mode has become more popular than the offline reading mode. When E-Books are reading in online mode, users can feel free to interact the contents that they read or communicate with others who can share their experience or direct the process of reading. This concept extends the advantage of online e-books reading with interactive online learning. Therefore, the present study adopts the concept of online e-books reading and develops an online e-book reading system. This system is capable of maintaining the interaction between tutors and students through the practicing activities – Select and Highlight. Students who use this system as learning tools will be instructed with scaffolding stages and the learning outcomes will also be monitored by tutors who will guide them in highlighting online texts and learns the strategies of selecting keywords and main concepts

within these paragraphs of e-books to improve their summary skills. The purpose of our study focuses on improving students' Chinese reading comprehension with the embedded scaffolding functions.

2. Literature Review

2.1 E-Books inthe Digital Era

From the aspect of reading contents, e-books and printed books are quite similar. The only difference between them is the presentation form that e-books display the contents of printed books in digital format, and specific display devices are also required (Höppneret al., 2009). In the early age, users use dedicated devices, so call e-book reader, to read e-books. With the growth of e-books market, it compels the development of a standard digital format that can be easily accessed and presented across different hardware and software platforms. "EPUB," a standard of EBook format (Bläsi & Rothlauf, 2013), has been accepted by many content providers or publishers. This standard format has broadened the e-book reader software from the dedicated application, a close presentation system, to the web-based application. The latest version of EPUB, EPUB 3.0, employed interactive web pages and offline access (De Meester et al., 2014). Our online reading system followed the trend of e-book standard and provided importing and exporting interfaces that can parse or generate the files in EPUB 3.0 or under.

2.2 Scaffolding Instruction Design

The "scaffolding" process is a teaching strategy that enables novice or children to achieve learning goal by gradually assistance from experts or adults (Wood, et al., 1976). The scaffolding process maintains an interaction relationship between students and instructors (Stone, 1998a, 1998b).This temporary relationship support students to gain more advanced ability that were originally beyond their ability and guide them to complete their tasks (Van de Pol, et al., 2010). The scaffolding strategy has been broadly applied in several educational applications, especiallyin the field of literacy development. Clark and Graves (2005) indicated that instruction frameworks of text comprehension included the idea of scaffolding (Clark & Graves, 2005) and the model of explicit instruction based on Person and Gallagher's (1983) works had also been implemented with scaffolding on reading comprehension approach (Pearson & Gallagher, 1983).The students- teacher interaction always occurs in the context of the peer-to-peer situation. With the convenience of ICT, such type of interaction can be advanced as online scaffolding process during the prevalence of internet interconnection among

learners and instructors. Thus, the present study adopted the idea of scaffolding on reading comprehension and developed a web- based system that can perform learning process with online scaffolding.

2.3 Summary Practice for Text Reading

With the perspective of academic learning, summarizing task produces the short version of an article, a note for text reading or a criticize assignment for content reading (Johns, 1988). According to five rules of summary generation, selecting topic sentence will be one the important process of determining the main concept of the summary (Kintsch & Van Dijk, 1978). Thus, the present study using simple text selecting and highlighting as the summary practicing process for students identify the keywords or main concepts in the text paragraphs as the improvement in generating the summary. With the ICT enhancement, students practice text summary and finish their assignment via online system without any limitation of time and place. Therefore, the simple selecting and highlighting mechanism is the salient characteristic when comparing to other online e-book reader system. Besides, teachers prepare the guiding content to facilitate students' summary skills and monitor the learning outcomes of summary practice are also includes the scaffolding function in the system.

3. The System Design

Figure.1 illustrates the functional view of system design that is bounded by two types of users. The teachers can edit his/her teaching materials via employing the editing function of the system. The uploading function performs the import function on the digitalized contents in "EPUB" format, which is the standard form of e-books. On the other hand, digital content modified by teachers can also be exported as a portable file in "EPUB" format. Additionally, the teachers can organize and design the learning material of their online courses as which they scaffold the summary practice in a real classroom.

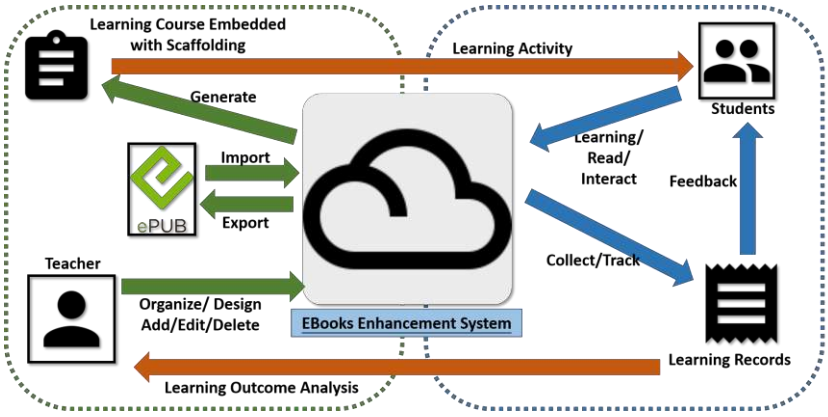

Figure 1: *Functional view of the online e-books system*

The system does not only provide reading tools for e-books but also provide learning courses embedded with scaffolding strategy to improve students' reading comprehension. Students can simply highlight the main idea or keyword in a paragraph by using the computer mouse as selecting and marking tool. Then, teacher's suggestion answer will be demonstrated to students' screen according to the stages of scaffolding. The progress of learning activity will be recorded and feedback to students for further improvement. This system also tracks these records and provides analyzed reports to students and teachers. Consequently, the teacher can monitor the learning situation of each student and make the adjustment in guidance on individual difference. The increased interaction and scaffolding strategy can improve the engagement of students when they proceed with online self-learning.

The system framework as sets forth in Figure. 2 consist of three subsystems:

- Accounts and system roles management subsystem.
- E-books management subsystem.
- Online courses management subsystem.

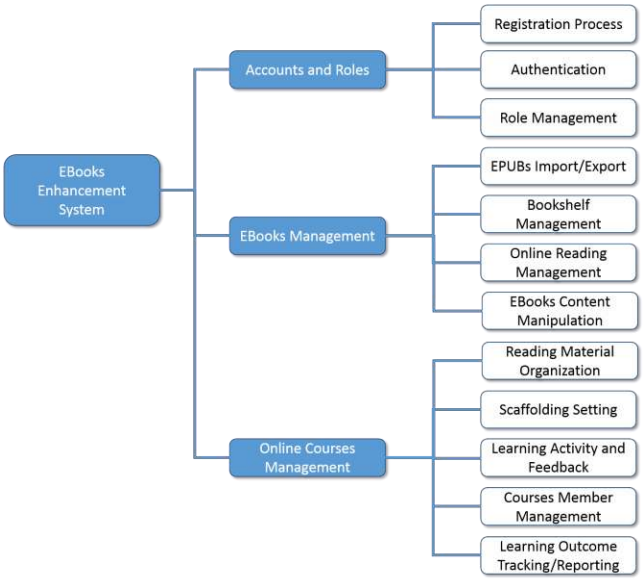

Figure 2: *System framework of the online e-book system*

In the accounts and roles management subsystem, account registration and authentication has been designed for users' convenience. System roles, including administrator, teachers, and students, has to be assigned with administration function.

E-Books stored in this system are manipulated by the subsystem, named "e-books management, which is capable of importing digitalized contents in "EPUB" format. Users can modify these imported contents and export as another new "EPUB" files. E-Books are classified by user's setting and displayed on the front page, as illustrated in Figure. 3.

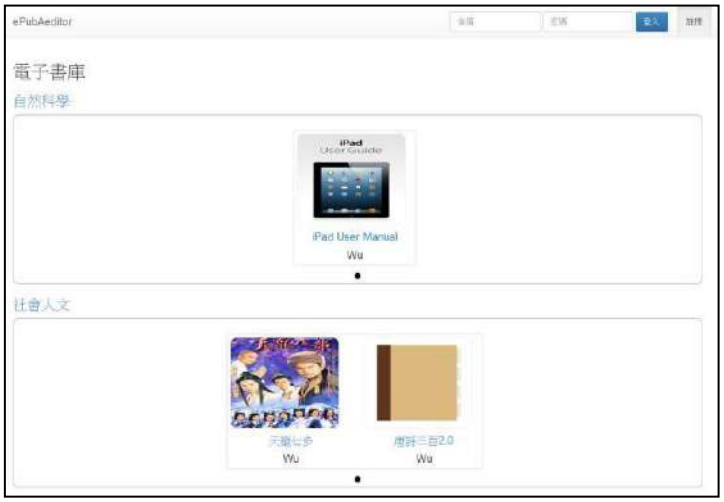

Figure 3: *The front page of the online e-book system*

Online reading interface, implemented with web-based technology, establishes an analog environment of reading real books. There are three modes of different reading orientation: Normal reading, online course reading, and interactive reading with scaffolding. The functional comparison among these modes sets forth in Table 1.

Table 1: *Functional comparison among three reading modes*

Functional Comparison	**Reading Modes**		
	Normal Reading	**Reading for online learning**	**Interactive reading with scaffolding**
Font Size Adjustment	✓	✓	✓
Chapter Selection	✓	✓	✓
Summarization Tools (Text highlight and Notes)		✓	✓
Formative Assessment		✓	✓
Learning with teacher's scaffolding (Suggestion highlight from teacher)			✓

The online course reading provides the opportunity for students to precede learning activity based on those imported or modified contents is another characteristic of system functions. Under the circumstance of online learning, students do not only learn with the prepared materials but also benefit from the function of scaffolding. Teachers establish the online courses with reading material management function and build scaffolds based on the highlights of the suggestion keywords or main ideas, the formative question for online assessment, or the open question for promoting learning motivation. The system generates course codes for students to participate. During the learning activities, the teachers can observe the learning outcomes simply by referring the tracking reports and the students can also realize their progress by examining the feedbacks generated from monitoring function. Student-teacher online interactions have also been implemented in this system and provide the basic communication channel for asking and answering encountered questions. Figure.4 shows a snapshot of setting scaffolds via text highlighting.

Figure 4: *A snapshot of setting scaffolds via text highlighting*

4. Scaffolding with Summary Strategy

With these dedicated functions, the teacher can establish the model of scaffolding with summary practice, as shown in Figure.5. This model includes three stages to accomplish the scaffolding process.

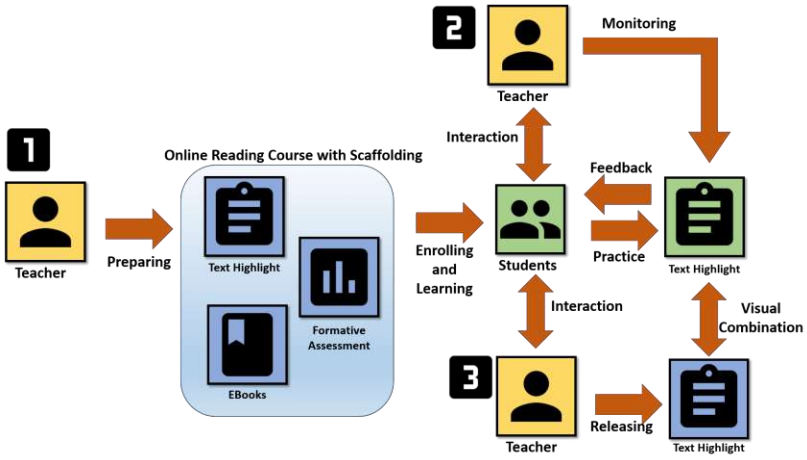

Figure 5: *The model of scaffolding with summary practice*

4.1The preparation of online reading courses (Stage 1)

In the courses preparation stage, the teacher has to organize the learning material that can perform the scaffolding effect with summary strategy. Three major components consist of the online learning courses: (1) e-books, (2) texts highlighted by teachers, and (3) the formative assessments related to contents. The online reading courses will be represented by course codes, and students can enter this code for enrolling online courses. Teachers highlight texts as the

suggestion answers of main ideas or keywords that can be thought as one of the summary strategies in scaffolding. Additionally, the formative assessments provide the opportunity for students to examine the comprehension progress of themselves. Such policy can also be thought as another summary strategy of scaffolding.

4.2 Practicing and Interacting with Teacher's Monitor (Stage 2)

When the students have finished their enrollment of the online course, they may proceed their self-learning tasks that assigned by teachers. These participants will reading materials in e-books style and practice in finding out the keywords or main ideas through highlighting texts, or make their notes for summary writing. The teacher then uses the monitoring tool to track the progress of highlighting and gives his/her feedbacks based on the notes written by students. In this stage, the scaffolding effect is accomplished by teacher-students online interaction. Fig. 6 shows the monitoring interface for the teachers.

Figure 6: *The monitoring interface for teachers*

4.3 Comparing with Teacher's Suggestion (Stage 3)

When students are gradually familiar with the way of highlighting keywords or main ideas, the teacher may determine to release his/her suggestion answer and then the system automatically combines the visualization of teacher's and student's text highlights. Such visual combination will help students in correcting their mistakes when refers teacher's guidance. It fits the concept of scaffolding: fading out the supports whenever they had become experts. Fig. 7 illustrates a snapshot of the visual combination.

Figure 7: *A snapshot of the visual combination*

5. Conclusion

Originally, the role of the e-book system is dedicated for displaying digital content on specific devices. With the prosperity of the internet technology and the establishment of e-book standard, the reading contents can be conveyed across various software and hardware platforms. Thus, it encourages the educators to exploit the benefit of online reading environment as advanced learning policy. The present study follows such a concept to design the online e-book system. Additionally, applying scaffolding learning theory in three stages of summary practice is another pedagogical consideration to work with the online reading environment. Although students may successfully be tutored to apply the principle of generating summary to improve their reading comprehension, teachers still confront with the overload when interacting students to guide them to highlight the keywords. However, the impact on learning achievement will be not very obvious while the monitoring function is using the simple textual comparison to generate the rate of correctness in highlighting texts. The correctness of semantic meaning is missed in this system due to the lack of ability in natural language processing. Thus, the next version of online e-book system may include a semantic recognizing ability to increase the automation of summary correction. Then, the automation system will relieve the teacher's overload to correct students' errors.

To solidify the evidence that scaffolding with summary practice will improving students' reading comprehension and learning with the online system will engage their reading motivation, the future works will be focused on the experimental design and execution.

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