SPICEreading: A Three-in-One Share Platform in Cooperative English Reading

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Abstract. The purpose of this study is to design and develop a three-in-one share platform in cooperative English reading (3-in-1 SPICEreading) to help EFL teacher effectively implement cooperative reading in EFL settings. With the attempt to make SPICEreading truly match both EFL teachers' teaching and students' learning requirements, a design research approach is adopted to make sure that the system is revised both at the target users' suggestions and early English reading teaching rationale. Two versions of SPICEreading system as well as the revision reasons will be introduced in this paper. With the supports provided by the 3-in-1 SPICEreading system, it will be easy for an EFL teacher to develop reading materials, to guide students to do cooperative reading, and to assess students' performance.

Keywords: Cooperative reading, share platform in English reading, English as a foreign language.

1   Introduction

Student reading ability has an important impact on academic achievement. A student with adequate reading ability typically performs better than students with less developed reading skills. Therefore, to improve the reading ability of students is the

primary goal of language teaching activities. Cooperative learning (CL), which asserts that people are active learners and must construct knowledge for themselves (Geary, 1995) via interactions between individuals and an environment (Schunk, 1996), has been considerable as an effective approach to improve both students' attitudes towards reading (Ghaith & Bouzeineddine, 2003) and their reading performance (McMaster & Fuchs, 2002). Lan and her colleges had conducted a series of EFL reading studies by successfully integrating mobile devices and CL approach to help primary EFL learners improve their English reading attitude and CL skills as well as resolved some stubborn problems existed in conventional CL environment (Lan, Sung, & Chang, 2007; 2009). Based on the successful experiences, it is worthy of encouraging more EFL teacher to apply technology-supported-CL to English reading activities. With the purpose of providing EFL teachers with a convenient environment to develop tailored English reading materials just for their own students, lead a cooperative reading activity, and assess students' reading performance, a three-in-one share platform in cooperative English reading (3-in-1 SPICEreading) is developed to help EFL teacher run a CL procedure in English reading class.

With the ambition to meet the target users' requirements (both EFL teachers and students), a design research approach is adopted to collect the worthy suggestions from the first line EFL teachers and which formed the reference for revising the SPICEreading system. Additionally, two iterations of system evaluation have been completed, and the SPICEreading system is now the second version.

The following sections briefly describe the two versions of the SPICEreading system as well as the revised reasons, the functions of the SPICEreading system, and a concise conclusion.

2   Version I: Three-in-One Share Platform in Cooperative English Reading (3-in-1 SPICEreading)

The first version of the 3-in-1 SPICEreading system consists of four modules: (1) a reading material management module, (2) a cooperative reading management module, (3) a peer-assessment module, (4) a class management module, and (5) a material sharing management module.

2.1   Reading Material Management Module

The reading material management module is comprised of three sub-modules: sight word, phonetic word, and reading article. EFL teachers can upload the learning materials needed in CL reading activities. Fig.1 shows the sight word upload interface. When EFL teachers upload the needed sight words, they first search the embedded sight word database in the 3-in-1 SPICEreading system, if the target words are found, they can choose to use the stock words or re-upload. The phonetic word upload interface is illustrated in Fig. 2. In order to reduce the EFL teachers' load, the 3-in-1 SPICEreading system has already embedded all the phoneme patterns. Therefore, except inserting the target phonetic word and its corresponding meaning and the whole word pronunciation, the EFL teachers only need to set the order of each phoneme rather than recording and uploading the audio files of the target phonemes by themselves.

Fig. 1. The sight word upload interface

Fig. 2. The phonetic word upload interface

After finishing uploading the target words, an article which includes the uploaded target words should be uploaded via the article management sub-module. The article first needs to be divided into several paragraphs in advance and then be uploaded paragraph by paragraph in a scrambled order. Then, the correct paragraph order should be set at the story map section. Finally, several reading comprehension questions are input at the reading comprehension section.

2.2 Cooperative Reading Management Module

Once the reading materials successfully uploaded, the 3-in-1 SPICEreading system can assign the different reading task to each individual according to their login ID. Each student first completes his/her assigned task (sight words or phonetic words). Then they need to take the performance test to see how well they have learnt. If they reach the criteria, then they can join the cooperative reading activity to read a randomly assigned paragraph. If they don't, then they need to take more practice to master the target words based on the suggestion given by the 3-in-1 SPICEreading system. When they join a CL activity, they also need to finish their individual reading task, then they are asked to share what they have read and discuss with other peers to figure out the correct story map and answer the comprehension questions.

Additionally, the 3-in-1 SPICEreading system keeps each student's learning record which then can serve as a reference framework for the EFL teacher to understand students' practicing status. Furthermore, the EFL teacher can set each student's learning stage, the learning unit, and criteria for advancing level via the system management interface.

2.3 Peer-Assessment Module

The peer-assessment module helps the EFL teacher understand student learning performance. The EFL teacher first randomly chooses a paragraph, then the module send the chosen paragraph to students' screens. Each student will assess their peer's oral reading via marking the mispronounced words. Additionally, the 3-in-1 SPICEreading system will keep all the assessment results and immediately calculate the statistical result of the peer-assessment activity. This data could help the EFL teacher understand student oral reading as well as each student's assessment status.

2.4 Class Management Module

The module focuses on helping the EFL teacher effectively manage the information of each teaching class, such as the class information, student data, teaching record, teaching materials, and teaching plan, etc. The EFL teacher can also easily add a class or delete a class, assign group students into different small CL groups, and set the group leader for each small CL group via the interface of the class management module.

2.5 Material Sharing Management Module

The module provides the information about the developed materials uploaded by the sharers of the share system, such as the author information (eg., name, affiliation, and email), the development date, the use record, the target learner ability level, and copy right, etc. The EFL teachers can first search for the developed article which is possibly suitable for their students. The searching can be based on the keys of grade, author, or theme. Additionally, the module also serves the EFL teachers printed-out materials to be used in conventional EFL settings. The EFL teachers are able to choose and modify a shared article to meet their student ability level and the practical teaching reality.

3 The Evaluation of Version I of the SPICEreading System

Eight EFL teachers from three elementary schools located in three districts of Taipei city participated in the Version I evaluation. Additionally, the evaluation focused on two main dimensions: the teacher interface which includes three modules-- material management, class management, and material sharing modules; and the student interface which includes two modules—cooperative reading management and peer-assessment. Five-point scales were used to express the evaluators' opinions: "1" means extremely disagree and "5" means extremely agree. All the EFL teachers were asked to test all the functions of the SPICEreading system, and also were encouraged

to use the system in their EFL classes. Table 1 displays the evaluation results. According to Table 1, all the teachers approved most of the functions of the first version of SPICEreading system. However, most of teachers also gave worthy suggestions on revising the first version of SPICEreading system, especially the two modules, material management and class management, because of the appearance of operation screen, such as character fonts and color, and the poor operating steps. Table 2 lists the revising suggestions given by all the participated EFL teachers.

Table 1. The evaluation results of version I of the SPICEreading system

Evaluation dimensions	modules	Evaluation results
Teacher interface	reading material management	3.87
	class management	4.04
	material sharing management	4.22
Student interface	cooperative reading management	4.13
	peer-assessment	4.14

Table 2. The suggestions on revising the first version of the SPICEreading system

Modules or operation screen	Example
Reading material management	1. The design rationale of the system is appropriate to include sight words, phonetic words, and reading articles in a learning unit. However, too many steps are needed in building a new learning unit which including sight words, phonetic words, and reading article. The system should expand its word bank and material database to shorten the new item (unit) creating process. 2. A more structured and intelligent management map should be designed to help the EFL teacher be aware of their designing work.
Class management	1. To set the information of a new class is too complex. The setting procedure should be simplified. 2. The system should provide a more effective method for student ID management because a Taiwanese EFL teacher could have hundreds of students at in a same semester.
Appearance of operation screen	1. The learning materials should be shown in bigger font. 2. The buttons should be in different colors to increase the clarity of the appearance. 3. The learning system is suitable for 1-12 EFL learners. However, the current appearance of operation screen seems to be preferred by the elementary level. Therefore, the student interface should be multi-looked to attract EFL learners in different age. 4. If there is a tree-structured or other similar stuff, it would be easier for a new user to use the system.

In addition to the system interface evaluation, one of the participated EFL teachers also used the SPICEreading system in her EFL reading class. She found that the system effectively promoted her students' reading motivation and improved students' EFL reading skills which including oral reading skills and reading comprehension ability. Furthermore, she said that her students behaved excitely to attend her EFL classes. Because of the positive effect on her EFL students' learning English, she asked for the permission to use the new version of SPICEreading system in the future.

4   The 3-in-1 SPICEreading System Version II

The second version of SPICEreading system is revised based on the fist line EFL teachers' suggestions. The revising focused on the appearance of the operation screen and more structured operation procedure of each module. However, the third suggestion on the appearance of operation screen has not been followed because the SPICEreading system currently focuses on the elementary EFL learners. This worthy opinion will be implemented in the future. The following is the main modification which has made in the second version.

4.1   Structured Appearance of the Teacher Interface

In the second version of SPICEreading system, there are two options of web structure: tree- and map-structure. The left part of Fig.3 (encased in the red dotted frame) displays the tree structure which lists all the functions included in the teacher interface in a hierarchical way, and Fig.4 shows the corresponding map structure.

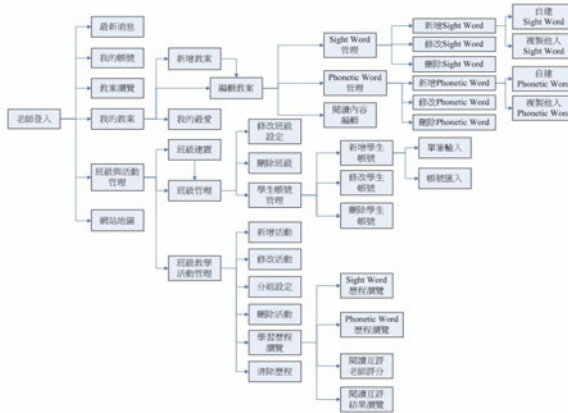**Fig. 3.** The tree structure of the functions of the teacher interface

Fig. 4. The map structure of the functions of the teacher interface

4.2   New Functions for Adding New Sight Words and Phonetic Words

There are several new functions for adding new learning units are developed to simplify the material creating process. What an EFL teacher needs to do while creating a new learning unit is to check the appropriate options in 3 material creating forms. They first set the attributes of the unit, such as the target learners, English skills, unit theme, needed teaching time, member number of a small reading group, and extra suggestions for other EFL teachers as shown at the right part of Figure 3. Then they set the sight words and phonetic words for the new unit. They can choose the target words and phonemes from system database or upload by themselves. Additionally, all the uploaded words then can be shared with all the system users. Fig.5 and 6 give examples of editing sight words and phonetic words respectively.

Fig. 5. The interface of editing sight words

Fig. 6. The interface of editing phonetic words

4.3 Teaching Material Searching and Management

For teaching material searching, SPICEreading version II has simplified the search process. An EFL teacher only needs to choose the appropriate options in four pull-down menus (creator, target user grade level, English skills, and theme), and then the system will pick the candidate teaching units from the unit pool based on the set keys as shown in Fig.7.

The second version of SPICEreading system also provides EFL teachers with an easy method to manage their teaching units which can be created by themselves or others. As soon as an appropriate unit is found or created, the EFL teacher can add this unit into his/her "my favorite" as shown in Fig.8.

Fig. 7. An example of unit searching result

Fig. 8. An example of my favorite teaching unit

5   Conclusion

In this paper two versions of a 3-in-1 SPICEreading system with the aim at providing the EFL teachers with a convenient environment to develop reading materials, to guide cooperative reading activities, and to assess student reading performance are developed. With the ambition to make the system match the first line EFL teachers' and students' requirements, a design research approach was adopted to collect the target users' opinions to help the researchers to revise the system. Based on the collected feedback, all the teachers validated the contribution of the SPICEreading system to early EFL reading and teaching. In order to make the system more friendly to daily use, the system have been revised based on the worthy suggestions given by the participated EFL teachers. A more widely using trial of the second version of the SPICEreading system will be conducted in the near future to evaluate its effect on both EFL teaching and learning.

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