Effects of a vocabulary acquisition and assessment system on students' performance in a blended learning class for English subject

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ABSTRACT

Vocabulary acquisition and assessment are regarded as the key basis for the instruction of English as a second language. However, it is time-consuming, fallible and repetitive for the school teachers and parents to assess the proficiency of the students' vocabulary acquisition. We customized the open source course management system Moodle to build the individualized vocabulary review and assessment functions for English instruction. This web-based system was integrated into the regular English instruction of an experiment class of Grade three in a junior middle school, i.e. it was used in one school hour almost every week for an entire school term. Within this blended learning environment, the students' performance of the experiment class in the ordinary and especially vocabulary examinations throughout the school term was improved gradually and was better than that of the control class, so that it achieved number one among sixteen classes in the same grade at the final term examination, compared with number eight before this experiment. The survey and interview with the students also demonstrated the system's valuable functions for vocabulary acquisition and listening comprehension, and showed the students' favor to such a kind of syllabus design with the intelligent course management system. The implication of this research is that the blended learning of English class with the individualized vocabulary acquisition and assessment system can improve the students' performance in vocabulary acquisition and in ordinary test. This system can also be applied in other English classes.

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1. Introduction

Since English has long been the international communication language in the world as well as the most important second language in non-English speaking countries, English is listed as one of the three core subjects in middle schools in China. Vocabulary acquisition is the crucial element to learn English as a second language, because it is the fundamental prerequisite to the four skills of a language: listening, speaking, reading and writing. Wilkins (1972, p. 111) argued: "without grammar very little can be conveyed, without vocabulary nothing can be conveyed." In recent years, abundant studies that investigated English instruction emphasized the importance of vocabulary learning to English instruction (Decarrico, 2001). An excellent and huge vocabulary is helpful to inferring meaning from English sentences and passages (Rupley, Logan, & Nichols, 1999). A limited vocabulary often leads to misunderstanding or poor comprehension of English texts (Lin, 2002; Segler, Pain, & Sorace, 2002). A few researchers stated that the main obstacle in English learning is facing entirely new words in an English text (Anderson & Freebody, 1981; Mezynski, 1983; Qian, 2002).

However, many learners think that memorizing English vocabulary for a long time is difficult. Oxford (1990) pointed out that language learners typically have significant difficulty remembering large vocabularies. Forgetting is another problem for Chinese students to learn English, because most of them usually just use English words and sentences in the school class time, for example, within less than ten school hours every week, and by the homework time.

The English teachers have also trouble in assessing the students' vocabulary acquisition. They usually ask the students to learn the vocabulary in every unit or module, and then check their memory performance by letting them write the Chinese meaning according to English words in a test paper, or, write the English words according to Chinese phrases, vice versa. Then the teachers should check the

students' handwritten test papers very deliberately. The scoring error is unavoidable, because in a very limited time an English teacher should check and score the test papers for one class or more classes, each of which has 30-50 students, and every paper is filled with dozens of English-Chinese or Chinese-English word pairs that are hand written in various shapes. After the laborious work the teachers hardly have time to give individual feedback about the vocabulary acquisition to every student in the class.

Oxford (1990) divided memory strategies into four types: creating mental linkages, applying images and sounds, reviewing, and employing actions. In English language the word spelling is connected with its pronunciation. So the word spelling memory is not separated with its pronunciation recall. The vocabulary acquisition performance should be checked along with the listening comprehension of these words' pronunciation. It is more time-consuming for the English teachers to check the students' memory performance by asking the students to write down the English words in the paper in accordance with the words' English pronunciations.

Furthermore, in order to assess the understanding of English vocabulary and Chinese meaning completely, the multilateral relations among English spelling, English pronunciation, Chinese pronunciation and Chinese phrase should be assessed as a whole, as illustrated in Fig. 1. As Chinese language is the mother language of the students and normally has been mastered by them from middle schools, the relation between Chinese phrase and its pronunciation need not to be assessed again in English classes. The other relations can be classified into ten levels.

The first level is the mastery of the map from an English spelling to its Chinese phrase. It is the most basic requirement for the students to read and to understand English texts, and can be assessed in traditional paper format and held collectively in a classroom, as above discussed.

The second level is the mastery of the map from a Chinese phrase to an English word. It is the basic requirement for the students to write English sentences and paragraphs.

The third level is the mastery of the map from English pronunciation to English spelling. The fourth level is the mastery of the map from English pronunciation to Chinese phrase. The fifth level is the mastery of the map from Chinese pronunciation to English spelling.

The third, fourth and fifth levels can be held collectively in a classroom, in the way that the teacher pronounces the English word or Chinese phrase, and the students write the English spellings and/or Chinese phrases in the paper format. These tests can be characterized as listening comprehension tests. The teacher's English pronunciation may influence the students' understanding and assessment result. An alternative is to play the "standard" pronunciations of the English words from a cassette or from a sound file with wav/mp3 or other formats in a multimedia computer supplied by the textbook publisher together with the textbook, but either the editing of the cassette content or the organization of the sound files is an easier said than done task for the English teacher.

The sixth level is the mastery of the map from English spelling to English pronunciation. The seventh level is the mastery of the map from English spelling to Chinese pronunciation. The eighth level is the mastery of the map from Chinese phrase to English pronunciation. The ninth level is the mastery of the map from English pronunciation to Chinese pronunciation. The tenth level is the mastery of the map from Chinese pronunciation to English pronunciation.

These five levels, from the sixth to the tenth level, can only been assessed individually, i.e. the student responds with their pronunciations. These tests can be characterized as pronunciation tests. Although the students' response can happen collectively and simultaneously in a classroom, it is impossible for an English teacher to collect all the simultaneous sounds and then to evaluate them. Even if with the modern information and communication technology the student can record the pronunciation by speaking to the microphone in a classroom simultaneously, and then the teacher can collect all the sounds, the pronunciations will influence each other so that the teacher cannot analyze them correctly and score them fairly. Consequently these five levels can only be assessed individually and even in a separate space.

As for the ten levels, every map is not a one to one relation from the linguistic view in fact. An English word can have different semantic meanings expressed in different kinds of Chinese phrase. A Chinese phrase can be expressed with different English words and even have different kinds of POS (Part of Speech). But for a specific unit in a given school textbook, the students are required to learn the specific relation between an English word and its Chinese phrase. Within this instructional context of school education, the map in the ten levels can be a one to one relation.

The school pupils learn the English vocabulary gradually. In every grade and in every school stage the students are required to pass certain level tests. For example in Grade three of a junior middle school, which we label as JX school, located in Guangdong Province of southern China, 2300 km away from the researchers' location in Beijing, the students are required to master the first, the third and the fourth levels. We define them as the three basic abilities of English vocabulary acquisition. The mastery of English pronunciation, its English spelling and Chinese phrase is emphasized in this learning stage, as shown in Fig. 2.

Three common problems exist in the three levels' exams. First, the teacher should score the students' exam papers that are hand written by the students with different forms very deliberately. Scoring errors are unavoidable for a teacher facing dozens of exam papers from one class or more classes.

Secondly, even after exact assessment of all the students' vocabulary, the teacher hardly has time more to point out the shortcoming of every student and to give every one individual suggestion on vocabulary acquisition.

Thirdly, the design and scoring of the vocabulary exam is repetitive for a given unit or module in a textbook selected by the school. The vocabulary assessment is a regular work of the English instruction, i.e., it happens weekly or once every two weeks, thus it costs the teachers much time in every school term. If this work could be automatically done by a computer program, it would spare much time for the teacher.
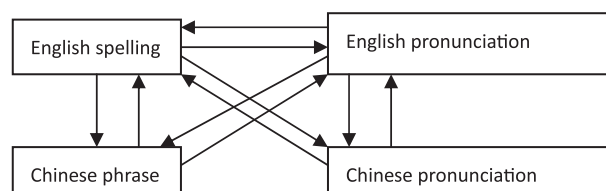

Fig. 1. The full understanding of an English word/phrase and its Chinese meaning.