Summary:
This study is based in Myungin Middle School in Seoul, South Korea. It investigates the use of multimedia components such as visual text, spoken text, and graphics in a web-based self-instruction program to increase learners’ English vocabulary learning. 172 fourteen year old students in five classes participated in the study. The students had no previous experience with computer-assisted instruction in English vocabulary learning.

Research Questions:
1. What are the differences in original learning among students who are taught under the six methods of instruction conditions?
2. What are the differences in time to complete instruction among students who are taught under the six methods of instruction?
3. What are the differences in students’ attitude toward instruction among students who are taught under the six methods of instruction conditions as measured by their scores on the attitude inventory?

Methodology:
Shuford’s Admissible Probability Measurement (APM) procedure was used to reduce guessing scores on the multiple choice tests. Shuford claimed that APM procedures operate scoring systems with a very unique property that guarantees that any student can maximize his expected score if and only if the student honestly reflects his or her degree of belief probabilities.

The 172 fourteen year old study participants were separated into six groups: Group A, consisted of 42 students using visual text only; Group B had 22 students who were given visual text and added spoken text; Group C contained 34 students that used visual text and added
graphics; Group D included 24 students who were given visual text, added spoken text and added graphics; Group E also had 24 students but they used reduced visual text and added spoken text; the final Group F, consisted of 25 students that were given reduced visual text, added spoken text, and added graphics. Groups B, D, E and F used the spoken text format. Due to limited computer resources, Groups A and C were not given the spoken text format.

In this study, the students selected an answer for each of the 30 multiple-choice questions on the pre-test, and then entered their 0-100 percent certainty. One week later, the students all received multimedia instruction through a web-based self-instruction program based on the group they were assigned to. Once they completed the self-instruction program, each student took a post-test (which was the same as the original pre-test). Approximately one week after the post-test, the students were given a “retention” test, which again was the same as the original pre-test. Along with the retention test, the students were required to complete a 40 question attitude inventory.

Findings:
This study found that there was a significant increase in learning and retaining the English vocabulary for the students who received the combinations “visual text and graphics” or “visual text, added graphics, and added spoken text” during their instruction over those students who received reduced text and/or no graphics at all. The amount of time difference to complete the instruction among the students was insignificant. Students’ attitudes when presented with graphics were positive – they showed that they were more motivated to succeed and achieve in learning the vocabulary. Kim and Gilman state that by adding graphics, the students were able to visualize the definition of the words in a more meaningful way.

Implications:
Further research in this area could be conducted to see if the results can be repeated in similar environments in other countries. The graphics being introduced must have added meaning for the student or it will be ineffective. Without the use of computers, the concept of graphics and visual text is often used in classrooms with English language learners. Many objects in the classroom are labeled so that the students can start relating the words with the objects. Adding the computerized lessons takes this concept to the next level. Additionally, the authors suggest a study could be performed that measures the students’ knowledge of a word’s pronunciation and its meaning.