Teaching ESL Reading Using Computers

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Introduction

Using computers in ESL classroom is important for both teachers and learners. Computers can handle a range of activities and carry out programmed functions at amazing speed. They can check exercises after they are done, move students gradually from easier to more difficult exercises according to their levels and abilities. When students fail to answer questions correctly or perform activities, the computer can simulate, drill, or explain the phenomenon in a way that makes it easier for the learner to understand (Hoffman, 1996). However, technology, especially computers, has not yet gotten to the point where it can make a real difference in language instruction in ESL classroom. This paper will focus on the question of how ESL reading can be facilitated with computer applications for language teaching and learning. First, the paper will go over some of the available research on computers and ESL reading, and then discuss some programs and software that can be used in teaching and learning ESL reading for intermediate students. The chart below shows how far technology is involved in the ESL curriculum. It is a comparison of the field of ESL to some other disciplines in humanities in terms of technology integration into the curriculum.

COMPUTER INTEGRATION INTO THE CURRICULUM
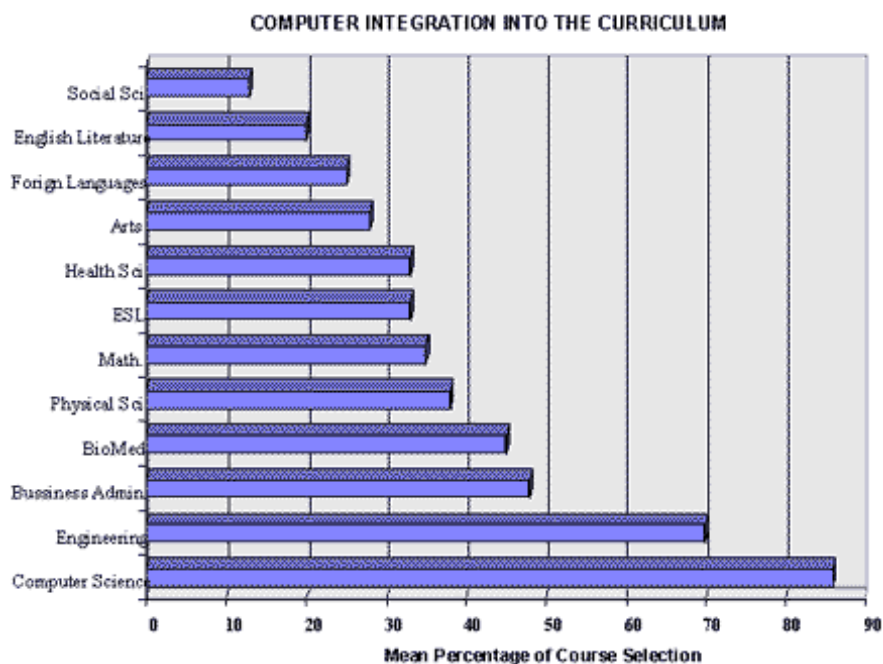
Source: "Understanding Information Systems in Higher Education";1995 , CCA, Consulting Inc. The author of this paper based on the reported statistics created this chart.

Previous Research

The development of computer-based reading curricula had been taking place before the existence of microcomputers in the late 1970s. Central mainframe computers dispatched instructional lessons to individual terminals in different locations. The relative difficulty in using mainframe computers for educational applications led developers to consider the more practical and affordable microcomputers. The availability of such computers encouraged stand-alone programs designed for a single reading skill (Reinking & Bowles, 1996).

The first major computer-based reading curriculum was the work of Richard Atkinson in 1964 at Stanford University which was supported by a grant from the U.S. Office of Education. The project was a first-grade reading curriculum aimed to lessen the need for classroom teachers (Atkinson, 1974).

Computer-based reading curricula continued to develop but were of a commercial nature. Though some research, primarily evaluative, was conducted, most computer-based reading curricula studies have been sponsored by the companies marketing them (Reinking et al, 1996).

These research attempts were exclusively for L1 reading. Only during the past ten years has the use of computers in the field of teaching second language reading been increasing. A variety of studies have shown the importance of using computers in ESL reading (Willet, 1992). Chun & Plass (1996) investigated how reading comprehension can be facilitated with a multimedia application for language learning. They studied the effects of a dynamic visual advance organizer on the macro level and the effects of multimedia annotations for single vocabulary items on the micro level. Furthermore, they examined the relationship between vocabulary acquisition and reading comprehension. The results of their study indicated that the visual advance organizer does aid in overall comprehension and that annotations of vocabulary items consisting of both visual and verbal information help more than verbal information only. Also, a moderate correlation between vocabulary knowledge and reading comprehension was found. Chun & Plass claimed that the results support the dual coding theory and its extension to multimedia learning and emphasize the significance of visual information in addition to verbal information to support both top-down and bottom-up processing in reading in a foreign language.

In another study to improve reading speed and comprehension of ESL students using computers, Culver (1991) implemented a computer reading program to determine the exit and entrance scores of ESL college students and to find out if their reading speed and comprehension would improve. The results showed some improvements for the majority of students in the target group with an overall increase of 3.9 grade level in reading rate. The results show important information about the effect of increasing reading speed on student comprehension as a result of employing computers. It was concluded that the computer was a good tool for improving students' reading rate despite the fact that increased speed did not lead to increased levels of comprehension for some students.

Chun D. & Plass J. (1997) based on underlying theories of L2 reading comprehension and text comprehension with multimedia, discussed "how L2 reading research is focusing increasingly on the cognitive processes involved in reading, that is, the interaction of lower-level, bottom-up processes such as vocabulary acquisition with higher level, top-down processes such as activating prior knowledge" (p.60). They merged this understanding with existing research on learning with technology to find out how students with different learning abilities put together "verbal and visual information". Their goal, in this study, was not to determine the effectiveness of multimedia on reading comprehension, but rather the learners who may benefit from multimedia instruction.

Whereas Chun & Plass used the underlying theory of L2 reading comprehension with multimedia, Preisinger, R. et al., (1988) used the schema theory as a basis to evaluate reading software programs. They developed criteria and questions to evaluate: 1) interactive capabilities of reading software (e.g. its flexibility, response to student errors, and ability to make a distinction between major and unimportant errors), 2) information processing (e.g. support of the use of prediction and problem solving strategies, use of text-based activities in the context of a reading passage, and encouragement of analyzing texts), 3) background knowledge (e.g. building schemata through pre-reading activities), and 4) general software construction and implementation. The goal of this study was to develop an evaluation tool based in light of a theory to help teachers choose the right reading programs for their students.

In drawing conclusion about the use of computers for reading instruction, previous research clearly supported the idea that computer-based instruction facilitates students' reading comprehension and increases their reading speed. This conclusion is supported by the results of the preceding studies and a series of other studies conducted by Kulik, Bangert, & Williams, 1983 who found significant increases in students' reading speed and comprehension across studies of computer-assisted reading instruction. These results should encourage ESL reading teachers to use computers in their classrooms not because they are "new technology" as reported by Wellington, 1995, but rather because of the positive results they bring to students' achievements.

Design

After examining the previous research that dealt with computers and reading, it was found that computers were very useful in many aspects of literacy instruction. Using computers in teaching ESL reading, however, did not get the attention it deserved. Most studies and software in the field were conducted and designed for L1 reading instruction. As a result, these activities aim to contribute to the field of second language reading instruction. The activities are designed for ESL students who are at the 450-500 TOEFL range and have previously had some type of beginning-level of ESL reading instruction and some basic computer literacy. This group of students may have difficulties with their reading comprehension and need to be prepared for freshman-level English reading or other college-level courses upon completion.

This paper will discuss three software programs that help ESL intermediate teachers to have their students practice reading using computers. The three software programs are: Mac Reader , StoryBoard, and Reading Galaxy. These activities are not meant to be used in one class period but rather in different classes depending on the type of reading we want to teach.

The first program, MacReader, is more concerned with sentences and paragraphs structures. Teacher scrambles the text and student reconstructs it. The teacher should choose the text to be centered from simple language resources that are suitable for ESL intermediate students. Once the text is entered, the program automatically shuffles it so that the students need to reconstruct it. There is a newer software called New Reader published by Hyperbole Software.

The second program, Storyboard, is concerned with text completion and vocabulary building. Learners enter words that are missing from the text by guessing them from the context. Both of these programs provide change to the classes regular activities and are used to train students to use reading strategies and become better readers. MacReader and Storyboard do not have any multimedia capabilities. There are no buzzes, beeps, sounds, colors, or any type of multimedia (AlKahtani & Abalhassan, 1999).

Reading Galaxy, on the other hand, has what the two programs lack in terms of interaction, sound, and music effects. students are interacting with the program while reading; they listen to the computer and follow the directions. Unlike, the other two programs, the teacher cannot add or remove any of the program contents. Thus, the role of the teacher is to "construct" the content in the first two programs and "facilitate" the content in the third program. The student's role is to reconstruct the content in the first two, and construct the meaning in the third one.

Activities

1-MacReader

Mac Reader by John McVicker, 1992 is Macintosh based and mainly teaches reading. It can be used for many other purposes such as using it for exams, homework, or group projects. It is the teacher who decides what the program should be used for. The program is a great supplement for ESL teachers and can provide a tremendous benefit to ESL intermediate students when they use it in their free time or when assigned by teacher. The skills that this software can be used for are reading, vocabulary building and writing. Other skills could indirectly be targeted by the use of this program (i.e. listening). For example, students can take notes while the teacher reads the text and start the exercise using notes took down during listening.

As for the reading exercises, when students click on "exercises", a pop up window gives six options: Read, timed reading, paced reading, cloze, sentence jumble, and paragraph jumble. The program is based on one group of exercises that are accessed by two icons found under the group "MacReader". One of these two icons is a glossary for adding vocabulary. Teachers need to have a password to access control programs that are used to author the texts or add to the vocabulary lists. The "Notes" icon accesses students' scores and is available for students as well as for teachers.

Exercises:

1-Read:
    This exercise is previously authored. The teacher can choose the topics and decide the level of difficulty of texts. The student is assigned a text, prepared by the teacher or randomly chooses a text that is part of the software. Here, the student reads through the text and when the first page is finished, two arrows lead to turning the page to continue the reading until the text is finished. The back arrow allows students to go back to revise or relate the text parts. The title of the text is shown at the top of the new page as: " Current Text "Title..."".. The session name "Read" is shown at the top left corner of the program. If students complete the text and click on the right button, a pop up message asks if they are interested in another exercise. Another feature of this program is the capability of defining new vocabulary by just clicking on any of them.

2-Timed Reading:
    This exercise is for reading speed. Certain topics are provided and students can choose what interested them the most.

3-Paced Reading:
    This exercise enables students to choose the pace that fits their reading ability using a bar indicating the numbers of words per minute. Another button appears beside the bar to stop the reading. It will be indicated in the notes that the reader stopped the paced reading. As a result, the round will not be counted but canceled. students might experiment until an appropriate speed is found.

4- Cloze:

This exercise is a reading comprehension exercise, which asks students to replace missing words. When students select CLOZE from the exercise button, they should see the dialog box below:

Delete one word every HOW MANY?

Enter a number between 2 and 15

(OK) (Cancel)

Student may type a number between 2 and 15 in the dialog box and click "OK". CLOZE exercises replace words from the text with numbers. If a student chooses the number 5, for instance, every fifth word in the text will be replaced with a number. Thus, the bigger the number, the easier the exercise. To work on the exercise, students will need to click a number in the text to select it, then will type the missing word. students can press the 'return' key or click the 'answer' button to check their work. If students need help, they can click the "Hint" button, which will show three options:

- By number of letters
- By showing the first letter
- By definition

5- Sentence Jumble:

This exercise is also for reading comprehension. It automatically mixes up the sentences from any paragraph a student selects. As with most of this program activities, the paragraph which is used can be from the software or be prepared by the teacher before hand. The computer does the jumble of sentences automatically and randomly.

6- Paragraph Jumble:

Paragraph Jumble is a similar exercise to the Sentence Jumble above. It just handles paragraphs. This exercise requires more advanced students unless the texts are abridged or chosen from simple language resources.

7- Glossary:

Besides authoring the texts to be used for the exercise, teachers can also add vocabulary to the program using the icon "Glossary" in the program group. This feature helps teachers customize the program to fit their students' needs. EAP programs could utilize this feature to serve their goals like teaching their students certain lists of vocabulary. This feature adds a great deal to the merits of this program

2-StoryBoard

Another program that is effective when used as an ESL reading activity is a program called *Storyboard*published by Wida Software. The program is a classical text reconstruction. Teacher scrambles the text, and learners rebuild it by guessing words. In doing so, a wide range of language skills are involved.

Storyboard is a popular and flexible activity, equally at home, in the classroom, and at the computer lab center. It is part of a software package including nine other different programs like: Spell Master, Match Master, Choice Master...etc.

Storyboard is a program that teachers can use to improve their students' reading strategies, build up their vocabulary, and help them practice prediction and guessing. It a is good supplement for teachers to reinforce their regular activities. Like many CALL programs, this program provides change to the class's regular activities. Teachers can use this program to support their reading classes and train students to use reading strategies. students become better readers using their guessing abilities.

Each word in the text is replaced by small squares; one square representing each letter. Learners, working individually or in a small group, reconstruct the text, one word at a time. If they guess correctly, all the occurrences of the word in the text appear. There is no need to start at the beginning of the text. Learners start by entering the words they feel sure about, such as 'grammar words', like "*the"*. As each word is found, the structure of the text becomes clearer and further guesses become easier. Teachers can save and access their students' files. Unlike Mac Reader, students' scores are saved and cannot be changed by students. If a student for example decides to look at the text as a whole, the program will automatically detect that action and save it for teacher to notice.

Program Overview:

Storyboard consists of two programs. The first program is called "The student Program" which is designated for the students' use. The second program is for the teacher to author the texts and all the relevant functions like the introduction, hints, and help. Following is a brief description of how these programs work.

1. The student program (sb):

When the student runs the program, a list of titles, which are supposedly prepared by the teacher or included in the software, appears on the screen entitled: "**open file**". When a topic is chosen, another screen is displayed showing the introduction for the chosen topic. The student will then choose one of the following choices:

- Hide all Words
- Show given words
- Cancel

The first choice, displays the text with only squares (representing words) and circles (for words about which a hint can be provided. All words are hidden but the punctuation marks. Small windows show the following in the margin of the hidden text:

Last guess .... Words found .... Guess a word: ....

The second choice "Show given Words" shows the text with all the words, which the teacher has decided to show to the students according to the lesson plan. The same interface will be displayed.

The students write the word in the space provided after clicking the hidden word to be guessed. Four options are listed vertically on the right of the screen showing:

1. Letter: to know a certain letter after assigning it by the cursor.
2. Word: to know a certain word after choosing it by the cursor.
3. Hint: to know more about a word that is replaced by circles.
4. Text: to show the whole text.

The main Menu:

File, See, Options, Window, and Configure are the items that appear in the main menu. Under each of those items, the student should find different functions needed to run the exercise and check results.

Any move that the student makes is saved automatically and could be checked by the student or the teacher at any time. To review the scores, a student can choose "score" from "see" in the main menu.

2. The Teacher Program (sbt) :

This program is basically for the teacher to author the texts and prepare lessons. The program allows teachers to do the following:

1. Text authoring:
   Teacher can import authentic material or just type and save them in the program.
2. Help:
   Three help options (help 1, help 2, help 3) are written by the teacher in a way that fits the lesson topic and purpose.
3. Given words:
   In order to allow some flexibility to the lesson, the teacher may show some words to the students according to the lesson plan.
4. Hints.
   The teacher can provide some hints to help students complete the exercises.

The main Menu:

The main menu includes: files, edit, authoring, search, window, and configure. This menu is different from the student program's menu. The authoring item is the main difference. student files could be saved and reviewed under the item "File".

3-Reading Galaxy

Reading Galaxy is another program that can be used for ESL intermediate students. In this program, students explore great literature while developing important reading and thinking skills. The program states the following uses :

Reading Comprehension: students construct meaning by interacting with a text, for example:

- reading the text to answer multiple choice questions (in Ganymede Squares Game)
- reading the text to determine the accuracy of alien claims (in To Tale the Truth Game).
- reading about authors (alien authors) to answer questions about them (in Metro Match Game).

Vocabulary Building: students understand new words in context and remembering them, for example:

- selecting correct answers (in Ganymede Squares Game).
- decoding secret phrases (in Stump the Human Game).
- decoding hidden phrases (in Meteor Match Game).

Reading for detail: students identify supporting information in a text, for example:

- reading alien claims first, and then going to the text for the answer (in To Tale the Truth).
- reading texts to answer questions (in Beat the Krok).

Literary Appreciation: Students understand and appreciate literary conventions such as character, setting, and plot, for example:

- answering questions about characters (in Charlotte's Web in Ganymede Squares).
- answering questions about the setting of the Wizard of OZ (in Beat the Krok).
- answering questions about the plot of secret of the Andes (in To Tale the Truth).

Using Context Clues: students use surrounding words and sentences to guess the meaning of new words, for example:

- matching answers to clues (in Ganymede Squers).
- filling in blanks in hidden phrases (in Beat the Krok)
- completing secret phrases (in Stump the Human).

Follow Directions: students attend to detail in order to accomplish tasks, for example :

- reading and following game instructions (in Ganymede Squares).
- following audio instructions (in Meteor Match)
- reading clues (in To Tale the Truth).

Logical Thinking: students use deductive reasoning and inference to understand meaning, for example:

- determining the accuracy of alien claims (in To Tale the Truth).
- figuring out what's wrong with the picture (in Stump the Human).

Though this program is not designed for ESL students, ESL reading teachers can make use of it with ESL intermediate students. The program can be used for various types of reading purposes such as vocabulary building, reading for specific information, and problem solving. It can be also used for listening comprehension where students listen to a passage read by the computer and then answer questions asked by the computer. Though this program can tackle these skills, the main purpose of the program is to develop the

reading comprehension skill in the first place.

In a reading lesson, the Reading Galaxy program can be used as pre-reading, reading, and post reading activities. For the pre-reading activity, the teacher may need to connect the computer to an LCD panel to project the text for students. The teacher then chooses one of the passages that are available among the program options such as the (Warst of the Wurst) which has a passage of four episodes. By clicking the buttons *Read Passage* and then *Voice,* the computer will start reading the text highlighting each sentence as it reads. students may take notes while listening. The teacher then asks students to talk about what they understood from the passage using their notes. This would stimulate students' interest and activate their prior knowledge of the content.

For the reading activity, students will have four minutes to skim the four episodes, one minute for each episode, to find out the main idea. They will be given another 10 minutes to read it again slowly and carefully. The teacher then commands the computer to test students' comprehension by asking them questions related to the passage they have been reading. Clicking the button where it reads "BEGIN" can do this.

For the post reading activity, students can play games related to the reading passage. Such activities would facilitate the students' reading and comprehension of a text. Activities like these can be done from time to time by taking students to the laboratory or by bringing a portable computer to the classroom connected to an LCD panel which would allow the class to see the text to be read. students can practice these activities and other similar activities individually in the lab. The teacher can assign one of the laboratory computers to be used for this purpose

Conclusion

Little has been achieved on computer integration into ESL curricula in general and ESL reading in particular. Some promising research in the field, however, is already showing some progress. The findings of such research efforts are encouraging and should be of great benefit to teachers who choose to use computers in their classrooms. Today's teachers cannot let technological revolution pass by without using it to serve their language teaching goals. Having said that, teachers are advised to consider what the computer industry offers for their classrooms, and should, consequently, seek the necessary training to use them efficiently. ESL reading software programs should not be restricted to only classroom use. Since teachers seek to help their students become independent learners, these programs are very useful for teachers as well as students to achieve that goal.

Notes

- An evaluation of the MacReader & Storyboard programs in ESL reading and vocabulary building appeared in CALL-EJ, Vol. 3 (2), 1999 by AlKahtani, S. & Abalhassan, K.
- There is a newer version of MacReader by John McVicker called "New Reader" published by Hyperbole Software.

Acknowledgement

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