Designing an English Reading Web-Based Instruction in Engineering Education

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Abstract: This paper aims to construct a web-based English reading class for Taiwanese students; that is, to digitalize the teaching materials on the web-site designed on the ground of second language acquisition theory. This EFL reading class proposes to meet the following needs. First of all, it expects to create a learning environment where motivation is enhanced, self-confidence is built, risk-taking is encouraged and anxiety is decreased. Secondly, it intends to fulfill students with different linguistic abilities and make individual learning possible. Third, it lays the foundations for the future learning models such as "multiactive" learning model, the private learning model as well as the individual learning model. And finally, it looks to encourage the exchange and sharing of ideas in either a homogeneous or mixed community, while incorporating a pure English learning environment. We hope this web-based instruction can make individual learning possible, enhance students' as well as instructors' academic survival and prepare them for lifelong learning.

Keywords: second language acquisition (SLA) theory, reading web-site, individual learning system, Future learning models

I. Introduction

The traditional instructional paradigm, which confines itself to time and space, causes students' and teachers' inconvenience. With the rapid technological development, computer assisted teaching pedagogy become more and more popular such as those of Bruckman's (1995), Joant (1996) and Eyman's (1998) teaching pedagogy on the web. In contrast to the traditional language class, this paper aims to build a web-based English reading class for Taiwanese students; that is, to digitalize the teaching materials on the web-site set up on the ground of SLA theory. There are some existent language teaching web-sites such as those built by Joette (1998), Aili (1999) and Craus (1999). Joette's reading program requests students to seek certain topics for insightful discussion and thereby increase their reading speed, vocabulary power and deepen their reading knowledge. In other words, Joette's reading web-site primarily serves native speakers of a university level, whose reading and vocabulary level is superior than those of Taiwanese students. Aili's web-site caters mainly for training Taiwanese students' listening comprehension in comprehensive universities, while Craus' elementarily recommend useful grammar testing

web-sites on the web.

Unlike the web-sites mentioned above, we try to build a complete and self-sufficient reading web-site. Joette's idea of setting up recommended web-sites where challenging information is provided for both students and instructors is adopted. Furthermore, this reading web-site serve as teaching material assembly hub and information distribution center. It includes the functions of Bulletin Board System (BBS)-- ideas exchange, of Electronic Mail (E-mail)-- letter sending and receiving and of Common Gateway Interface (CGI) —grading system for referential evaluation. The on-line syllabus covers course description, weekly calendar, content, test and recommended web-sites, either recommended by teachers or learners (ideas adopted from Joette). It is hoped that this web-based instruction can contribute to make individual learning possible.

II. Theoretical Framework

Corder (1967) uses the term "transitional competence" to describe the process of learning a second language. He confirms the second language knowledge system developed by the learner is a dynamic one in a state of flux, constantly changing as new knowledge of the second language is added. Corder's dynamic language acquisition echoes Nemser's "approximative system" which views the second language learning process as progressing along a continuum from zero knowledge to a level very closely resembling the linguistic competence of the native speaker of the target language. These theories assume that language acquisition is a "dynamic" and "progressing" one. The more the learner immerses in the second language, the more knowledge of the second language is acquired.

In the dynamic learning process, there are some variables interweaving within it and thereby exposing bad and good learners. The "affective filter", posited by Dulay and Burt (1977), claims that the effect of affect is "outside" the language acquisition device proper. It still maintains that input is the prime causative variable in second language acquisition since language teaching prime function lies in supplying comprehensible input for those who can't get it elsewhere, those constrained by their situation or their competence. Affective variables, on the other hand, act to impede or facilitate the delivery of input to the language acquisition device. Motivation, risk-taking, self-confidence and anxiety are regarded as key affective variables. Rubin (1975) proposes a good language learner has a strong drive to communicate. The good language learner is "willing to appear foolish . . . to make mistakes, . . . [and] to live with a certain amount of vagueness" (48). Apart from strong motivation, Beebe (1983) believes the risk taking as a main characteristic associated with a good language learner. Seliger (1983) finds that high input generators or high-level interactors in the classroom are more willing to develop contact with native speakers of the second language. These affective variables will determine the rate and degree of the second language learning.

III. The Design of Web-site

Echoing the second language acquisition theory, this reading web-site intends to meet the four primary needs of second language acquisition such as, opening an English learning environment, building an individual learning system and simulating future learning models.

The central axis of my reading web-site serves as teaching material assembly hub and information distribution center. It stores proficient materials and information. It's a self-sufficient comprehensive input system, by which

we mean to create an open environment allowing students to make real-time, on-line learning possible and immerse themselves in pure English learning simulation environment to stimulate motivation, promote self-confidence and reduce anxiety.

There are numerous self-evaluation drills on the proposed reading web-site. For instance, to design a self-evaluation system in the section of text, vocabulary and test. Once the students finish the drills, click the submit button, their drills are graded automatically. They can click the clear button and redo the drills until they get them right.

The grading system makes individual learning possible and fits students of different linguistic levels. It benefits teachers by providing spare time to correct students' mistakes. This factor aids them to grasp each student's difficulty from their consulting. It assists students in building their self-confidence by doing exercises repeatedly and also find their drawbacks.

The central axis equips the functions of Bulletin Board System (BBS)--idea exchange and sharing, of Electronic Mail (E-mail)--letter sending and receiving and of Common Gateway Interface (CGI)--grading system for referential evaluation. A bulletin board capable of accommodating nine discussion groups simultaneously is designed. The participants' identity in each group is illustrated by four different colors respectively. The instructor can monitor and engage in nine different groups' discussion when necessary. In this way, we expect to reach a "multi-active" learning model--the interaction within a group, that between groups and groups and that between the instructors and student(s). E-mail makes one-by-one instruction possible, while improving the mutual relationship between the instructor and the learners. Therefore, it functions as an efficient approach for a private learning model. CGI, on the other hand, sets up a referential grading system for learners to use individual learning system. The three apparatus either support the central axis or bear up the other devices.

IV. The structure of the one-line syllabus of the web-site

The on-line syllabus covers course description, teaching goal, weekly calendar, text, test and the recommended web-site as is displayed on figure 1. Course description summarizes the expectation of the course. Teaching goal explains its goal and its evaluation standard. Weekly calendar exhibits the whole semester schedule.
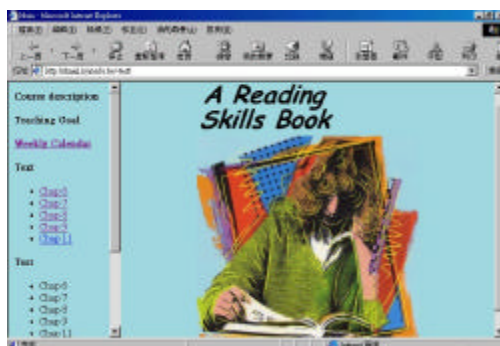

figure 1 the on-line syllabus

The text section contains warm-up activity, text, vocabulary (vocabulary list and photo vocabulary),

supplemental reading material. In the warm-up activity, students are divided into small discussion group on the bulletin board. The instructor can monitor the process of each group. Once completed, each group clicks the e-mail button, writes a report and mails back to the instructor. Once the students click the return button, they revert to the previous page. The text digitizes the reading articles in the textbook. In each reading article, there are some highlighted words as new vocabulary. By clicking each highlighted word, a small window appeared at the up-left corner of the screen providing both English and Chinese explanation of that word. Figure 2 shows the vocabulary window.
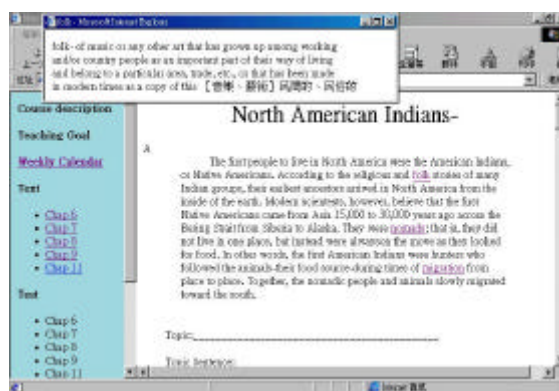

figure 2   the vocabulary window

The text section also digitalizes the drills enclosed in the textbook where the learners can do self-evaluation. Once they click or type the answers in the blanks and click the submit button, they gain the grading information immediately. They can redo the drills by clicking clear button until they get them right. Vocabulary is divided into vocabulary list section where vocabulary list and exercises are provided; the photo vocabulary is shown by scanning pictures.   In this way, we hope to strengthen students' impression of vocabulary. The test is a self-evaluation one which substitutes the traditional quiz in class. The on-line test is efficient because students can redo it many times until they get high grades and build their self-confidence. The recommended web-site is designed for students to suggest other useful and relevant web-sites on the Internet for their classmates and instructors. It anticipates broadening and encouraging the instructor's as well as the students' knowledge and depth of reading.

The course syllabus is now available at: http://stmail,kyit,edu.tw/~test/

V. Limitation and Expectation:

Building a personal teaching web-site is rather a challenging work and has its own limitations. First of all, it invests lots of human labors and time to digitalize a textbook.   Second, since this web design is a preliminary tryout, it does not utilize any web authoring tools in the market.   Nevertheless, some software-authoring tools could be very helpful and save a lot of energy in developing games and educational software application. Third, with the limitation of technology, It is a pity that the bulletin board can accommodate four hundred and fifty discussion records. Once we increase its capacity, the speed of the server slows down.

This reading web-site is completely finished, yet, it hasn't been carried out in actual teaching this semester.

Students' response to this web-site isn't evaluated, not to mention detailed analysis. However, it is proposed that formal research concerned the employment of the web sites can be investigated, such as students' feedback to the change of learning behavior, students' attitude to the new learning model and if possible, the impact of digitalization on language education. It is sincerely hoped that both teachers and students can benefit from web construction. Of course, in the future, a close attention paid to how the web can assist or effect us in language learning are our main concern.

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