Creating a Virtual Language Center on TANET

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ABSTRACT

Foreign language educators around the world are paying more and more attention to the power of computer networking in language education. In this paper, the design and the contents of a virtual multimedia language center at National Taiwan Ocean University (NTOU) are introduced and its possible contributions to foreign language learning are also discussed. The NTOU virtual language center can deliver online language courses that include digital audio and digital video. It can also provide interactive language exercises, diagnostic tests, and language reference database (i.e., online bilingual and collocation dictionaries). Moreover, opportunities for teacher-student and peer interaction (via asynchronous online discussion forum and synchronous chatting) are also available in this learning environment. These learning resources and tools should be able to significantly enhance the quality of foreign language education.

KEYWORD: Web, Foreign Language Learning, and Asynchronous Learning.

1. INTERNET AND FOREIGN LANGUAGE EDUCATION

With the explosion and the success of the Internet and World Wide Web (WWW), the number of synchronous and asynchronous learning courses has been steadily increasing. Numerous Web-based courses in various academic disciplines have been created around the world. Thousands of colleges and universities now offer on-line courses to their students, and many of them even offer extensive degree programs.

For foreign language educators, the contributions of Internet or Intranet are so evident. Clicking on the mouse, language learners can have immediate access to various authentic foreign language texts and foreign culture sites. Moreover, based on the power of computer networking, language teachers and researchers in several universities have created virtual language labs or language centers to deliver foreign language learning materials via computer networking (cf. [1]; [3]; [17]; [18]). Although various Internet and Intranet resources have been widely used in foreign language education, these innovations of web-based foreign language teaching and learning have not yet been adequately incorporated in Taiwanese colleges and universities.

This paper will describe how a research team at National Taiwan Ocean University (NTOU) takes advantage of new Web technologies to create a virtual language center on TANET. It is hoped that description of how NTOU virtual language center was created will lead to more innovative creations of online language learning resources in Taiwan. In the following sections, we first briefly discuss the importance of English and the limitations of traditional language labs or language centers. Then, four major online services provided via the NTOU virtual language center are introduced. The rationale and design of each web-based service will be described. Last, the directions for future development of this virtual language center are outlined.

2. THE LIMITATIONS OF TRADITIONAL LANGUAGE LABS/CENTERS

English has become the lingua franca of the world. In order to compete with other countries, Taiwanese students must have an adequate command of the international language. Students now start learning English from the elementary school level. Ministry of Education has been advocating the 5-level English language proficiency test, and thousands of people participated in these language tests. There are many cramming schools focusing on English language training. Famous universities begin to ask their faculty to lecture in English. Moreover, corporations

expect to hire employees with good commands of English. In Taiwan, huge amount of money and time has been spent on English teaching and learning.

Traditionally, one of the key technologies used for foreign language education in Taiwan and around the world has been the tape-based language laboratory. High schools and universities in Taiwan often have several large rooms dedicated to carrels in which students would sit in a class. During the class, language teachers use the main console to play audio tapes and students therefore have few chances to control their own learning pace. Some institutes have tried to offer after-class lab hours for individual language learners. But given the fact that the language lab is often occupied by a large number of classes, students can only come to duplicate tapes after class and listen to the tapes at home. As more and more students want to improve their foreign language skills, it seems difficult for tape-based language labs with limited space and open hours to serve hundreds or thousands of foreign language students.

With the rapid development of audio technology, Compact Disks (CDs) which produce much better audio quality became very popular several years ago. Many newer foreign language textbooks are increasingly augmented by materials on CDs or even multimedia CD-ROMs. As the interface of multimedia personal computers becomes more and more friendly, computerized multimedia language labs have gradually become strong competitors for traditional reel-to-reel language laboratories. Even though multimedia computer technology has provided such a marvelous foreign language learning environment, it is still not convenient for students to gain access to multimedia computer language labs since they have to go a specific location on campus only during the after-class hours. Students are also not allowed to copy any CD-ROM since this option clearly violates copyrights. The new type of multimedia learning lab/center still cannot accommodate many students since the open hours and space remain limited.

3. WEB-BASED LANGUAGE LEARNING: NTOU VIRTUAL LANGUAGE CENTER

The difficulties of the physical language labs or centers can be resolved by using computer networking technology. A virtual language center can provide a much better environment for distributed learning. Many of the services available in the physical language centers can be provided by the virtual center. Moreover, a virtual language center can be accessed by a learner from anywhere at any time. A well-designed virtual language center should be able benefit more language learners.

There are different ways of designing a virtual language lab/center. We at NTOU mainly target at college level students and hope to help EFL students obtain better commands of English. Due to limited funds and human resources, we have only five major sections in our virtual language center, as shown below in Figure 1.

1. The Online Courses. The main service is the audio on demand. Moreover, we also have some facilities for online discussion and so forth.
2. Resources Collection. Currently the key service of this section is an online concordancer for learners to quickly consult word/phrase usage.
3. CD-ROM/Internet Evaluation: This section introduces various language learning sites to Taiwanese students, and at the same time we will guide them how to assess these materials.
4. Online Testing System: Several online tests are available, including Vocabulary Levels Tests and several popular tests in Taiwan.
5. Chatting Area: Seveal Chatrooms are available for online interaction and practices in English.

Figure 1. The Virtual Language Center at National Taiwan Ocean University

3.1 Improving Listening Ability by Using Audio on Demand

Foreign language skills have become more and more important in today's world. The importance of listening skill in second language development is widely accepted by second language acquisition researchers. Nevertheless, as pointed out several Taiwanese

researchers (e.g., [4]), the listening competence of many Taiwanese EFL students remains poor. Thus, there is an urgent need for students to practice English listening frequently.

With the development of Internet technology (e.g., multimedia-streaming technology), college students off campus would have easy access to material distributed through a web browser. They could listen to their streaming audio lessons on a computer, and even take a comprehension test and receive immediate feedback. Distributed learning material would be texts, audio clips, and video clips. This type of anywhere and anytime language learning should allow more language learners to practice English listening at their own pace.

With the kind permission from a famous publishing company, McGraw-Hill company, we at NTOU were able to digitize two popular ESL listening/speaking textbooks- Interaction I and Interaction II . We use Realencoder, a free authoring tool provided by the Progressive Network, to convert the traditional wav. files into the RealAudio format. All the audio tapes of Interaction I and Interaction II were converted into digital RealAudio ra. files.

After completing digitizing all the tapes, we install RealServer on our Windows NT server before delivering the digital audio files to students. In fact, the regular HTTP mechanism can still be used but the rate of delivery is indeed too slow. Thus we have to use RealServer by the Progressive Network. The price of professional version of Realserver (RealServer 5.0 Intranet Edition) goes far beyond we can afford. Fortunately, a free Basic RealServer was also available and it works well if there are not many students logging to the virtual language lab at the same time. All the RealAudio files were loaded onto the Window NT server and Microsoft FrontPage was used to administer a web site that holds all the files together. When the students link to the URL http://ntouvlc.ntou.edu.tw, they will first be guided to download the plug-in software, RealPlayer of the Progressive Networking company, and then enter the virtual language lab.

After students successfully log into the language lab, they then can choose which exercise they would like to work on, as shown in Figure 2 below. The page number of a given exercise was also given.
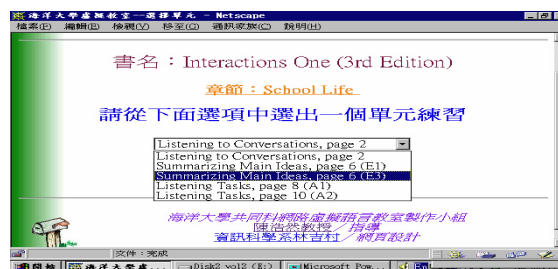

Figure 2. Selecting a Unit from a Chapter

In addition to putting multimedia audio or video files on a web server, Godwin-Jones ([5] and [6]) introduced several ways which foreign language teachers can make the Web sites more interactive/dynamic. Through the feedback generated by computer, foreign language learners will know if they have successfully completed a task.

There are different ways of making a Web site interactive. The first step we made was to prepare some interactive quizzes. After listening to a passage or a short story, students are asked to answer questions to check their comprehension. The Web page that is coded with the JavaScript will judge students' answers. One very simple example is given below. The students first click on the real audio/video icon the RealAudio, and the RealPlayer will pop up and play the selected file as shown below in Figure 3. Then they can answer the questions by clicking the possible answers as shown in Figure 4. Their answer will be checked and the feedback will be sent back to students immediately as shown in Figure 5. With the help of JavaScript, students can receive proper online feedback and learn a foreign language on their own.

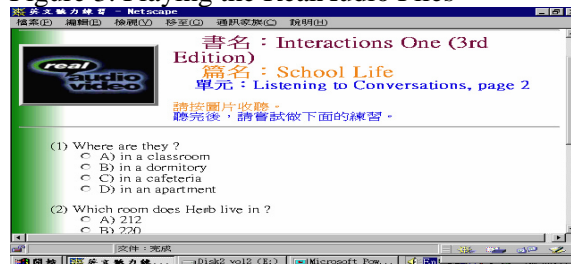Figure 3. Playing the RealAudio Files
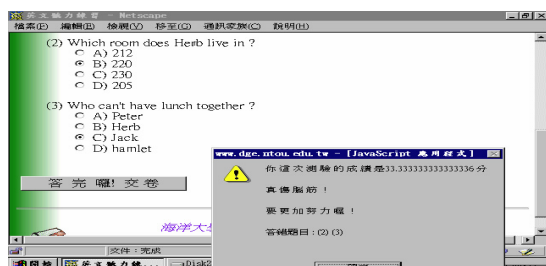

Figure 4. Listening Quizzes

Figure 5. The Feedback from Computer

3.2 Improving Writing Skills by Exploring Online Concordancer

In additional to the difficulties in English listening, another common problem of many Taiwanese students is that they are not sure about the usage of English words or phrases. One of the highly recommended learning strategies is to search the proper usage from a corpus by using a concordancer. This approach is referred to as the Data-Driven Learning (DDL) or Classroom Concordancing advocated by Tim Johns at Birmingham University. According to Odlin ([9]), data-driven learning is an approach to language teaching that gives central importance to developing the learner's ability to "puzzle out" how the target language operates from examples of authentic usage. This approach is particularly associated with the use of computer concordances in the classroom but can be extended to other situations where the students have to work inductively from authentic data. According to Johns ([7]), data-driven allows language learners to explore a large amount of authentic target language texts by using the searching and indexing power of computer. This approach to second language learning is not only innovative but also powerful since it can help learners to resolve their own learning problems and help them to become independent second language learners.

Kettemann ([8]) and Stevens ([15]) suggested that there are several advantages of using data-driven learning. First, concordances give students easy and immediate access to authentic language production with many different styles and genres. Second, a concordacner is an extremely powerful hypothesis-testing device on vast amount of data. It allows controlled speculation, makes hidden patterns of language use readily apparent, thus, enhances inductive thinking and exploratory leaning. Through using the concordancer on a regular basis, learners begin to develop strategies for dealing with a wide variety of texts. As a result of this kind of text analysis, learners are able to use concordance as a way of increasing their knowledge of English. Third, DDL allows students to interact with text actively and analytically and allows students to question, explore the word forms, usage, vocabulary, collocation, grammatical features, syntax, and stylistics. Learners assume control of the learning process.

Despite the data-driven learning is recommended by language teachers and researchers, it is not easy for language learners to find free concordancing programs and suitable corpora since these facilities are only available in the computer labs. To allow more learners to engage in data-driven learning, it is necessary to build a web-based concordancer.

With a research project grant from NSC (National Science Council), we created a web concordancer at National Taiwan Ocean University. In this project we not only try to provide a faster and more reliable concordancing system open to all interested English teachers and users but also try to overcome some weakness of currently existing web-based concordancers. We would like to create a web concordancer with the following features and options for Taiwanese EFL learners and teachers.
1. Fast and reliable connection and quick response.
2. Large corpora for ESL/EFL learners and teachers (including both NS corpora and NNS learner corpora).
3. Larger contexts for any searched word.

Since we have only limited funds, we do not expect to surpass the commercial web site such as Collins COBUILD or the well-funded project of Hong-Kong Polytechnic University. We aim at creating a fast, reliable, and friendly web concordancer for Taiwanese EFL learners and teachers. We will discuss the goals outlined above in details in the following sections.

First, the connection to NTOU web concordancer can be faster than the connection made to other web sites in other countries. For TANET user and other users in Taiwan, we expect that our web concordancer will be able to respond to learner's queries within 10-15 seconds. Moreover, to increase the searching speed, we reduce each corpus size to around 10-15MB.

Second, we try to include various corpora.

Due to the copyright restrictions, we have to rely mainly on the free electronic texts from Gutenburg projects. We are also negotiating with several local English newspapers about putting their electronic texts online for educational purpose. In addition to the native speaker corpora, we also have a smaller learner corpus available. During the past three years, we have been collecting English writing samples of Taiwanese college students. Now we have a 200,000-word EFL learner corpus, and this corpus will be a very precious resource for language teachers or researchers to better understand Chinese EFL learners' interlanguage. The interface of NTOU web concordancer is shown below in Figure 6. An instance of search outcome is shown below in Figure 7.
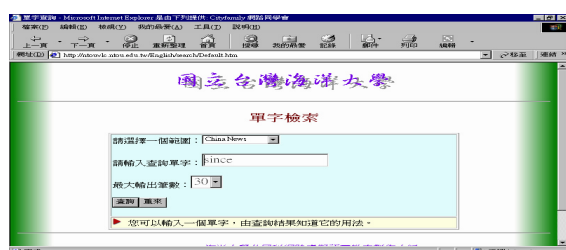

Figure 6. Interface of the NTOU Web Concordancer

Figure 7. Web Concordance Output

Third, since the display of larger linguistic contexts is fairly important when learners analyze the usage or the meaning of particular words or phrases. To make the searching process more friendly, NTOU web concordancer allows learners to have a convenient access to the larger context of any keyword.

By putting the concordancer online, we hope that more Taiwanese students can have opportunities to explore the power of data-driven learning. This unique language learning environment will encourage them to resolve their own puzzles and answer questions regarding English usage and grammar.

3.3 Web-based Language Testing Facilities for Learners, Teachers, and Researchers

A language center should be able to provide various language tests for different teaching and learning purposes. Language learners can take a diagnostic test to better understand their strength and weakness. Language teachers need to create various language tests to assess learners' learning outcomes.

Web-based language test system can have some clear advantages: it can be used to create and administer surveys, tests and assessments over the web or Intranet. The system administers the assessment, records each user's submission, automatically scores those submissions, and provides customized feedback to the user.

As computer-based training (CBT) becomes more and more popular, there are many authoring tools and programs for creating and administering online tutorials and tests. Most of these programs are easy to use and language teachers do not need to worry much about technical details of these authoring programs and can fully concentrate on the content of the tests. However, selecting a suitable program from a wide variety of available programs is not a simple task. With limited funds, NTOU faculty has carefully evaluated various online language testing systems. An authoring package called TestPilot by ClearLearning was chosen because it has many important authoring functions we need and its price is not very high.

The procedures of using one popular language test, English vocabulary level test, created at NTOU are shown below. This test will quickly diagnose a student's English vocabulary size. Each stage in taking the test is illustrated with a screenshot.

Stage one. Students enter the testing system via a Web browser (either Internet Explorer or Netscape Communicator) and type in their name and password (student ID) to request a placement test.

Stage Two. Students then read the Test Instructions on how to complete the language placement test.

Stage Three. Students begin to take the language placement test and answer the multiple-choice questions, as shown below in Figure 8.
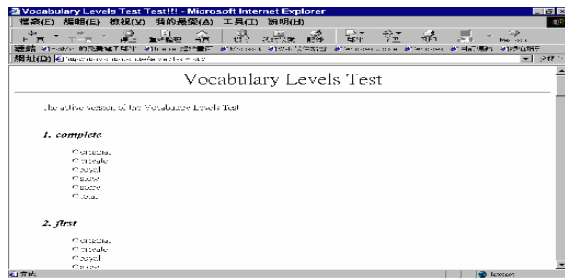
Figure 8. The Computerized Vocabulary Levels Test

Stage Four. After the students finish the test, they can click on the submit button to send out their answers, as shown below in Figure 9. They will then receive a confirmation message indicating their answers have been processed, as shown below in Figure 10.
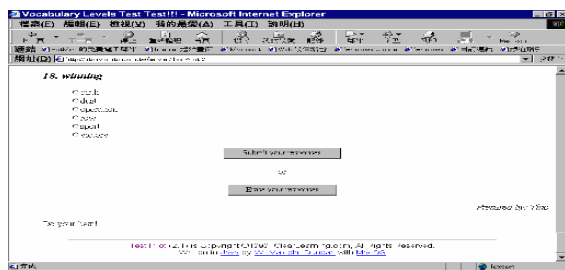
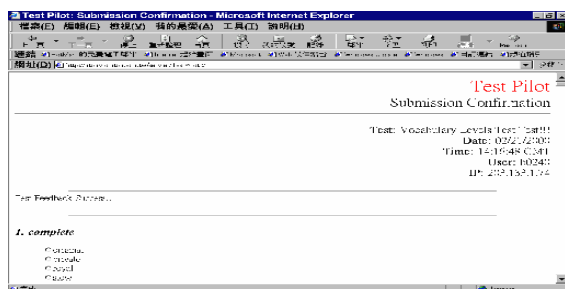Figure 9. "Submit Button" to Send out Answers

Figure 10. The Confirmation Message

Stage 5. Students receive an immediate report on their performance, and the report includes detailed feedback on each question as well as the total score, as shown below in Figure 11. Test results can also be sent back to the test takers via e-mail.
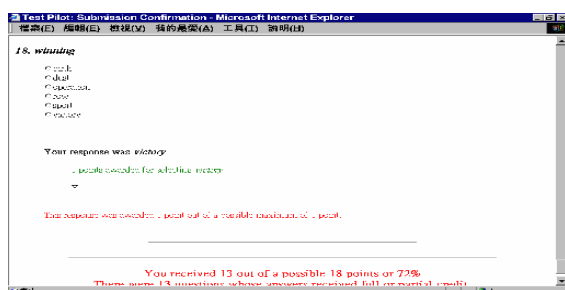
Figure 11. The Feedback from Computer

Stage 6. The computer system stores all the test score of students. Since the system can automatically record learner's performance in the test, as shown below in Figure 12, language teachers and researchers are able to conduct further analyses on learners' performance in these tests and design/choose more suitable teaching methods/materials.
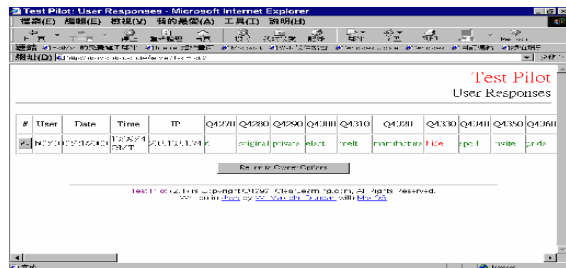
Figure 12. The Record of User Responses

3.4 Improving Speaking and Writing Skills through Online Chatting

Taiwanese college students are particularly weak in oral communication because they have few opportunities to use the target language to communicate with other English speakers. However, speaking and writing in a foreign language needs many practices, and interacting with other speakers of the target language is extremely beneficial. The empirical research on NS (native speaker)-NNS (non-native speaker) face-to-face interactions found that second language learners were able to receive comprehensible input and corrective feedback (from NS's modifications of linguistic input) and were given opportunities to produce modified output (comprehensible output) during the meaning negotiation process (cf. [10]; [11]; [12]; [13]; [14]). Some of the theoretical terms (comprehensible input, corrective feedback, and comprehensible output) in second language acquisition research are briefly explained below.

Regarding comprehensible input, in the example below taken from Pica ([13]), the NNS learner signal regarding *three black windows* was interpreted (correctly) by the NS as the apparent need to have *garage* segmented, moved from object of have to subject of *is*, and then defined and described.

(1)
NS: and I have a garage on the inside with three little black windows
NNS: three black windows?
NS: you know what a garage is?
NNS: no

NS: um, it's attached to the house. It's a building attached to the house in which you can keep your cars and called a garage, OK, so it looks like a big house and a little house, but they are attached
NNS: Oh, it's a small house.
NS: Uhuh
NNS: Uhuh, and black roof?
NS: Uhuh
NNS: Yeah, oh, maybe, let's see, yeah, I understand.

As for the provision of corrective feedback during interactions, when learners use their interlanguage resources to communicate with native speakers, they in fact set up a basis from which they can be given feedback on their production. For instance, in the example below, the NS signal offered the learner an L2 version that focused on differences in both form and meaning by: segmenting *tree* from the learner's utterance, making it the subject of the NS's sentence, modifying it with the plural –s morpheme, and substituting branches for stick.
(2)
NNS: and tree with stick
NS: you mean the trees have branches?
NNS: yes

When receiving the signal from NS, NNS learners then try to modify their utterance and produce modified output. One instance provided in Pica ([11]) is shown below. The learner elaborated about patton (albeit unsuccessfully) in responses to the NS open signal.
(3)
NNS: we have common patton in this case
NS: I don't know that word … and you describe what it means
NNS: yes uh uh if I can explain the car's nature, we understand easy because car has a few- a lot of nature …
Face-to-face interactions with English native speakers, as shown in the examples above, seem to be very effective in improving learners' communicative competence; however, it is not easy for Taiwanese students to find a native English speaker to practice their English. With the rapid development of the computer networking, online communication via Intranet or Internet has become a very promising language learning activity (cf., [16]) to fill this gap. Language learners now can communicate with each other and even native speakers via

e-mails, Internet phone, or online chatting (asynchronous and synchronous mode).

Online chatting is particularly effective in improving learners' spontaneous interaction with other speakers of the target language. Since the communication is synchronous, learners have to quickly transform their ideas into the target language. This exercise will help them move from understanding the language to using the language actively. People in different locations or countries can log into an online chat room at the same time and can "chat with" each other to exchange their opinions.

We can reasonably argued that text-based negotiations/interactions happened in online chat rooms can provide similar beneficial learning conditions as those found during NS-NNS face-to-face negotiations. Researchers (e.g., [2]) have found that computer mediated communication (CMC) between NNS-NNS can also provide many of the alleged benefits ascribed to the NS-NNS face-to-face interactions.

At NTOU, we have incorporated the online chatting service in our virtual language center and encourage students to log in chat rooms for practices, as shown in Figure 13.
Figure 13. Online Chatting
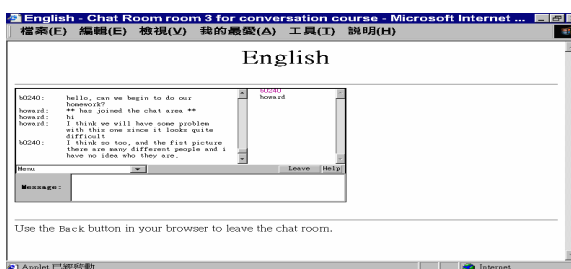
4. THE FUTURE DEVELOPMENT

As can be seen from the discussions above, web-based language learning environment can be a very rich and stimulating learning environment for Taiwanese college EFL learners. Students can possibly benefit form using various online services provided by this virtual language center from any place at any time. So far, we only begin to explore the power of web-based language teaching and learning environment. There is still plenty of room for improvement. Several projects we plan to accomplish within a year or two are:
1. For listening: Supplement streaming audio with streaming videos and add an online

listening strategies training session.

2. For writing: Create online feedback mechanism and some intelligent error-detecting devices.
3. For speaking: Offer pronunciation training with some web-based speech recognition mechanism.
4. For reading: Create a click and show online learner dictionary to facilitate reading comprehension.
5. For testing: Provide various types of online tests and quizzes for assessment and practices.

It is expected that our virtual language center will inspire more language teachers and researchers to create more useful and interesting web-based language learning materials. When more and more web language learning resources are available, more Taiwanese learners will surely benefit from them.

REFERENCES

[1] A, Allodi., D. Doktor, and E. Kuipers, "WELLS: Web-enhanced language learning", In Jager S., J. Nerbonne and A. van Essen (eds.), *Language teaching and language technology,* Lisse: Swets & Zeitlinger, pp. 123-135, 1998.

[2] R. Blake, "Computer mediated communication: a window on L2 Spanish interlanguage", *Language Learning and Technology,* Vol. 4, No. 1, pp. 120-136, 2000.

[3] J. Burston, "From CD-ROM to the WWW: coming full circle", *CALICO Journal,* 15 (1-3), pp. 67-74, 1998.

[4] Y. L. Chang, T. S. Chang and C.H. Kuo, "Listening difficulties and learner strategies of non-native speakers", In *Proceedings of the 9th conference on English teaching and learning in the Republic of China,* Taiwan normal university, Taipei, Taiwan: Crane publishing company, 1992.

[5] R. Godwin-Jones, "A practical guide to teaching with World Wide Web." Available: http://www.umac.edu/iuc/cmc96/papers/poly-p2.html, 1996.

[6] R. Godwin-Jones, "Dynamic web page creation", *Language Learning & Technology*, 1(2), pp 7-13, 1998.

[7] T. Johns, "From printout to handout: Grammar and vocabulary teaching in the context of Data-driven Learning", T. Odlin (ed), *Perspectives on Pedagogical Grammar*, Cambridge University Press, pp. 293-313, 1994.

[8] B. Kettemann, "On the Use of Concordancing in ELT", *TELL&CALL* 4, pp. 4-15, 1995

[9] Odlin, T., *Perspectives on Pedagogical Grammar*, Cambridge: Cambridge University Press, 1995.

[10] T. Pica, "Interlanguage adjustement as an outcome of NS-NNS negotiated interaction", *Language Learning,* 38, 1, pp. 45-75, 1987.

[11] T. Pica, L. Holliday, N. Lewis, & and L. Morgenthaler, L. "Comprehensible output t as an outcome of linguistic demands on the learner", *Studies in Second Language Acquisition,* 11, pp. 63-90, 1989.

[12] T. Pica, R. Kanagy, and J. Falodun, "Choosing and using communication tasks for second language instruction", In G. Crookes and S. Gass (Eds.), *Tasks and language learning: Integrating theory & practice.* Clevedon, England: Multilingual Matters, Ltd, 1993.

[13] T. Pica, "Research on negotiation: What does it reveal about second-language learning conditions, processes, and outcomes?", *Language Learning*, 44(3), pp. 493-527, 1994.

[14] T. Pica, F. Lincoln-Porter, D. Paninos, and J. Linnell, "Language learners' interaction: How does it address the input, output, and feedback needs of L2 learners?", *TESOL Quarterly*, 30(1), pp. 59-84, 1996.

[15] V. Stevens, "Concordancing with Language Learners: Why? When? What?", *CAELL Journal*, 6.2, pp. 2-10, 1995

[16] Warschauer, M. and R. Kern (Eds.), *Network-based language teaching: Concepts and practice,* Cambridge: Cambridge University Press. 2000.

[17] P. J. Yang, "Networked multimedia and foreign language education", *CALICO Journal,* 15 (1-3), pp. 75-88, 1998.

[18] Y. Zhao, "Language learning on the World Wide Web: toward a framework of network based CALL", *CALICO Journal*, 14 (1), pp. 37-51, 1996