

Integration of Computers and the Internet with a Process Approach to Teaching Reading, Writing and EFL Content-Based Classes in the College Core Curriculum

大学レベルの教養のコアカリキュラムにおける、英語の基礎読解力、作文
能力向上指導の為に、EFLカリキュラムと、インターネット及びコンピ
ューター教育の統合

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要 約

本研究は、外国語としての英語と大学レベルの教養のコアカリキュラムの最近の教育方法に
対して、インターネットとCAI (Computer Aided Instruction) を用いることを検討するもので
ある。これらの新しいコアカリキュラムにおいて、基本的な読解力、作文能力と教養を教えるために、
学生の個別的な学習や、学習内容をより深く理解するための勉強と研究活動が重要なことである。C
AI教材は、大クラスにおける個別的な学習を提供するために特に役立つ。また、より多くの英語教
材や研究用資源を活用できないような小さな大学では、インターネットが学生の個別学習や研究
用に必要と考えられる。

キーワード: computers, Internet, EFL, CAI, content-based, curricula

ABSTRACT

This paper examines recent trends in using Computer Aided Instruction (CAI) and the
Internet in teaching an English as a Foreign Language (EFL) and liberal arts core curriculum
at the college level. CAI and the Internet are tools which are especially useful for the
process approach to teaching basic reading, writing and the liberal arts. They can provide
students with individualized study or remedial work, language support and research resources
which may not be otherwise available in a large class setting or in a smaller educational
institution with fewer EFL resources.

1.0 Reading, writing and EFL content based classes in the liberal arts core curriculum: A process approach

Recently Computer Aided Instruction (CAI) and the Internet have entered all areas of education.
Research has not proved that use of computers in English as a Foreign Language (EFL) writing
instruction is better than the use of paper and pen (Li, 1990). However, computers have been
described as a tool, in the same way that a pen is a tool, but a tool that has effected the way
writing tasks are approached. CAI and the Internet have changed the nature of the resources

available for core curriculum liberal arts research, reading and writing.

The core curriculum is the basic curriculum which all students in a course of study must take. Typically this includes liberal arts survey classes designed to provide students with a broad foundation of knowledge in a variety of disciplines. It also includes foundation or preparatory classes for the student's major field of study. However, beyond introducing students to a wide range of knowledge and preparing students for study in the major, the core curriculum also trains students in basic college level academic skills, such as research and writing.

1.1 Process approaches to teaching reading and writing

Recently, most new pedagogical approaches to EFL reading and writing have stressed process as well as product. A process approach to writing stresses pre-writing tasks such as brainstorming or outlining; post-writing tasks such as extensive editing or rewriting; peer and teacher feedback on the clarity and purpose of the writing; as well as correction of grammar and spelling mistakes (Oishi & Kimai, 1995). A process approach to reading also focuses on pre- and post-reading tasks, various reading strategies, and peer interaction. Process approaches often take a holistic view of language learning and integrate writing with reading, listening and speaking.

1.2 A process approach to teaching liberal arts

Similarly, most new pedagogical approaches to liberal arts core curricula can also be seen as stressing process. In the liberal arts, a process approach would focus on both the knowledge and the skills of the discipline. Skills could include methodology, critical thinking, discussion/debate or research/laboratory techniques. Traditionally, in a process approach, students would be required to apply knowledge and skill in an individual study or experiment which might result in a laboratory report, a research paper or a critical essay.

1.3 A process approach on a school-wide curriculum level

Simply put, process approaches tend to stress strategies and the application of knowledge, or learning *how to do* something. Product centered approaches tend to stress learning information and the ability to reproduce a correct answer, learning *about* something. Of course, it is impossible to design a curriculum that is entirely process or entirely product centered. Product and process are at the ends of a continuum whose elements are included in the make-up of all curricula.

A process oriented EFL content based liberal arts curriculum develops students abilities in three general areas: content discipline knowledge and skills, second language skills, and general language knowledge and skills. Since the goal is for the students to apply language and content knowledge to their own individual study or experiment, a process approach requires teachers to individualize instruction and feedback as much as possible in order to meet the wide range of student needs and interests. The teacher has to consider the facilities and time which students need to both reinforce previously acquired knowledge/skills, learn new knowledge/skills, and to

apply that learning.

This is especially difficult when class size is large, the time for individual teacher-student, student-student conferencing is short, or student access to appropriate content texts and resources is limited. These restrictions of size, time and resources are common in most EFL teaching situations worldwide. Use of CAI and the Internet in curriculum design addresses some of these problems and creates opportunities for student self access and individualized learning.

2.0 Computer Aided/Assisted Instruction (CAI) and the Internet

2.1 Computer Aided/Assisted Instruction (CAI)

For the purposes of this study, CAI is defined as any pedagogical practice in which students are helped to learn by use of the computer or computer software. CAI does not include instruction by the teacher on how to use the computer as a tool. For example, in instructing students how to use graphics software, the instruction may not be CAI. The teacher may simply be instructing the students in the use of a tool. If the instructor used a software tutorial that trained students how to create graphics, however, the instruction would be CAI.

The tutorial software "teaches" the students; the software aids the teacher in instructing students -- performs some of the traditional classroom duties of the teacher. The graphics software does not. By this definition, the elements of word-processing software such as spellcheckers and grammar checkers, which point out potential errors and present students with alternatives, advice or tutorials, would involve CAI.

2.2 The Internet

The Internet is basically a network of large, high-speed computers that are linked together and can communicate with each other, sending messages and information to each other around the clock. There are smaller computers in the Internet too, but at the heart of the Internet are the huge computers that run governments, businesses, research institutes, and universities.

Text, graphics, video and sound can be passed through the Internet. The institutions and individuals connected to the Internet can make information available to the public through the World Wide Web, or use e-mail for private or group communication.

E-mail use in EFL emphasizes practicing reading and writing skills through asynchronous (not at the same time) communication. Students are exposed to reading large amounts of communicative English and have to use English as a means of written communication. One common way of teaching with e-mail is to have students join international discussion e-mail lists or to pair them with pen pals from other countries.

E-mail lists are discussion groups. The computer distributes each message sent to the list to all the members of the group. One common way to use e-mail lists is to have students join a discussion list they find interesting and send one message to the list per certain time. The tea-

cher or a peer receives a copy and advises the student on her writing.

The World Wide Web (WWW) connects deposits of information on computers around the world and makes the information on these "web pages" available to the general public. Governments, universities, research organizations, newspapers, libraries and individuals provide information in this way. The WWW has revolutionized liberal arts research because of the way it has computerized the retrieval of information. Students can do research on content discipline themes or "publish" their own research, essays or written projects on a web page for others to see.

3.0 How can CAI and the Internet meet the needs of the curriculum?

Computers have been described as a tool suited to a process approach, but why and how should computers be used in EFL or liberal arts core instruction? Why use the tool?

Recently this issue was discussed on an on-line conference on Computers and Writing (CW96, 1996). One member reported her first attempt to use e-mail in her writing class. When a student complained to the teacher, "Why do we have to use such an impersonal tool as e-mail?" the teacher couldn't answer. She liked the Internet and was excited about its educational potential but didn't have a rationale that was connected to the objectives of the course. She decided to stop requiring students to use e-mail, took a semester off, and rethought and redesigned her course plan. A tool should only be used if it meets a need related to the pedagogical objectives of the curriculum.

3.1 General Classroom Management

At a basic level, computers open up possibilities for new styles of classroom management. Computers allow teachers to automate and individualize reading, writing and content tasks for students. The physical location of the computer screen makes it easier for teachers to walk around the classroom and check on students' progress. The interactive nature of software, allows the teacher to freely demonstrate techniques and suggestions related to an individual student's work.

Computers can reduce the time that students would have to spend on a task like retyping a paper, looking up a word in a dictionary, or finding a journal article on a liberal arts content topic. The reduced time allows students to edit multiple drafts of a piece of writing, to spend more class or homework time reading, or to become involved in other tasks that are part of the curriculum.

Computers and CAI software also make recording individual student progress easier. A common feature of CAI software is that it can be personalized. The software keeps a record of student progress. Student records can be printed out for student-teacher conferences or grading.

Internet e-mail can also facilitate student-teacher conferencing and communication. Student-teacher or student-student communication outside of the set class time becomes easier because e-mail is asynchronous. Both parties do not have to be present at the same time as in a face to face conversation. Teachers can respond to students individually or set up an e-mail listserve that

automatically distributes all teacher and student communications to the entire class.

World Wide Web syllabus homepages can be designed and updated to include current information or new assignments. The syllabus page or "syllaweb" can include hypertext links to other pages throughout the world containing instruction, information, resources or tutorials on language or content skills.

3.2 CAI and Individualized Instruction

Students enter an EFL reading, writing or liberal arts class with individual needs, abilities and interests. CAI can individualize student reading (Gettings, 1994) and give language support and error correction feedback to students immediately. This is especially helpful in large classes where the teacher cannot give attention to students directly during the class.

CAI software is especially suited to drill and practice and to giving individualized error feedback. Liberal arts CAI software often takes an information drill, problem posing, or simulation approach. Hypertext reference material is usually available to give students background information. The Oregon Trail (1983), for example, leads students through a simulated journey across the United States in the 1840s, based on the historical documentation, diaries and other written sources of the period. As problems are encountered, the software questions the student on possible solutions and gives her detailed background information on the geography, diseases and people of the place and time.

The search for CAI software that meets the needs of a specific EFL curriculum, however, is often time consuming and expensive. As a result, many teachers develop their own CAI software. At Hokusei Gakuen Women's Junior College, the writer designed a simple CAI application (Gettings, 1994) which displays a History text, leads the reader through a step by step reading strategy process, asks comprehension questions about the text and gives the reader feedback which includes the correct answer after each question. A more complex piece of software designed by Christensen (1994) takes a process approach which integrates reading, an electronic glossary of several thousand words, and vocabulary building exercises. Allison (1995) designed a multimedia CD-ROM which includes sound and hypertext for teaching English Bible. Bokhari and Dungeat (1994, 1995) collaborated on a simple electronic text for psychology.

On the Internet, most instructional resources are a simple mix of hypertext and graphics tutorials. Most WWW page CAI is simple. For example, a quiz may provide computer generated feedback.

After answering the quiz questions, the student submits the answers to the homepage site's computer to be checked.

While present WWW resources are not as sophisticated as the best commercial CAI software, more complex CAI environments including virtual reality will probably become common in the future. The WWW's strong point in the present is variety and accessibility. Students can run automated computer searches to find web sites appropriate for their individual study. Finally, WWW pages do not have to be bought and installed on each computer hard disk by a school before they can be used as does CAI software.

3.3 The Internet and liberal arts related EFL writing skills

In a process approach to liberal arts core curricula and in a process approach to teaching writing and reading fluency, or the ability to read or write quickly, strategically and communicatively are stressed. Nelson (1992) claims that for fluency massive amounts of reading followed by reflective, related writing are essential. The Internet is ideally suited for this purpose because it is primarily a text media. Moreover, e-mail, like letter writing, is interactive in that it allows for response *from the reader*. *This makes it communicative, unlike traditional English composition writing which has no identified audience.*

In a process approach to teaching writing, rhetorical considerations involving thinking about ideas, audience, self, and purpose of the writing are stressed (Oishi & Kumiai, 1995). For example, if the theme was winter in Hokkaido, a student would produce different writing if her purpose were a) reporting a ski vacation to a friend, b) reporting the results of a sociological survey of tourist attitudes toward Hokkaido ski grounds; d) researching the hibernation patterns of Hokkaido bears; or e) examining the historical problems of severe winters for settlers in the colonial period. As e-mail facilitates communicative reading and writing, e-mail lists expose students to reading and writing for specific purposes of an audience from the discipline being studied. E-mail lists *on thousands of subjects at many levels of discourse exist throughout the world. The teacher can even set up a special list for class members' discussions of course related themes.*

E-mail lists broaden the audience for each student's writing. Some lists have thousands of subscribers. E-mail lists also increase the amount of reading that each student is exposed to. Like private e-mail, lists are communicative. Students join a list that is related to curricular objectives and be required to post a message so many times a semester to the list. Copies can be sent to the teacher or summaries of the dialóg which took place on the list can be written by the students.

As e-mail is to letter writing, the WWW is to publishing. E-mail messages are quickly distributed and perhaps forgotten; a WWW homepage has a longer life. Students can create their own homepages and publish class homepages and *electronic journals containing their writing*. Student research projects can be published, viewed by others anyplace in the world and comments and suggestions sent to the student author. Publishing student work gives issues of accuracy, audience, and presentation more meaning for students than if the only audience for the presentation were the teacher.

3.4 The Internet as a source of resources for research, self access and independent study

The WWW is a source of hypertext linked information from all content disciplines. It can be searched electronically. Libraries, electronic texts, journals, newspapers on line, government archives, and privately published resources all over the world are opened to student through the Internet. In Japan, materials in English are especially hard to find. Beyond this, in Japan, non-computerized

indexes of periodicals or content related journals are not commonly available to students. The search functions of the Internet have changed the way research in content areas can be done at all levels of education, from elementary to university post graduate. The information available on the WWW is especially valuable to small schools where library resources, especially English resources, may be limited.

Finally, the interactive nature of e-mail and the web can be taken advantage of by students in gathering information from subjects around the world. Surveys or questionnaires can be distributed through e-mail lists or other teachers contacted through the Internet. A WWW homepage could be designed which collected information from subjects who visited the page, and clicked on buttons to make choices or typed responses. The information could automatically be sent to the student researcher or added to the homepage automatically for other visitors to respond to.

4.0 Challenges to integrating CAI and the Internet into the curriculum

CAI and the Internet offer a great deal of promise for EFL content based core curriculum design. On the other hand, pedagogical, institutional, and technical challenges may limit its use in a given circumstance. Learning new technology can be difficult for both teacher and the students.

Can the students type? Are they comfortable with machines? Do they know how to use a word processor or how to send e-mail? The time it takes to learn these skills may be well spent when long term goals are considered. But, at first, teaching technology-related skills can take up valuable classroom time.

Another pedagogical challenge comes from the nature of the media itself. WWW is based on hypertext and reading strategies that are suitable for reading a textbook may not be transferable to a hypertext media (Ryan, 1995). The information available on the WWW and through e-mail has different degrees of accuracy. Students need to learn critical reading skills in order to assess the suitability of the information. How will this skills training be included in the curriculum?

On a school wide level, accessibility of computers for students, budget considerations for buying software, the availability of free time for teachers to develop new curricula, and the availability of institutionally supported training and technical support are institutional challenges which have to be met.

On a regional level, the quality of the telecommunications infrastructure, the availability of telephone lines and bandwidth, and the cost of connection to the net, can limit the potential of using the Internet in the curriculum. Solutions to these challenges need to be integrated into both individual course and school wide curriculum design discussions.

5.0 Conclusion

The pedagogical institutional and technical challenges to using computers, CAI, and the Internet

are being met and overcome at all levels of education throughout the world. CAI and the Internet are particularly suited to instruction in basic EFL reading and writing and to the liberal arts core instruction. Their use helps the teacher to solve pedagogical problems and also opens up new pedagogical possibilities. Their use helps teachers to provide individualized instruction for students, to manage the classroom more efficiently, to teach and encourage practice of process skills, to teach students to read and write in relation to specific content disciplines, to provide a wide audience for student work, and to dramatically increase the resources that students need for individualized content related study and research. If they are carefully integrated into the EFL and liberal arts core curriculum, CAI and the Internet are especially suited to meet the needs of small educational institutions that have limited research resources and large classes.

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