

**Using Information Technology (IT) in the Classroom  
at Takamatsu Junior College/Takamatsu University :  
The 10 year History of a Program to Teach English  
Using Computers and the Internet.**

**Roger T. Williams**

**Abstract**

A program that exploits Information Technology (IT) started over 10 years ago at Takamatsu Junior College/Takamatsu University. It started as a simple email exchange between students at Takamatsu Junior College in Kagawa Prefecture and Japan and students at Lyndon State College in Vermont, USA. It has developed into a project that uses IT to teach students at Takamatsu Junior College and Takamatsu University how to use the Internet and manipulate computers for international communication. It also makes use of computers to teach students how to read, write and conduct research as part of a course at both institutions. The program also makes use of the Internet as an evaluation and testing tool. This paper outlines the phases that this program has gone through over the years, and gives the theoretical background to explain why each part of it developed.

**Introduction**

Over the past 10 years, this instructor has been using the Internet to facilitate communication practice between students at Takamatsu Junior College/Takamatsu University, and their American counterparts at Lyndon State College, in Lyndonville, Vermont, USA. Since this program's inception as part of the course of study for students at the college and university, not only the Internet, but also the method and purpose has evolved to become not only a simple exchange of email, but it has become a key tool in the education process. This paper will detail the evolution of that program.

In 1995, this author (Williams, 1995) wrote about the beginnings of this program from the ground up. At that time, it was necessary to present an outline of what the Internet was, and how the Internet mail system worked. The proliferation of home computers was only beginning and many of this author's contemporaries had simply no idea how the process of sending an

email to someone across the world worked, at even a rudimentary level. Therefore, the process was detailed in that paper, along with the methods and means of starting an Internet email exchange would work. Reference will be made to how the author used the program to make a computer-mediated exam and a computer-mediated writing course, and how most recently, a research element was added to the course.

This paper will make reference to that previous work by showing how the program has changed from those roots to what it is today. Indeed, most people working in the field of education now know the rudiments of the Internet and how to send email across international borders. So, this paper will assume a basic knowledge of that system, while it will still refer back to the changes that have taken place in the system over the past 10 years.

There will also be a discussion of the reasons for using technology in the classroom and the theories that support the use of practical tools such as : Computers, the Internet, and other technology or our day and age. This author will show the reasoning for deciding to change the program over time and then explain the correlation between these theoretical foundations of the education process and the program as it has changed and evolved over the years. However, the main purpose of this paper is to outline and detail the program with emphasis on what it was and what it has become. The readers should get a clear idea of the mechanics of the program throughout its history, with an emphasis on what worked well and what needed improvement and was therefore changed.

### Theoretical Background

When trying to design the proper learning environment and techniques to be used by second language learners, it is not difficult to realize the value of learning in context. The concept of learning by doing is a key behaviorist theory that took root in the 20<sup>th</sup> century (Lemke, 1997). This is one of the main motivators for this instructor to get students to use the language that they have been studying for at least 6 years prior to becoming students of higher education in Japan. Furthermore, technological advances have made it easier to carry this out. Indeed, these advances have stimulated educators the world over to find different ways to expand their concepts of learning and to design different learning environments (Land & Hannifan, 1997).

Carolyn Thorsen (2003) points out that the constructivist theory of having students engage in

authentic activities requires that students be active participants in the learning process and the instructors therefore take the role of instructional designers. With this in mind, Takamatsu Junior College and Takamatsu University instructors have set out to use the technology that the university has invested in, and design programs that will make better use of that technology.

In a program where individual students or groups of students use computers to communicate with their counterparts at universities across international borders, this gives a lot of the responsibility of education to the students. In the case of the program developed with the cooperation of Takamatsu Junior College/Takamatsu University and Lyndon State College instructors, students were mainly using Email to communicate back and forth. Furthermore, all communication is done in English. For the Japanese students, who are studying English as a foreign language, they must take it upon themselves to study the language that they are receiving in emails from the American students. They must utilize various techniques to do this. The most commonly observed techniques include :

- 1 . Using English-Japanese dictionaries.
- 2 . Using online translation services.
- 3 . Asking their classmates.
- 4 . Asking the instructor.
- 5 . Asking another instructor.

In order to ensure that the students are actually carrying out this two-way communication, instructors require students to answer all questions posed to them by their American counterparts. And, periodically, students must forward both sent and received messages to the instructor. This provides the instructor with the chance to evaluate the students' work and offer assistance when necessary.

Miller and Gildea (1987) point out that most people generally learn words in the context of ordinary communication. In the second language classroom, it is extremely difficult for the instructor to facilitate this process on his/her own with a large group of students. The use of computer communication technologies has made it possible, at least in a way, to make this a reality within the walls of the campus.

When the program of email exchange first began in 1994, and the university was using a Bulletin Board Service (BBS) connection to the internet, the aim was simply to fulfill this

goal. However, as the program has evolved, the idea of using the computer as a cognitive tool has been established and used more and more. This has allowed the English instruction at Takamatsu Junior College/Takamatsu University to go beyond simply using the computer as such a limited tool. The focus has shifted to using Blooms Taxonomy (Bloom, 1984) as a basis for assigning tasks. We are now using the computer as a source of motivation, incentive and even feedback.

Bloom's Taxonomy goes from not only the simple recognition of facts and figures, but to more complex and abstract thought processes. The six levels are :

- 1 . Knowledge
- 2 . Understanding
- 3 . Application
- 4 . Analysis
- 5 . Synthesis
- 6 . Evaluation

Fig. 1 equates these levels of competence to demonstrated abilities. Trying to assure that as many of these skills as possible were demonstrated in the delivery of the program Takamatsu University became a new priority.

Jo Ann Carr (1998, p.3) points out that "the process of intellectual access includes the development of a strategy for locating information that takes into consideration the different terminologies and organization of access tools such as databases, Internet resources, and print materials." With this in mind, the program has continued to change. Takamatsu Junior College/Takamatsu University has various departments related to business. Our goal is to educate students so that they can go out and become leaders in the business world. In the modern age, if institutions neglect the obligation to give students practical experience in the use of computers, technology and related information systems, they are certainly neglecting their primary goals as educators.

Still further analyzing Jo Ann Carr's statement as a basis for the program as it exists today, it is important to note the priority that has also been placed on students locating print materials. Giving students the experience and practice of finding information in various print repositories, such as libraries and bookstores is still important. Indeed, these facilities utilize computers and

Fig. 1 Bloom's Taxonomy/demonstrated skills (University of Victoria, 2005)

Competence	Skills Demonstrated
Knowledge	<ul style="list-style-type: none"> <li>• observation and recall of information</li> <li>• knowledge of dates, events, places</li> <li>• knowledge of major ideas</li> <li>• mastery of subject matter</li> <li>• <i>Question Cues</i> : list, define, tell, describe, identify, show, label, collect, examine, tabulate, quote, name, who, when, where, etc.</li> </ul>
Comprehension	<ul style="list-style-type: none"> <li>• understanding information</li> <li>• grasp meaning</li> <li>• translate knowledge into new context</li> <li>• interpret facts, compare, contrast</li> <li>• order, group, infer causes</li> <li>• predict consequences</li> <li>• <i>Question Cues</i> : summarize, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend</li> </ul>
Application	<ul style="list-style-type: none"> <li>• use information</li> <li>• use methods, concepts, theories in new situations</li> <li>• solve problems using required skills or knowledge</li> <li>• <i>Question Cues</i> : apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, experiment, discover</li> </ul>
Analysis	<ul style="list-style-type: none"> <li>• seeing patterns</li> <li>• organization of parts</li> <li>• recognition of hidden meanings</li> <li>• identification of components</li> <li>• <i>Question Cues</i> : analyze, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer</li> </ul>
Synthesis	<ul style="list-style-type: none"> <li>• use old ideas to create new ones</li> <li>• generalize from given facts</li> <li>• relate knowledge from several areas</li> <li>• predict, draw conclusions</li> <li>• <i>Question Cues</i> : combine, integrate, modify, rearrange, substitute, plan, create, design, invent, what if?, compose, formulate, prepare, generalize, rewrite</li> </ul>
Evaluation	<ul style="list-style-type: none"> <li>• compare and discriminate between ideas</li> <li>• assess value of theories, presentations</li> <li>• make choices based on reasoned argument</li> <li>• verify value of evidence</li> <li>• recognize subjectivity</li> <li>• <i>Question Cues</i> : assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, discriminate, support, conclude, compare, summarize</li> </ul>

technology to their fullest extent as well. So, we have to consider the modernization of these sources of information as well. Emphasis here is not only on the facilities, but also the contact with other people. In other words, asking a professional researcher such as a librarian or a book store clerk is still an important source of information.

Still, the premiere tools of for gathering information from our era are Internet world-wide web browsers (Explorer, Firefox, Netscape, etc.) and the search engines that are associated with them (Google, Yahoo, Lycos, etc.). Furthermore, learning how to use these materials is paramount for success in the world of today (Thorson, 2003). Fig. 2 shows the model of information retrieval and assessment that this author has used in developing a classroom program to exploit information technology at Takamatsu Junior College/Takamatsu University.

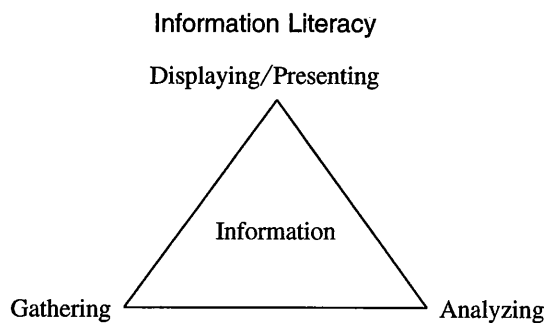


Fig 2. Information Literacy Model (Thorson, 2003)

Since the use of instructional technology means that you deviate from the accepted, traditional behavioristic norms of education, and move to a more constructivist and modern method, you will run into conflict with traditionalists immediately. Pedagogues might say that by simply having an email exchange between students, you are using a method that works well for “some” students. It should be noted that when the project at Takamatsu Junior College started 10 years ago, there was nearly 100% perfect satisfaction and 0% dissatisfaction from the point of view of the students (Williams, 1995). Still, the need to evaluate students quickly became more important little by little. This opens up a difference of opinions on whether the learning process is actually taking place using these basic methods (Alessi & Trollip, 2001).

The use of the Information Literacy Model, added to the objective of fulfilling the criteria

laid down in Bloom's Taxonomy, demands that you combine behavioral, cognitive and constructivist approaches to the learning process, and you maximize the potential for learning. Students who are good at one area but not good at another will still be able to do well and not feel bored. When you add to this a cooperative learning environment, you get students learning from each other. Therefore, the students who are weaker in one field of the multimedia approach can learn from others.

#### The original program.

In 1994, the internet was very young for the general public. The proliferation of computers had just begun. Takamatsu Junior college (TJC) had enough computers for every student in one class to use, however the classroom computers were not all connected to the Internet. There was no electronic mail service at the time for students to use. The university has a subscription account to an online service called Niftyserve. This was a BBS style service. The college library had a computer where one could dial-up via a modem and connect to the service. It was the equivalent of a telnet screen.

Using a mailing list service that was sponsored by St. Olaf University in Minnesota State in the US, this author was able to connect with a psychology professor in at Lyndon State College (LSC) in the state of Vermont, Dr. Lori Werdenschlag, who was interested in finding a group of international students for her students to exchange information using the Internet. At first, it was thought that there might be a conflict between the academic majors : Psychology at LSC and Secretarial Studies at TJC. However, it came to have no bearing on the goals of the project whatsoever.

The characteristics of the students were as follows :

#### 1 . Takamatsu Junior College

- A. Class of 40 Japanese students studying English conversation.
- B. Lower-intermediate ability in English.
- C. Students who are very eager to learn about American Culture.

#### 2 . Lyndon State College.

- A. Seminar of 11 American students studying cross-cultural psychology.
- B. Seminar that is eager to learn about psychological phenomena in cultures other than

their own.

As soon as the goals of LSC were realized, it was first thought that it may be appropriate to contact a professor who was doing research in a field that was related to psychology so that the students could have some common basis of understanding in communicating. However, upon further consideration of the matter, It seemed it would be more appropriate to go on with initial plans and have my students of English simply communicate with LSC's psychology students without any special restriction.

The reasoning behind this was that if the students had no previous knowledge of their counterparts, they would have to use their communication skills to learn what they do not know. This would be the entire essence of the project. I believed that this would bring about three important factors in the learning process (Alessi & Trollip, 2001) :

1. Metacognition : An awareness of their own cognition. Students were aware that they needed to get this information and therefore learn the required English to do that.
2. Metamemory : An awareness of how well one can remember or has remembered something. Students had to remember certain information and English in order to carry on an exchange of emails.
3. Metacomprehension : An awareness of how well one is understanding something.

The next step in the process would be to develop groups that would communicate together. The LSC group of students consisted of only 11 people, while the TJC students numbered 40. This first seemed like too big of a contrast in number. However, considering that the level of TJC students was actually upper-beginning to intermediate in range, we placed the students in groups of three or four. Then, not only would they be better be able to work together, and to solve the problems that they would have with English, but since the group consciousness and cooperative activities are the norm in Japanese Education (Anderson, 1993), the students could find security in the fact that they were not alone in completing this project. Beyond that, as a group activity, the students would have the collective responsibility to making certain that the tasks were completed. In other words, the group nature of the project assured that all students would actually write email to their counterparts in Vermont.

4 students made 7 of the email exchange groups. Then, there were 4 groups that consisted of 3 students. They were randomly chosen. This made a total of 11 groups at TJC that were



matched with 11 individual students at LSC. All of the students at LSC had his/her own individual email account. Students at TJC had no direct access to email, though. All work related to actually sending and receiving messages had to be handled by the instructor. This made for at least a slight delay compared to the present day system where each Takamatsu Junior College/Takamatsu University student has his/her own account.

In order to facilitate communication between students at TJC and the students at LSC, it was decided that the best way to handle the operation of sending messages was to have the TJC students write messages on word-processing programs on one of the computer terminals on the TJC campus. They would then copy the message to a floppy disk and hand that disk to the instructor. The instructor would then put the disk into the computer at the university connected via modem to the Niftyserve BBS service, and then cut the text of the message from the word-processing program. Finally, the task would be to paste the message into the Niftyserve BBS service, and it would be sent directly to the student at LSC for which it was intended.

One aspect of the program that has greatly changed over the years is the necessity to instruct students on the use of the computer. The best way to teach them to use the computer was to give them hands on experience. It was necessary to spend at least one full class period to teach the TJC students how to do fundamental things with the computer. It was necessary to teach them step-by-step :

- 1 . How to turn on/off the computer.
- 2 . How to start the word-processing program.
- 3 . How to write and format a message (being clear to point out not to do things like hit the enter key at the end of each line) .
- 4 . How to save work to a disk.
- 5 . Keyboarding (not necessary for everyone) .

So, clearly the secondary knowledge that students learned from this project in an English conversation class was the rudiments of how to use a computer. Since this was the main project for the entire course, the students became very adept in at least basic computer functions. Some students went further than that.

The first meeting in the computer room also had the students writing their first message. This consisted of a self-introduction of each of the members, as well as list of questions for their

email partner. Particular attention was placed on not only how to introduce themselves to someone else, but also how to introduce their surroundings. They had to explain about themselves, their families, and details of where exactly they lived in Japan.

The goal at this point was for the students to use the computers to find out as much information as they could about their counterpart and enjoy communicating. Since the Japanese college term consists of roughly 15 once a week 90-minute lessons, the majority of the time was used to do three things :

- 1 . Experience communicating with foreigners. Nearly 100% of the students had never experienced any kind of close communication with foreigners
- 2 . Practice working in groups to communicate and learn together how to use the computers. Groups were required to put each of their individual messages on one floppy disk. They also had to retrieve their email messages and notes from the instructor off of that one floppy disk, as it was handed back to them from the instructor.
- 3 . The activity would culminate into the students having to give a short introduction of their email partners to the entire class by each group. Their final exam consisted of this oral presentation and they were graded as a group. (Williams, 1995)

One of the points of the first program that helped this author as the instructor to monitor the program was that I was able to read each individual message that was sent by students from both ends. This meant that it was relatively easy to find communication, problems with computer literacy, and it was generally easy to assess whether students were doing the work or not. It was easy to check if students were understanding questions they were asked by their counterparts and easy to jump in and help, if necessary, on both sides.

If the Japanese students did not understand or otherwise did not answer a question from their LSC counterpart, I could easily contact them directly. If the LSC students did not understand what the Japanese students were trying to communicate, they either voiced that in the email that was sent back to the students, or they would contact me directly, as they knew that all emails were going through me.

This made evaluation of the groups an ongoing process. I was careful to make necessary comments directly to students as I saw fit. There was no remarkable evidence from the LSC side to prove that the English used by TJC students was not understood. For the TJC students,

there were certainly those times where slang or other unfamiliar grammar patterns were used. However, the students worked around this and practiced communicating. When surveyed, 37 of the TJC students responded that they understood at least 75% of the content of the message they received from LSC (Williams, 1995)

Furthermore, Dr. Werdenschlag would regularly ask her students questions about the program. The biggest problem was that some students simply did not write emails. This problem continues in the program today and there are various means to deal with this issue. Basically, if a student is not receiving email, they should tell their instructor and the instructors can communicate and contact the student who is not writing. If the problem persists, students will be assigned a new email partner. If there are not enough email partners to go around, students outside of LSC could occasionally be chosen. If the problem persisted on the TJC side of things, another student from another TJC course might be chosen to temporarily communicate with the LSC students.

Students were instructed to use the following rules when sending and receiving email. It should be noted that these rules still exist in the program as it is run today :

- 1 . Write a message to your counterpart once a week, regardless of whether you have received a message that week or not.
- 2 . Check for new messages every day. \*
- 3 . Make sure you reply within 2 days to messages received from your counterpart. \*
- 4 . Make sure you respond to all questions in your email.
- 5 . Always try to ask 3 or more questions in any email you send to your counterpart.

\* This means that in the original program the instructor on the TJC side had to provide disks available as soon as messages arrived from the LSC side.

The following are random examples of students' satisfaction questionnaire comments at the end of the original program (Williams, 1995) :

“It was a very special experience, the chance to learn about American customs and culture. It's also great to feel that I actually made friends with an American. ”

“It was the first time for me to use the computer and communicate with foreigners. When the response came to my letter, I was overjoyed. I would like to continue such a project. ”

“It was also a good experience for us Japanese to explain Japanese things to foreigners.

For example, I had to explain what *ozoni* was to a foreigner. I think I learned a lot from that.”

Of the 7 students that had mostly negative comments about the program :

“It was difficult for us to find time as a group to work. It was difficult to understand all of the English in the messages, but it was good that I could at least communicate and learn a little bit about another culture.”

“It was really too bad that our group did not receive any messages from our partner. But, we were still able to share some of the letters to our friends in some of the other groups.”

The student comments are significant because they show a general satisfaction at least with the technology. They show that there is a need to monitor the program as much as possible, in order to find problems such as students not participating as much as they should. The students had to be reminded several times that they should report to the instructor when they were not receiving emails.

#### Early changes to the original program.

One of the first changes that took place as far as technology was concerned was that students were able to send email from the computer terminals on campus. Still, email accounts were not given out to every student as they are today. The Information Technology Department at Takamatsu Junior College/Takamatsu University gave special permission for a limited number of email addresses to be assigned to groups of students taking the course for this program. Two or three students were given one email address to share. Since the TJC students still outnumbered the LSC students, it made it perfect to make groups based on the number of students who shared a mutual email address. There were still times where one LSC student communicated with two groups of LSC students. No students from LSC ever complained about this situation as being unfair. However, if there was a problem with an LSC student not communicating with his/her TJC counterpart, it made for many students not being able to communicate with anyone. Therefore, as the instructor, this author carefully monitored whether students were receiving email or not and also promptly communicated any discrepancies to Dr. Werdenschlag at LSC.

It should also be noted that there were students from the TJC side of the program who did not

communicate with their LSC counterparts for extended periods of time. The problem seemed to get worse as the students had their own email addresses. This is where the instructor lost the control of being able to receive a floppy disk on a regular basis from students. However, this change was still for the best, as the students got more practical experience to use the technology on their own.

Added to the list of things that students had to be taught in the first class were :

- 1 . How email works.
- 2 . How to write a message in a mail program.
- 3 . How to send/receive messages.

At this point, it became clear that since all emails were not passing through the instructor, more attention needed to be paid to ways to help the students who were experiencing difficulties and ways to evaluate the students. The original program was evaluated by having the students give an oral report at the end of the semester. Still, there was the point that the instructor was able to view 100% of the emails that students sent and received. Those emails were also necessarily used in the evaluation process.

In order to give students a certain amount of privacy of communication, the benefits of the emails not going through the instructor outweighed the ability to look at each individual email. As issues of privacy have become more and more important in Japanese society over the past decade, one can see how this issue would be important to teach students as well. Therefore, as the instructor for this class, I made it clear that I did not want to see all of their emails for the express reason that I wanted them to expect the privacy that they and every individual should have in every aspect of their lives.

Suddenly, with the loss of this flow of mails to read from each student, however, it became apparent that seeing the students' mails was an important tool in their evaluation for the course. Indeed, even when all of the mails were going through the instructor, there was never enough time to actually read all of them. So, in order to bring this important evaluation tool back, the students were simply asked to submit three emails over the period of the 15-week course, and they could choose mails to submit for evaluation. In order to ensure that they were actual messages sent to their email partners, and maybe more importantly, to make full use of the technology, students were to send a carbon copy (cc) of the message to the instructor.

It further became apparent that there was no real evaluation of students' reading ability. Certainly they had to read messages that were sent to them and learn to understand the information. However, there are many factors that detract from being the simple means of testing a students reading abilities.

One of the great things about an email exchange exercise is that it is asynchronous exercise. Carolyn Thomson (2003) states it very clearly :

“Email software allows users to communicate with each other asynchronously. If you want your students to communicate with students in another country, email is an ideal medium for two reasons. First because it is asynchronous, email enables you to avoid scheduling conflicts that are caused by different daily schedules, problems that are inherent in some of the other technologies such as telephone conferencing. A second important advantage of email is motivation. Students write better when they know they are writing for an audience” p. 53.

The problem with the asynchronous nature of email is that reading can be ignored very easily. Students in a group situation can rely too much on other sources, such as those listed previously. Many of the students who are weak at reading can get out of reading all together. For this reason, it was decided that there would be a test on reading. Students were made aware of this in the syllabus and were told about its importance on several occasions prior to the test actually being given.

Moreover, testing seemed to be one thing that was lacking in the program. Alessi and Trollip (2001) point out that “tests play an important role in a person's education” p. 338. Students expect to be evaluated for work they have done in a class. In a class relying very heavily on writing email back and forth, one can imagine how students could easily become complacent in just writing mails back and forth. Since the students at this point were working in groups, they could come to rely on the others too much and this part of what this instructor was seeing happening.

The first step in making a meaningful test is to determine its purpose and what content it will cover (Alessi & Trollip, 2001). Since it seemed that students needed to be evaluated on their reading ability and how well they could read and comprehend the emails that were being sent to them by students at LSC, it became evident that the best thing was to test was student's ability

to read and comprehend email from actual LSC students. This was also one of the stated objectives of the program in the course syllabus, so its validity was self-evident to the students.

Since the class was conducted in the computer room and since another objective of the course was to give students hands-on experience with the computer, a computer-based test was chosen as the method of delivery. However, it would only be a partial computer test. The test problems would be on the computer and the students would be able to write their answers on paper.

This method was chosen for two reasons. The first was that this would allow for a relatively simple test to be constructed by the instructor. Making a test where students would enter their answers on the computer would require coordination with the Information Technology Department and take more time than this instructor actually had to make the exam. This still did not distract from the use of technology in the test. Students would still be required to read the test directions in English and manipulate the software to find the answers (see figs. 3-5).

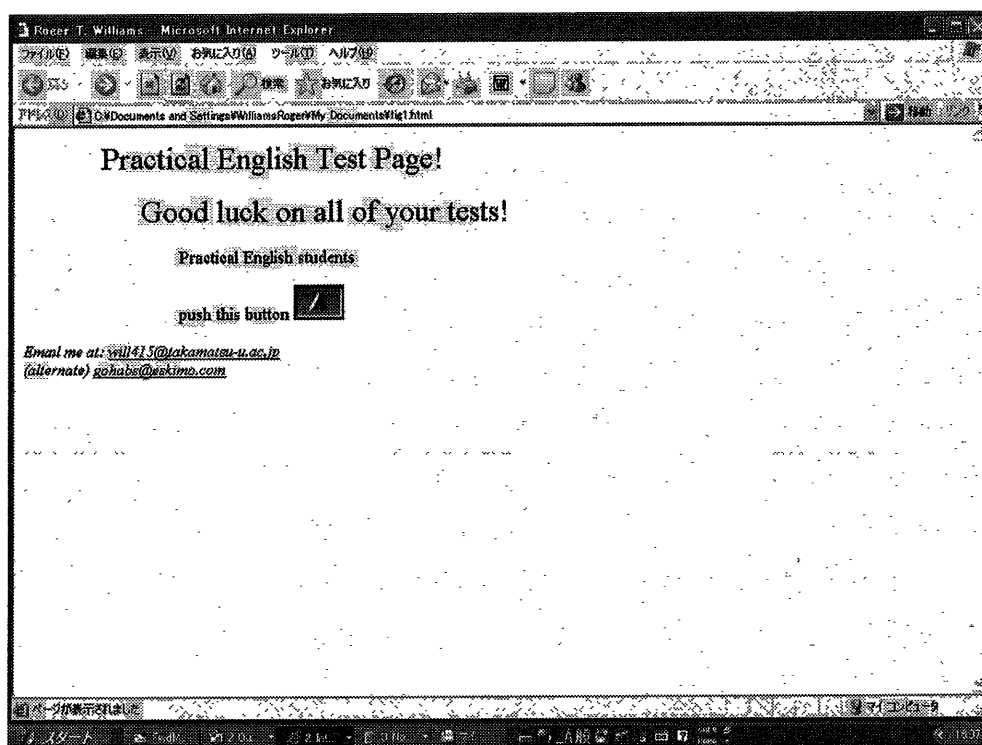


Fig 3. Start page of the computer-based reading test

It is also important to remember that the Internet was a new product at this time in history. People were not used to navigating homepages. The class was taking instruction almost entirely in a foreign language. The test was to be entirely in English with no explanation as to what to do in Japanese. Students were told the URL of the homepage to start the test, and that was to be the only instruction that they would be given. They had to remember how to do everything else from turning on the computers to shutting them down at the end.

The second reason for choosing only a partial computer-based test was to relieve the anxiety of the students. Sarason (1987) points out that computer based tests will often make students more anxious than paper tests, especially if the students are not able to change their answers as they may be with pencil and paper test. A partial computer-based test was sure to relax students enough to help them concentrate on reading and comprehending the test.

The first page of the test was a welcome page. Still, students had to read the page and notice that they had to press a button to go on to the next page. The page itself appears very simple, but the point is to find out here if students are going to have any problems navigating the test. Also, beginning from an uncluttered and uncomplicated page will hopefully relieve any undue anxiety.

On the test directions and questions page (Fig 4), students are told in English what to do. Then, the questions are written on the bottom of the page. In order to access the text that students will have to read in order to answer the questions, they must actually use the browser pointer to click on the question. Clicking on the question brings the students to the page that has the text that students must read and comprehend in order to answer the questions.

Instead of making a button on the succeeding page to go back to the question page when students had found the answer, it was decided that the directions would include the directions to use the "back" button to go back to the questions. This was done for two reasons. One reason was so the students would have to read the directions carefully, since this was in fact a reading test. Second, it makes a bit more use of the technology. Students had simply been clicking the next button up to this point. By making the students use the browser's "back" button, they would fully understand that this is another way that they can navigate using this software. Notice in fig. 4 that students also have to use the scroll down feature on the browser in order to read all of the questions.



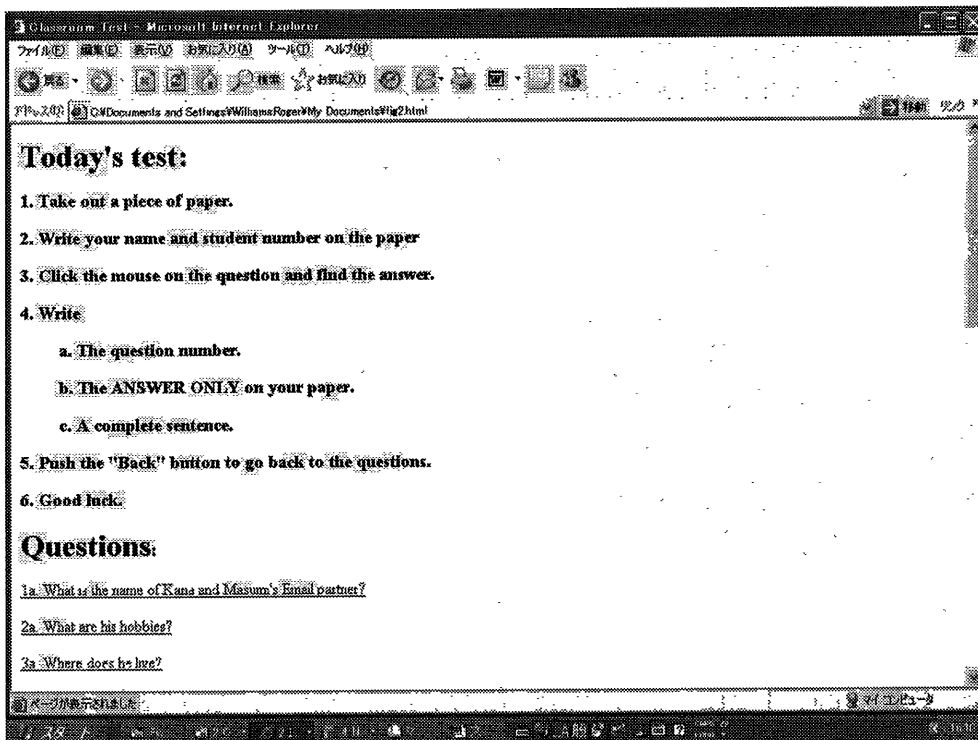


Fig 4. Test directions and questions.

As stated earlier, the students had been previously guided in basic computer techniques. But, not just the techniques, also the ability to follow the instructions on how to accomplish certain tasks on the computer were being tested. Computers were still new, but it was evident that they would be around for the foreseeable future. Being able to follow directions on how to manipulate the computers was something that had been practiced throughout the course up to this point in time.

Fig. 5 shows the first reading section on the test. It was taken from a real message that was received by the students pictured at the top and was from their email counterpart in the US. The picture was added in order to simply show the students the versatility of the software; the ability to add a photograph that everyone could clearly see. This feature is of course taken for granted at this time in history. But at that time, it was not so well known by all of the students.

The tense of the passage was changed from the first person to the second person in order to allow the students to write the answers in the third person from the text. This was again chosen



Fig 5. First reading section on the computer based test.

in order to relieve any testing anxieties that students may have about a computer-based test. There were five different reading passages that were between 150 and 250 words in length. There were five questions for each passage. Students were given two points for getting the answer and two points for writing a grammatically correct sentence free of spelling mistakes. It is important to note that Figs. 3-5 represent the first test that was created. This style is still being used in the program. The median grade for this test has never fallen below 72% and has never risen higher than 84%. Following the college's policy for grades on tests, that falls in range of an average grade range.

Later development of the program : Developing writing skills.

Since 1998, not only Takamatsu Junior College students were involved in the program. Takamatsu University students began to take part in the exchange, but the program did not differ between the two institutions. The syllabus would remain the same. Also, by this time,

students were assigned their own individual email accounts.

Because of the mass use of computers at all levels of education, students were now coming to the Takamatsu campus with some basic computer knowledge. The section of basic computer education has now finally been taken out of the curriculum because it is deemed unnecessary. Keyboarding has also now been all but eliminated.

Another problem soon manifested itself. Students were definitely in need of writing practice. While the Japanese curriculum for upper-secondary school has programs called composition, in reality, students mainly learn only sentence composition. “They do not spend any substantial amount of time studying aspects of paragraph and essay composition in either English or Japanese” (T. Sano, personal communications, November 2003).

The following is a typical example of a student’s submitted self-introduction to be sent to students in Vermont :

“My name is Junko Takahashi.

I am a Takamatsu University Student.

My hobby is to play tennis. .

I live in Sakaide.

My family is five.

What do you like?”

One can notice that all of the sentences, while very basic in structure and short in length, are grammatically correct and there are no misspellings. Clearly, there is a lack of organization in the topics and no thought given to the formation of paragraphs. Nearly 100% of the students even still write like this from the beginning of the term.

At this point, it was decided that basic organizational skills needed to be taught. Another change happened in the delivery of the course. The course began to be a two-term course. Instead of the usual 15 90-minute classes, that number would be doubled to 30 90-minute classes. This gave extra time to send messages and communicate with students at LSC. Since students were already meeting in the computer labs for this course, it was decided that we should take advantage of the technology and develop a course where the students could use the computer to learn proper writing methods. Moreover, since students would be mainly writing on the computers, it seemed logical that they should actually learn to write on the computers.

Therefore, the following plan was made to develop an IT based learning module to teach students basic writing techniques in the form of a 5-paragraph essay.

Description :

An Introduction to the 5-paragraph essay is an online learning module designed to incorporate the computer and the internet into a reading and writing course at Takamatsu University. It is one unit of instruction of the course. This class is a foreign language course for students attending Takamatsu Junior College/Takamatsu University.

The module will introduce students to internet browser navigation techniques and several basic aspects of the 5-paragraph essay, to include brainstorming. It will incorporate the use of the college LAN, the world-wide web and internet email.

Course Outcomes :

- 1 . Identify the three main parts of the 5 paragraph essay.
- 2 . Identify the importance of each of the 5 paragraphs.
- 3 . Know how to brainstorm in order to narrow your topic.
- 4 . Practice basic homepage navigation techniques.
- 5 . Practice reading.

Course Schedule :

This course will be completed in one 90-minute class in the Windows language lab on the Takamatsu University campus.

Student learning activities.

The student learning activities will support the course objectives. The content of the course will be textual materials explaining the 5 paragraph essay and how to do brainstorming. Simply completing the module will facilitate objectives 1, 2, 3 and 5 listed in the course outcomes of the syllabus. Moreover, there is a quiz built into the navigation of the course. Successful completion of the quiz will be not only a source of self-evaluation, it will also reinforce the course of objectives of making sure that students can really understand the materials presented, and directly reinforce the acquisition of outcomes 1, 2 and 3.

Since this is a web-based module that must be completed by navigating a series of internet world-wide web pages, completion of the module facilitates outcome number 4. Furthermore, the quiz section, in particular, allows for students to use not only buttons within the hypertext

markup language-built pages, but also the web browser's navigator buttons, and facilitates adequate basic practice of internet navigation techniques and further reinforcement of outcome number 4.

#### Student assessment

Self-assessment will take place in the form a quiz that is built into the module. After an explanation of the main points of the 5-paragraph essay, students will be asked questions about what they have learned. Being able to correctly answer each question is essential to moving on to the next question and further to the end of the course. So, this will also be used as assessment by the instructor. Students who have problems making it through the module will be spotted and will receive remedial training.

This assessment will support outcomes 1, 2, 4, and 5. This is because outcomes 1 and 2 have to do with knowing the material the students will be quizzed on, while 4 has to do with successfully navigating the internet. 5 has to do with reading practice, a skill necessary to answer the questions.

Learning outcome 3 will clearly be assessed by the final activity submitted to the instructor of their particular class for evaluation. Students will be asked to send an email of brainstormed words to the instructor. This will require an understanding of the techniques explained in the online learning module.

#### Course evaluation

Students and instructors will take part in the evaluation of this online course module. Students have been asked, as part of the module, to briefly evaluate the course as they see it. This evaluation will be looked at carefully by the course designers. This data will be used in addition to the summative evaluation questions proposed by Smith and Ragan (1999), in their book on instructional design. These questions will be asked in questionnaire form to all of the instructors involved in teaching this module and discussed at the end of the course and discussed in the order of the questions :

- 1 . Does implementation of the instruction solve the problem identified in the needs assessment?
- 2 . Do the learners achieve the goals of instruction?
- 3 . How do the learners feel about the instruction?

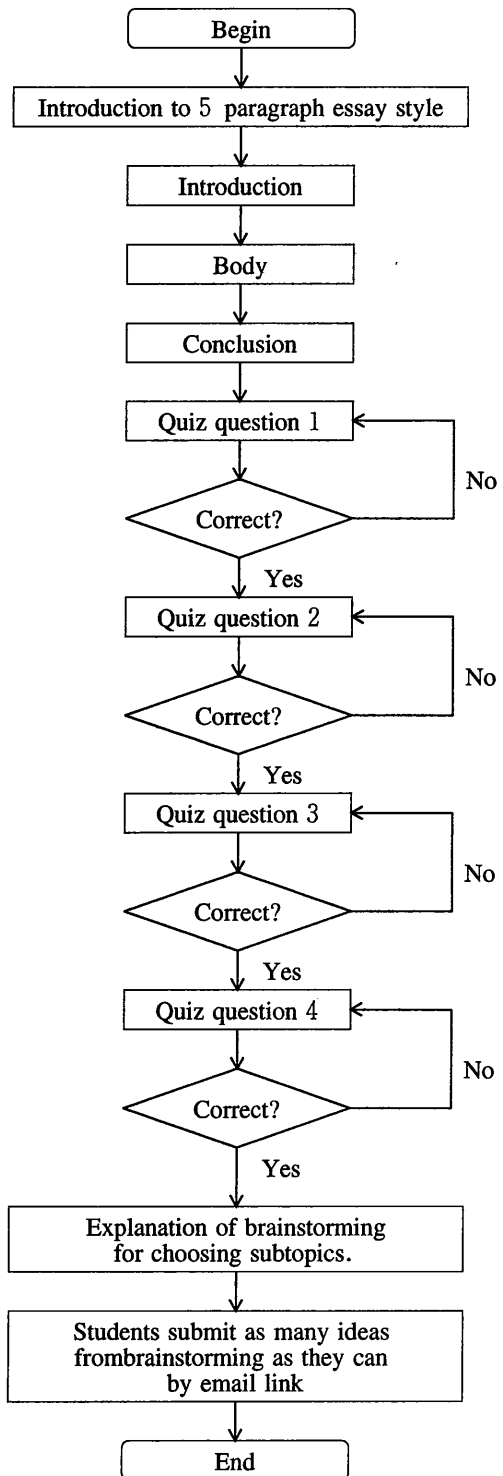


Fig 6. is a flowchart that explains how the whole module.

The following pages illustrate the simple web-based module step-by-step

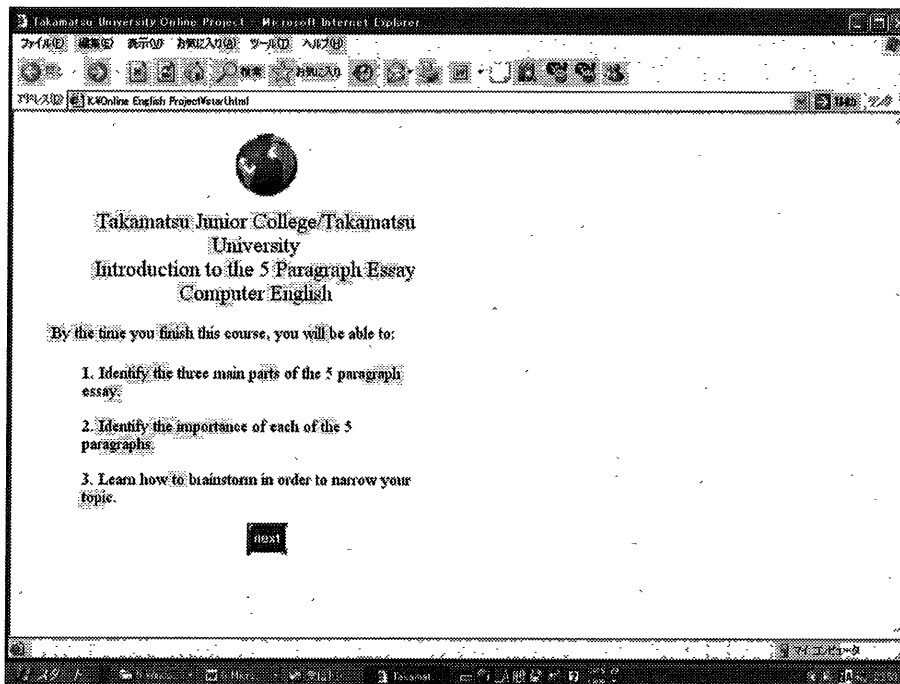


Fig 7. First page of web-based 5-paragraph essay module.

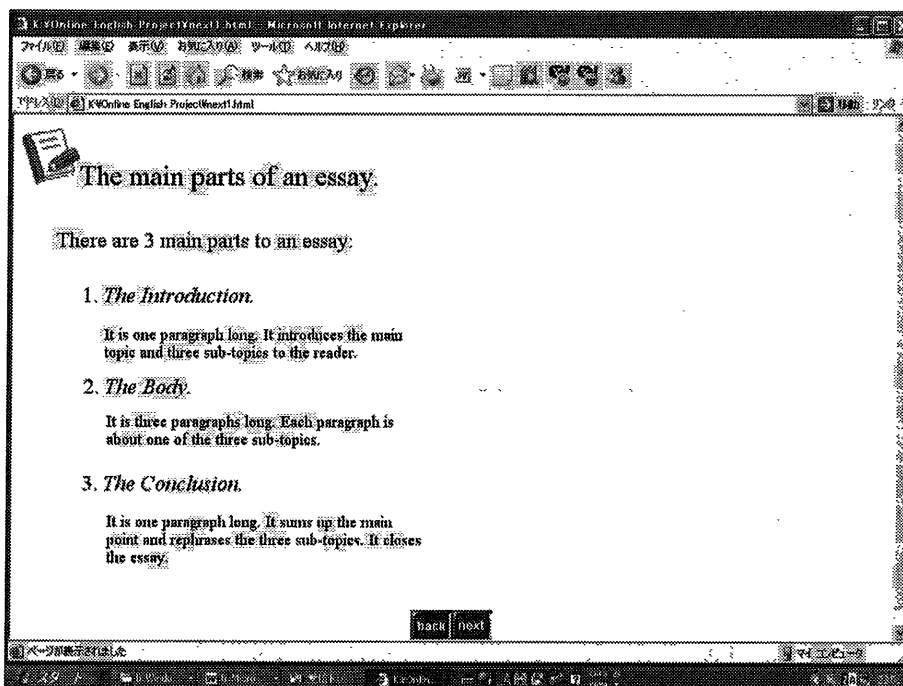


Fig 8. Introduces the main parts of an essay.

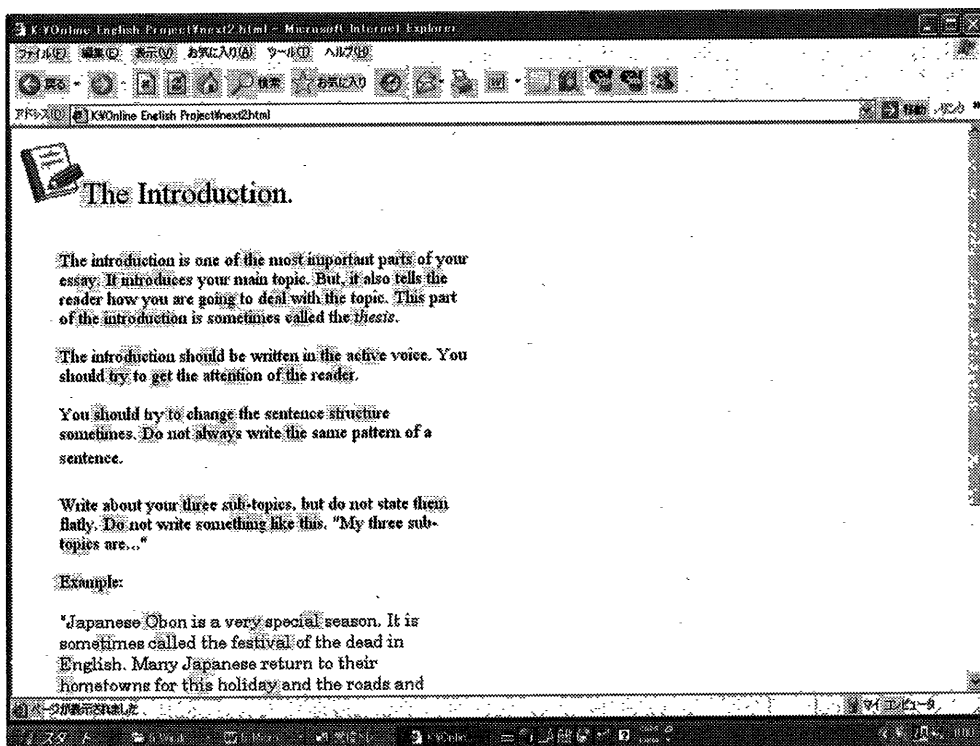


Fig 9. Explanation of the Introduction part of an essay.

- 4 . What are the overall costs of instruction and what is the return on that investment?
- 5 . How much time does it take the learners to complete the instruction?
- 6 . Is the instruction implemented as it was designed?
- 7 . What unexpected outcomes result from instruction?

Fig. 9 shows what the *introduction* part of an essay is. This page the students have to read a little carefully. There is a brief explanation followed by an example. The following 2 pages (not shown) are very similar to this one. They talk about the other two main parts of the 5-paragraph essay : The *body* and the *conclusion*.

Students can take their time on these pages and they are encouraged to do so. In fact, they will have to use the scroll feature on the browser to read to the bottom this page. In a 2004 questionnaire of evaluating students' reactions to this module, 25 out of 32 students responded that they found the program easy to navigate. 5 students claimed to have no difficulty in following the program from the beginning to the end. 17 students said that they understood



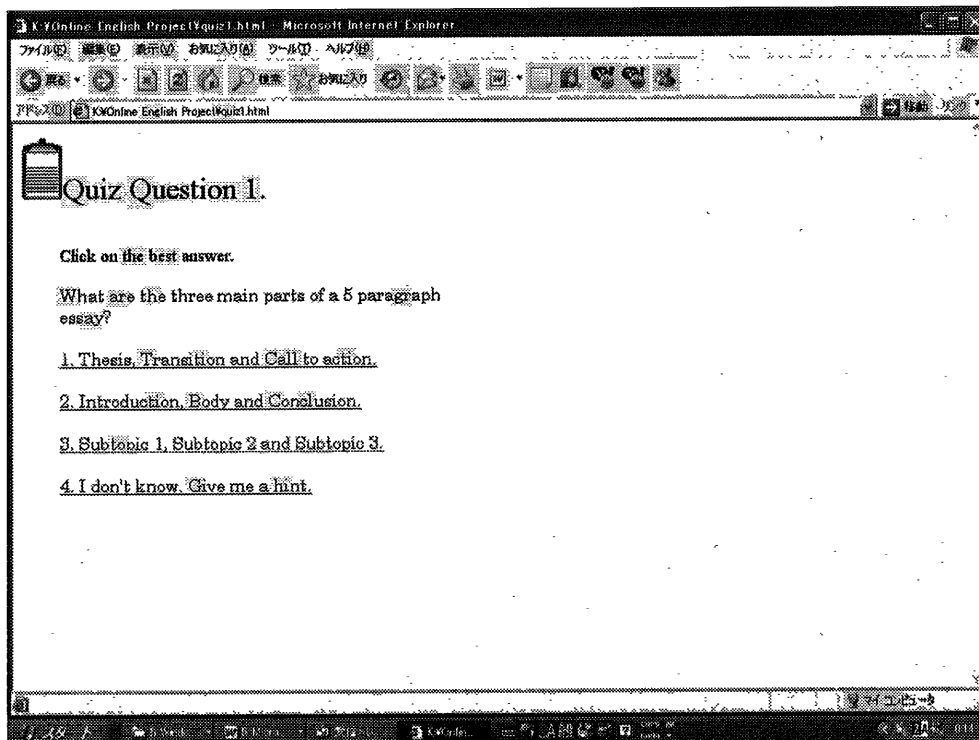


Fig 10. Quiz question.

reasonably well, but with some difficulty. 6 students claimed that they couldn't understand the explanation clearly enough. This attests to the lower level of English of many of the students taking the course.

29 of the students were able to complete the project to the end, while 3 of them were allowed extra time to finish. The three students who needed extra time to finish were members of the 6 students who said that they couldn't understand the explanation of the English clearly enough.

A click on the correct answer connects students to question two. A wrong answer goes to a remedial page. At the bottom of the remedial page, the questions are repeated. Note that the students can also choose to go to the remedial page directly. 4 questions (only one is shown here) must be answered correctly before the next part.

The final part (Figs. 11-13) is a practical exercise for the students. Until now students have just clicked their way through the exercises. Now they have to do a brainstorming exercise.

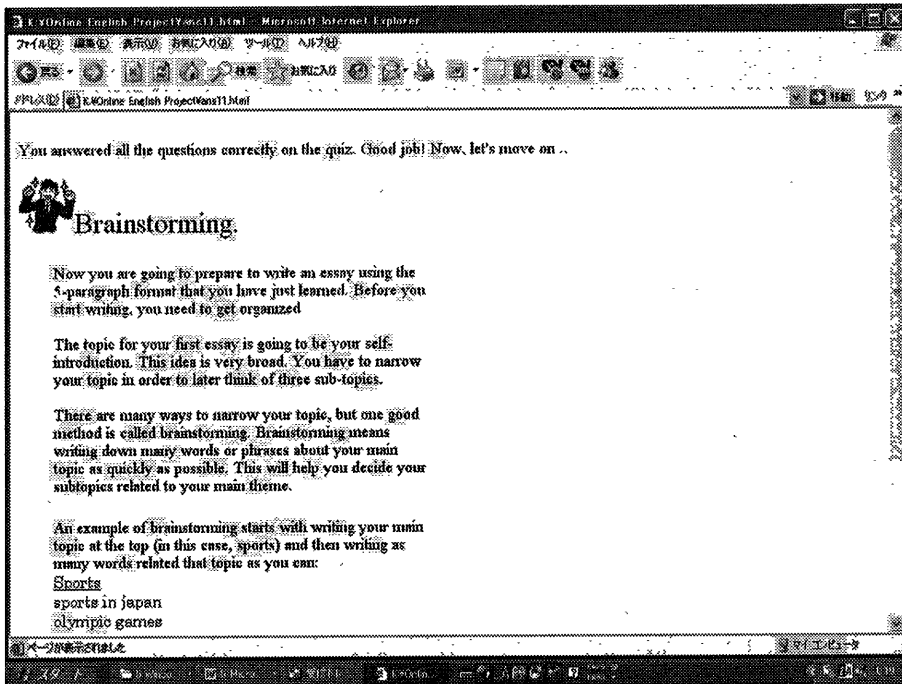


Fig 11. Assuming all questions are answered correctly, the next topic is brainstorming.

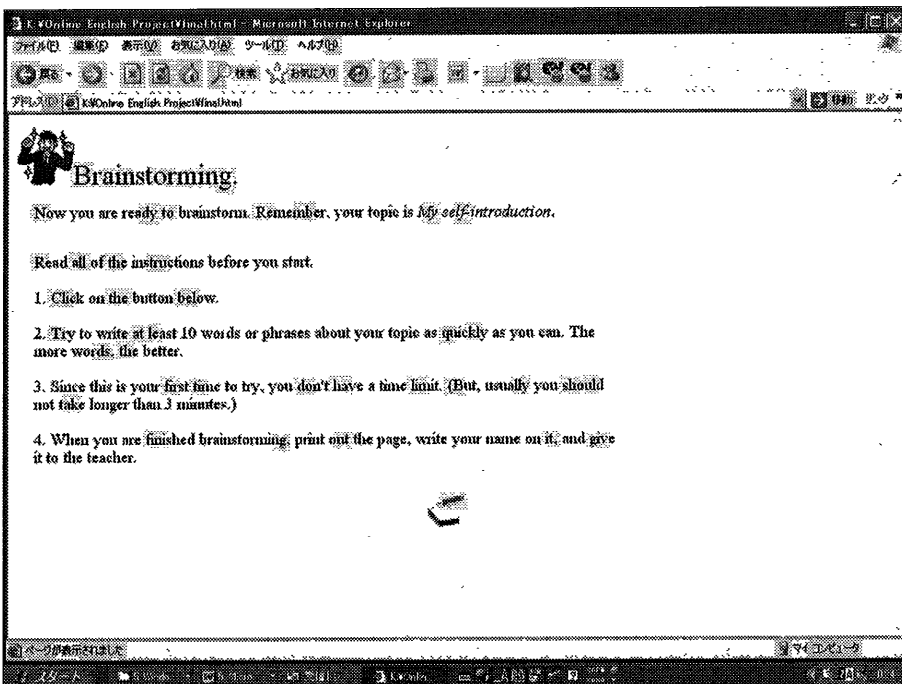


Fig 12. Instructions to complete the writing assignment.

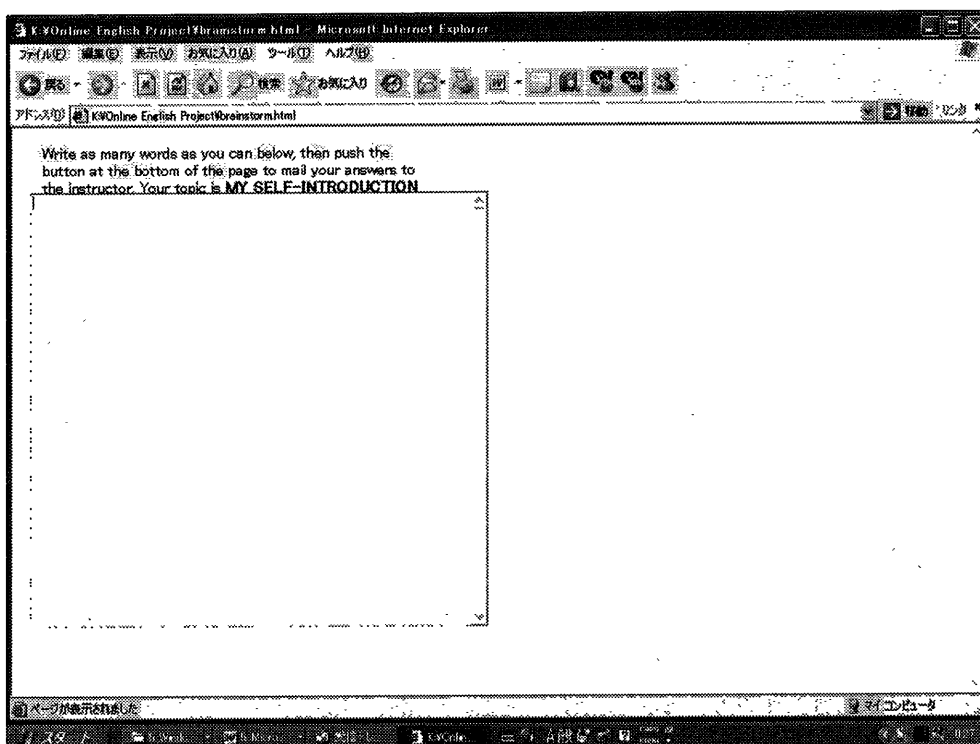


Fig 13. Final page : Email window

Fig. 11 shows the page that explains to the students what *brainstorming* is, and Figs. 12 and 13 bring up the email window so that students can send their list of words on to the instructor for evaluation.

How the program has evolved to include research activities and student presentations.

Students should be studying and doing research by the time they are 2<sup>nd</sup> year college students according to behavioral researcher Michael Birnbaum (2001). By the time we get to college and university, we should be working on doing research in order to activate higher levels of thinking. To meet this goal, and to make use of the fact that this project has facilitated a magnificent chance for college-aged students in Japan to communicate with college-aged students in the US, a research block has been built into this exchange project. The goals are :

1. Teach students the basics of doing research and how to take advantage of the technology in order to carry out research.

- A. How to use the Internet.
  - B. How to use the library.
  - C. How to conduct interviews and other forms of personal communication.
2. Help prepare students for the rigors of their graduation research reports.
  3. Teach students how to express themselves.
  4. Help the students study English.

We are assuming from the high school curriculum and discussions with high school teachers that students already have a basic understanding of sentence structure and sentence composition techniques (Ministry of Education, Culture, Science, and Technology, 2005a; T. Sano, personal communications, November 2003). We want them to enjoy communication with their counterparts in the US. However, instead of carrying out discourse simply for pleasure, we want them to use the opportunity to find out more about American culture. Using the information literacy model (fig. 2) as a reference, we make special note of the fact that the peak of the triangle is the “displaying/presenting” mode. So, it is not just an evaluation of their work gathering information, it must culminate in the presentation of the work of the students; by the students. All the while, we want to make sure that we try to check as many of the demonstrated skills from Bloom’s Taxonomy as possible (fig 1.)

In order to meet these goals, the following course of study has been implemented :

1. Students start by learning basic writing techniques. They complete the computer based 5-paragraph essay module and follow that up with increasingly complex assignments from the instructor. All work is written on the computer and either printed out or submitted by email.
2. Students begin the email exchange with college students at Lyndon State College and introduce themselves to each other. They exchange personal information. They make a mini-presentation in front of the class, introducing their email partners to everyone.
3. Students begin the research module. Their goal is to find a topic for research that has to do with American culture. First, they go to the library and receive a lecture from the librarian on how to use the library. This includes a discussion of how to use the databases and reference materials managed by the library.
4. Students combine library research with Internet research to narrow their topic. They submit

their topic to the instructor. The instructor will advise the students to help them narrow, expand, or change their topics as necessary. Common topics for research include : American holidays, food, sports, music, and various other cultural events.

- 5 . All the while, students have been collecting books, database and Internet research materials and submitting them to the instructor. They now study how to write references. Students will now make a questionnaire for their email partners. They will try to get as much information as possible out of their email partners about their topic in order to include that element into their final work.
- 6 . Students write a research paper utilizing the principles of writing that they previously studied. They do this in parts and submit them as a process to the instructor. They pay careful attention to follow the principles of the 5-paragraph essay.
  - 1 . Introduction.
  - 2 . Body with three sub-themes directly related to their main theme.
  - 3 . Conclusion.
  - 4 . References

The following is an example of a typical student research paper. It is the final product. Notice that the student has included information gleaned from the Internet email exchange. The student has also submitted and rewritten this for English mistakes and content problems at least twice before submitting it in this form.

My topic is New Years in America. New years is a big holiday in Japan. So, I wanted to find out what Americans do for this occasion. I studied what are popular things to do on New Years Eve, what people do on New Years Day, and new year's resolutions. I was surprised to learn that New Years is not a big holiday in America like Japan.

New Year's eve is the main event for New Years for Americans. Many people watch special programs on TV. They stay up late and countdown the time for the new year. Other people go to parties on New Years. Some people like to dance and listen to music. They may wear hats and they will probably drink much. My email partner, Josh Simmons, is from New Jersey State. He gets together with his friends. They drink champagne and all say, "Happy new year!" at midnight. Some couples like to kiss at exactly 12 o'clock.

On New Years Day, there is no special event for most people. There is no special food. Many

people relax and sleep late because of parties the night before. American football games are on TV. Josh Simmons likes to watch the football games with his family. "It is exciting because it is closer to the Superbowl championship." American football is one of the most popular sports in America. I was surprised that people go back to work on January 2nd. They do not have a long vacation.

Many people make new years resolutions on New Years Day. They are a wish to change something in their lives. People want to lose their weight or stop smoking. Josh Simmons told me, Some people are serious, but most people soon forget about their new years resolutions."

New Years is very different in America than I imagined. It is not a big holiday like Japan. I want to go to America and visit Josh someday. But, I think I will be disappointed because Japanese New Years is very big compared to America.

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7. The students take a computer based written test similar to the one previously described (fig. 3-5).
8. Students make an oral presentation of the paper they have submitted. Usually, students simply read their paper in English. At the conclusion of their presentation, the instructor will ask some basic questions about the research methods, the content of the research, and the student's feeling and opinions.
9. Students submit all written work and complete a course evaluation along with the instructor. .

#### Conclusion.

The Japanese Ministry of Education, Culture, Science, and Technology (2005b) says that colleges and universities have to "conduct in-depth training and research in specialized academic disciplines and to develop in students the abilities necessary for employment as well as life skills."

The same report also makes a commitment to promote the use of Information Technology in the classroom.

Takamatsu Junior College/Takamatsu University is taking a leading role in the use of IT in the classroom. The key is to find the link between the educational theory and the use of technology in the classroom. Through the program outlined in this paper, the author has done just that.

As this program has evolved, it has been turned into a working, robust program. Students have not only made friends through an email exchange, they have used various forms of technology to learn how to conduct the in-depth training and research that the Japanese education leaders demand.

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