To Support Distance and Lifelong Learning (4)

—The Development and Use of a Web-based Automatic Shiken (Examination) Creator (WebASC) [1] —

遠隔授業と生涯学習支援(4)：ウェブを用いたオンライン試験システム(WebASC)の開発と利用

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〈Abstract〉

This paper discusses the latest versions of the Web-based Shiken (Examination) System, which we have been developing for the last several years. The two latest models, which we call WebASC (Web-based Automatic Shiken Creators) for short, are designed to make on-line drills and exams not only in English but also in other academic subjects. Both have been effectively used to implement on-line exams in some of our classes at Rikkyo University and Mie University. Details about the WebASC prototype will be described with results of actual use and feedback from students.(i)

1. Introduction

We have so far developed four systems by which Web-based on-line exams can be conducted. These four systems are :

(1) Saiten (Grading) System (Developed in 1997)

(2) Nyushi (Entrance Exam) System (Developed in 1999)

(3) Shiken (Examination) System: WebASC prototype (Developed in 2000)

(4) New Shiken (Examination) System: New WebASC (Developed in 2000 and modified in 2001)

Drills and examinations created in each of these systems have been actually used in Kobayashi's English classes at Rikkyo University and Hayase's English classes at Mie University.(ii)

This paper focuses mainly on the third and the fourth systems. The former, which used to be called the Shiken System, the prototype of the latter, was developed and tested in the early summer of 2000. The latest one, the New Shiken System (WebASC) was developed during

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the summer of that year and has been since modified several times based on the feedback from users, namely the two English teachers, and their students. They were used for final exams in some English classes in 2000 and 2001. The actual use of the two systems showed their practicability and reliability, but at the same time they revealed various kinds of problems which were not conceivable on a pen and paper examination, especially concerning the use of movie files, and of the Web as the medium for on-line exams. These problems, with focus on the third system, will be discussed in detail in the following chapters.

2. Purpose of our project and research

The purpose of our project is to facilitate distance and continuation education by realizing the following three Internet environments:

(1) To make an archive of on-line drills and tests

(2) To make an archive of audio/video materials for the above.

(3) To present an on-line drill/test/quiz creator for teachers to make on-line drills and exams with ease.

3. Developments of various kinds of On-line Shiken Creators

We have been working together for the last several years since 1996 to make systems for creating on-line drills, quizzes and tests, which we called on-line shiken creators.[iii]

What we were interested in was to make and conduct Web-based on-line drills and examinations which teachers would be able to use for their classes to test and improve their students' listening skills in English.

Along with conducting on-line exams, we have been also interested in developing a system in which anybody can easily create such drills and examinations, in any academic subject. Other functions such as recording the student's learning history for the teacher to monitor was also within the scope of our research.

To our delight, most of such functions we dreamt of six years ago have been realized in the new models, with innovative capabilities especially in the latest one. Because of the last system, we were able to create a number of on-line drills and exams not only in English, but also in Spanish, math and kanji (Chinese characters).

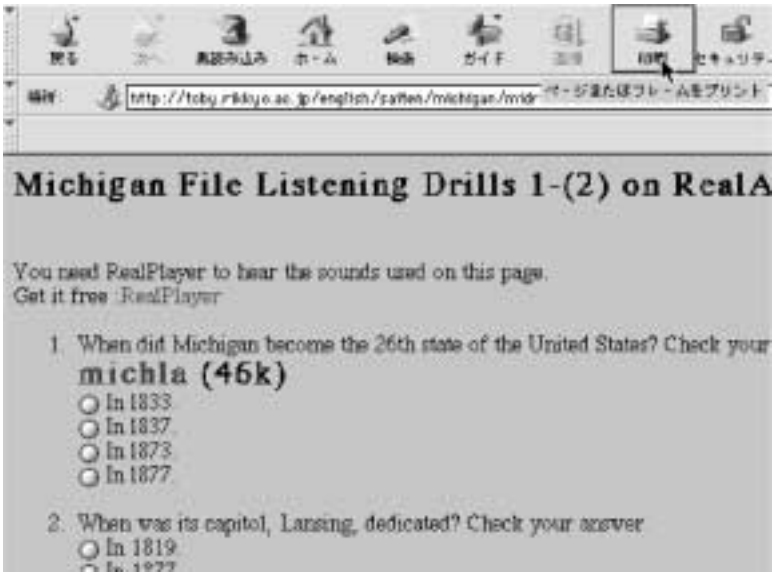
From our experiences of using these systems and conducting on-line examinations, we are convinced that there are many merits in using Web-based drills and exams both for teachers and learners, though there still remain some problems to be solved, especially in security and stability, with the server which has to process an extremely large influx of

data even within one tenth of a second.

4. The First System: Saiten System in 1997

The very first system is an automatic-scoring on-line-drill system that we call Saiten. Saiten means grading or scoring in Japanese. We introduced this system in 1997. While the user of the latest WebASC models can create on-line exams at a certain Web site, in the Saiten System the user creates question files in his own computer before he/she sends them to the server. What he/she does is to copy the HTML source code of a template page, pastes it into a text file, changes the questions to his/her own, fills in the answers to the questions in the same source code. Then these files can be sent to any Web server by FTP (Fetch, Ffftp, etc.). These pages can be seen on a Web browser, and as long as the address of the Saiten program in our server at Rikkyo University is correctly imbedded in the HTML code, the examinee can send their answers to the system to be graded.

Figure 1 is one of such pages made on the HTML template which is also shown right below it. Basic knowledge of HTML is required to put links, or to rewrite some parts of the source code in each on-line exam page.



(Figure 1)

The HTML for the above page.

```
<HTML>
<HEAD>
<TITLE>Online Drill Saiten</TITLE>
```

```
</HEAD>
<BODY>
<FORM METHOD="POST"
  ACTION="http://150.93.240.11/~nagasima/cgi-bin/saiten.cgi">
<INPUT TYPE=HIDDEN NAME="name" VALUE="Michigan 1-2">
<INPUT TYPE="HIDDEN" NAME="q0" VALUE="2321332334">
<H2>Michigan File Listening Drills 1-(2) on RealAudio</H2><BR>
 You need RealPlayer to hear the sounds used on this page.<br>
 Get it free <a href="http://www.real.com/">:RealPlayer</a><br>

 <P>
<OL>
  <LI>When did Michigan become the 26th state of the United States? Check your
answer.<BR>
 <A HREF="http://toby.rikkyo.ac.jp/english/saiten/michigan/mich1a.ra"><FONT
          SIZE=5><B>michla</B></FONT></A><FONT      SIZE=5><B>
(46k)</B></FONT><BR>
 <INPUT TYPE=RADIO NAME="q1" VALUE="1">In l833.<BR>
 <INPUT TYPE=RADIO NAME="q1" VALUE="2">In l837.<BR>
 <INPUT TYPE=RADIO NAME="q1" VALUE="3">In l873.<BR>
 <INPUT TYPE=RADIO NAME="q1" VALUE="4">In l877.<BR>
<P>
```

In fact, since this was a comparatively easy way to make a Web-based drill, we used the exams made in the system from time to time until the next version was completed. However there were three weaknesses with the Saiten System.

The first one is that it is hard to find which part to change in the HTML because there are many same kinds of tags used repeatedly, which is distracting. The second weakness is that the answers must be imbedded in the source code, which can be detected by the test-taker, and therefore this kind of format cannot be used for rigorous examinations. The third weakness is concerning where to send the HTML file. If the teacher has his/her own directory in a WWW server, then there is no problem, but if not, he/she cannot conduct an on-line examination or cannot give on-line drills to many students at the same time. It is still possible to use only the grading program in our Rikkyo server, by

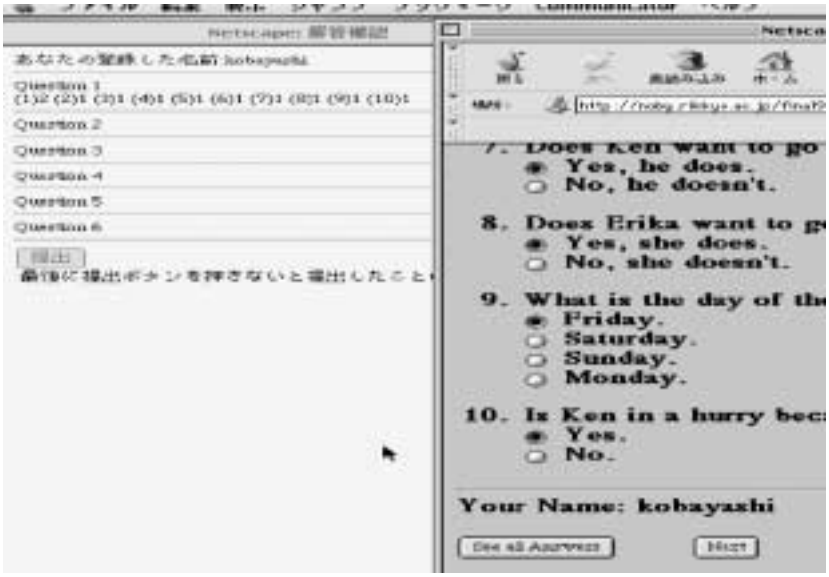
directly sending the answers from the user's computer to the system, as long as it is networked to the Web. Therefore, if there is no server available to send files to, by copying the HTML file on to each of the computers and opening it on the browser individually, grading can be done for many students at one time, just "borrowing" the Saiten program in the Rikkyo server. It is a merit of this system because anybody can use the program, though it is not still a smart way to conduct an on-line examination.

5. The Second System: Nyushi System in 1999

We wanted to solve these problems with the Saiten System. And at the same time we wanted to make a real examination that could be done on the Web, prohibiting the examinee's access to its answers.

At the second stage of our project which started in 1999, we began designing a totally new system. It emphasized how some features of paper-and-pencil examinations could be actualized on the computer screen. One of Our ideas was to put a separate window for the "answer sheet", to which answers could be transferred from the question window.

In this system two windows appear on the monitor screen as is shown in Figure 2. Each time the examinee clicks the answer button on the right window, the answers are sent to the answer sheet on the left, and when the grading button on it is clicked, the answers are then sent to the program on the server, graded, and then the score is returned to the answer sheet (Figure 3).



(Figure 2)

(Figure 3)

The students who took the exam in this way liked the design because they were able to confirm their answers on a separate window. They also liked the score returned from the server too, by which they were able to decide whether they would try the same page again or not, though it was a defect at the same time because the examinee was able to find the right answer eventually by clicking all the answers one by one.

With this system we still faced several problems and weaknesses:

(1) The source code of the question page has become complicated because JaveScript is used in addition to the HTML code. We can still copy and paste the template and change the question parts, but the page looks a little too complicated and makes us fear that we might make careless errors, or could miss tiny symbols in some lines.

(2) The creator of the exam was unable to check if the program would really work just because the files concerning the test could be compiled and sent to the server only by the programmer.

(3) Once the answer-sheet window gets closed by mistake, the recent score cannot be restored until the examinee sends his/her answers again.

(4) Once the question-page window gets closed by mistake, the typed-in answers and selected answers disappear and cannot be retrieved. The examinee has to start from the very beginning.

How JavaScript looks complicated and threatening can be understood by looking at a part

of the JavaScript used for the Shiken System below.

(example of the JavaScript)

```
  </script>
 onChange=SetData(11,this.value) >
cargo: the Bank of England was sending gold <FONT SIZE=1>(2)</FONT>
<script language="javascript">
   <!-- begin script
document.write('<input type=text name=a22 size=12 maxlength=12 ');
tmp=GetData(12);
if (tmp != "")
  document.write(" value=",tmp);
   // end script -->
</script>
 onChange=SetData(12,this.value) >
, silver bars, and gold coins to bank in India.
The <FONT SIZE=1>(3)</FONT>
<script language="javascript">
   <!-- begin script
document.write('<input type=text name=a23 size=12 maxlength=12 ');
tmp=GetData(13);
if (tmp != "")
  document.write(" value=",tmp);
   // end script -->
</script>
 onChange=SetData(13,this.value) >
```

6. The Third System: Shiken System in May 2000 (Prototype of WebASC)

We wanted a system in which each of the creators of on-line exams would be albe to test the exams or drills right after they had been made, and we also wanted a system in which both questions and their answers could be sent by the creator himself/ herself so that they could be correctly matched on the program of the system. We wanted a system that could automate all the complicated procedures with a click of a button.

To solve these problems, Nagashima completed a new system, part of which was based on the Nyushi System, but overall ideas were quite innovative. Some of the new functions are that the user can create a question page as a Web form automatically when he/she transfers his/her file from a certain Web site, and that answers to the questions can be sent to the server from the same Web site simultaneously. Then the system can coordinate the two kinds of data, questions and answers, so that the examinee's answers will be matched and graded properly. (Figure 4)

(Figure 4)

6.1 How to use the Shiken System (Prototype of WebASC)

The user goes to the Web site where he/she can create an on-line drill, quiz, or exam (Figure4). Then he goes to the sample HTML linked from the page, copies the template, comes back to the page and pastes it into the large box. He/She changes the questions to his/her own, and puts answers to the small boxes at the bottom so that the first answer can

match the first question. Both multiple-choice type of questions and fill-in-the-blank type of questions can be made on one page. Up to ten questions can be put on one page and they can be either multiple-choice or fill-in-the-blank questions or can be a mixture of both. (Figure 5)

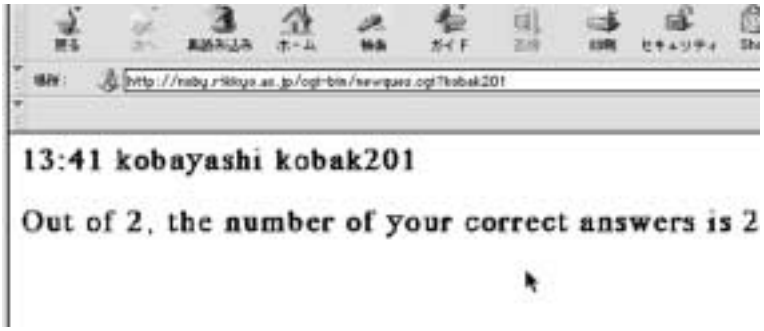
(Figure 5)

Then the user can click the button at the bottom to send the data of question page and answers at the same time. In a second the system on the server returns the address of the newly created page (Figure 6). If the link there is clicked, it goes to the on-line shiken page which has been newly made and which can be tested by the creator (Figure7). When the answers are sent, the result is returned from the server instantly (Figure 8).

The user of the system can repeat the process above as many times as he/she gets satisfied with the page design and can confirm whether the answers match the questions. If he/she finds something wrong with the page, he can simply go back to Figure 4 by the backward button on the browser to modify the HTML or answers. However once the creator's page is reloaded, all the data is gone and the page making must be started from the beginning. Although this weakness has been improved on the latest WebASC in which the written HTML and answers are separately retrieved from the server, on the older version shown here, it is wise to keep at least the answers written down somewhere in case revision of the exam is needed. The HTML can be retrieved at any time because the data is saved in the server as soon as the on-line exam page is created.

(Figure 6)

(Figure 7)



(Figure 8)

6.2 Question pages created on the Shiken System

Five tests created by the Shiken System were put together as URL links on one Web page and were given in two English classes: one at Rikkyo University on June 1st in 2000, and the other at Mie University on June 5th in 2000. The students were given the URL (http://koby.rikkyo.ac.jp/classes/listening/2000s.html) of the test page and started with any one of the five. (Unfortunately because of the server problem in the summer of 2001, some of the program files of the system were dislocated, and although the pages are still shown at the same address, the system does not return the results. Since the newest WebASC system, much easier to use with advanced functions, was completed and has been extensively used instead of others, the crashed old systems were left as they were dislocated and hence are not working properly as of today. Those who are interested in how scores are returned to the student can use the examples made on the newest WebASC model at <http://www.rikkyo.ne.jp/~kobayasi/webasc>, details of which will be reported in another paper.)

As to the use of these exam pages created in the Shiken System in June 2000, two reports with feedback from students at Rikkyo University and Mie University tell details on how the system worked.

6.3 (Rikkyo University) The results of the Questionnaire on the First WebASC Exam

Settings

(1) When: 9:00-10:30 (First Period) , Monday, June 1, 2000 (Make-up Lesson)

(2) Students: 33 freshmen enrolled in “Listening Comprehension Class”

(3) Participating students: 29

(4) The examination site: http://koby.rikkyo.ac.jp/classes/listening/2000s.html (The question pages are still here, but because of a crash of the server, grading and scoring cannot be done. Visit <http://www.rikkyo.ne.jp/~kobayasi/webasc>, instead.)

(5) Number of questions: 50 questions (10 questions on each page) (Full marks: 500 points)

(6) Question sources: TEST 1 (Listening Active), TEST 2 (Michigan File), TEST 3 (S’more), TEST 4 (Breakfast), TEST 5 (Valentine) [iv]

(8) Computers used: 36 machines (30 machines of Macintosh 600/66 and 6 machines of Macintosh G4 400 MHz)

Kobayashi’s comments:

(1) On hardware

Macintosh 66MHz machines had been used for four years since 1996. Upon the termination of the lease contract on March 31, 2000, they all now belonged to Rikkyo

University. In terms of performance, there was a problem in receiving video images on these old Macintosh machines probably because the video files were too large to be processed on them. For example, when RealPlayer and the browser were in use at the same time, in some machines, it took a rather long time to view the two windows one after another alternately. The six new Macintosh machines did not have this problem even with RealPlayer on.

Machines with problems:

M10, M21, M11, M19 hung up frequently.

M01 and M12 slowed down extremely when RealPlayer was in use.

(2) On software

Internet Explorer was used as a browser, but whenever a sound or video file was downloaded, its Download Manager appeared and it took a long time for each file to start on RealPlayer. Under the present circumstances in the Macintosh computer room, Netscape should have been used because in Netscape, RealPlayer is directly started and played.

The files are not for streaming, and they are to start playing only after they are completely downloaded. Large files were, therefore, are not suitable in the current network environment at Rikkyo University.

In the Windows environment, when a video file made with the use of free software was played, a certain component had to be downloaded whenever RealPlayer was activated, which was bothering.

In either environment, streaming files should be used for the examinees to get to work on examinations without feeling frustration by waiting so long. Improvement is definitely necessary on the video player, video file formats, and network speed.

(3) Observing the students while they were working on the exams

No students panicked because they were informed that they were to work examinations for practice. There was some confusion, however. For example, some students were at a loss when closing the browser window by mistake. Some were not familiar with the use of RealPlayer. There were some machines which hung up in the middle. These things kept the proctor Kobayashi uneasy most of the time.

Six new G4 machines were rather quick and stable. We do need new and powerful machines in order to implement on-line exercises with audio and video files.

(4) Comparing with the Nyushi System

It was really an innovation that the answer sheet appeared on the screen in the previous shiken on the Nyushi System. In the present system too, it is convenient that the score of each question page of a student can be seen on the screen right away. It would be really convenient if the instructor could view all the records of all the students and then the record of individual student one by one. It would be ideal if the display of the result of each student could be shown in the form of logs as shown below:

---

kobayashi, 6/2,10:14:15,koba0001,10,8, 1,0,1,0,1,1,1,1,1,1
kobayashi, 6/2,10:14:16,koba0001,10,9, 1,0,1,1,1,1,1,1,1,1
kobayashi, 6/2,10:16:17,koba0001,10,10, 1,1,1,1,1,1,1,1,1,1
kobayashi, 6/2,10:18:17,koba0002,10,5, 1,0,0,0,1,0,1,0,1,1
kobayashi, 6/2,10:19:17,koba0002,10,6, 1,0,1,0,1,0,1,0,1,1
kobayashi, 6/2,10:29:17,koba0002,10,6, 1,0,1,0,1,0,1,0,1,1
kobayashi, 6/2,10:29:17,koba0003,10,4, 1,0,1,0,1,0,1,0,1,1

Name: Kobayashi
Exam Group Name: Pre-trial 2000
Total Score: 20 out of 30
Details:
koba0001: 10 out of 10)
koba0002: 6 out of 10
koba0003: 4 out of 10

It is clearly an advantage that in the prototype WebASC, creation of exams is easy and this advantage will help other teachers use it. The design and structure of the examination page and the answer registration page are the crucial part to give an incentive for teachers to make their own examinations.

One way to save time in creating examinations will be the following: (This is not necessary on the latest WebASC,)

1. Write the examination on the Web.
2. Print it out.
3. Write the answers in it.
4. Fill in the answer boxes on the Web, confirming the answers in the above.

Right now, it is possible to create ten questions with ten answers. In the future, we will need a registration page where up to 30 questions can be made.[v]

In the final examination made in the older system, Nyushi System, it was rather complex to make each file, but in WebASC it is much easier to make examinations. It would be best to put the answer sheet function of the Nyushi System to WebASC. One possible drawback would be that there might be a possibility that examinees close the answer window by mistake. If the answer window is closed for whatever reasons, all the questions should be answered from the beginning, which will irritate the examinees.

Results of the questionnaire

(1) Please evaluate the on-line examination you have just taken.

Excellent……3
Good……6
So-so……10
Well?……5
Bad ……5

(2) Write your reasons

(excellent)

-It was so interesting.
-I enjoyed working on the examination.
-Since it is a new way of education.

(good)

-I was able to listen to it as many times as I needed. Also, the sound was very clear.
-I was able to listen to it as many times as I needed. But it was not possible to find where I was wrong in my answers, which was irritating.
-My computer started malfunctioning while I was working on the examination. If the computer stopped working properly during the real examination, students would panic.
-It was convenient to be able to listen to dialogs and watch videos.
-The sound was very clear, but Macintosh machines should not be used for some reason.
-It was interesting, but there was some noise in the audio files.

(so-so)

-No comment.
-It was good that I could work at my own pace. But sometimes my computer did not work properly. Also sometimes the sound broke.
-I had trouble in listening properly, but other than that it was good.
-The conversation in video was too natural and fast and rather difficult to listen to.
-I am not familiar with the use of the computer.
-I felt panicked when I was at a loss in using the computer, but I like this individual examination system.
-I had trouble in using my computer. There were places difficult to listen to and understand.
-I was not quite sure how to use a Macintosh machine.
-The whole thing depends on computer literacy. Also the sound broke.

(well?)
-Since I am not used to using a Macintosh machine, I had trouble with the machine before I worked on the examination.
-Since I am not good at machines in general, I didn't know how to use the computer at all.
-Since I am not good at using the computer, I had trouble with listening and answering at the same time.
-Since I don' know how to use the computer.

(bad)
-It took such a long time just to operate the computer, and I couldn't work on the examination. I could not hear the sound well.
-The sound was not clear. The video was also too fast. I had a hard time.
-Since I couldn't use the computer well.
-Since I have a Windows machine, I don't know how to use a Macintosh machine. This testing system using the computer is unfair because there are people who are good at using the computer and those who are not.

6.4. (Mie University) The Results of the Questionnaire on the First WebASC Exam

Settings

(1) When: 8:50-10:20 (First Period), Monday, June 5, 2000
(2) Students: 9 third-year English majors in "Computer Education," English Department, Faculty of Education, Mie University

(3) Participating students: 9

(4) The examination site: http://koby.rikkyo.ac.jp/classes/listening/2000s.html

(5) Number of questions: 50 questions (10 questions on each page) (Full marks: 500 points)

(1) Question sources: TEST 1 (Listening Active), TEST 2 (Michigan File), TEST 3 (S'more), TEST 4 (Breakfast), TEST 5 (Valentine)

Computers used: Originally, nine Fujitsu's FMV6450DX3s (Windows NT), then two more of the same kind, as two of the nine computers stopped functioning well.

Hayase's comments:

(1) It is necessary to have several extra computers booted up all the time just in case because some of the students' computers may malfunction during the test time.

(2) As some of the students have pointed out in their questionnaire, it will be a good idea to inform the examinee of the questions to which he has given wrong answers if it is not an exam. We need to decide when to give this information: when they send the answers for the first time, for the second time, etc. Probably, we need to do it when they send the answers for the first time.

(3) With seven computers, all the video files were downloaded on the desktop and opened themselves automatically, which was what we wanted, but with two computers, the video-files were downloaded into a directory, presenting a rather difficult situation. All the video files should be downloaded on the desktop and they should open themselves automatically.

(4) It will be vitally important that all the examinees should be familiar with the use of the computer including volume control, downloading files, use of the necessary software such as RealPlayer, etc. The examinee should be given an opportunity to go through an example question using its video file and sending the answers, just like other test like the TOEFL.

Results of the questionnaire

(1) Please evaluate the on-line emanation you have just taken.

Excellent……0

Good ……3

So-so ……5

Well?……1

Bad ……0

(2) Write your reasons.

(good)

-I can listen to the parts as many times as I like. I can change my answers easily by clicking buttons.

-A very good idea, but it is important that all the computers should be working properly all the time. The examinees should be trained in advance on the use of the computer including the voice level adjustment. It would be troublesome if examinees are not familiar with the use of the computer.

-Because I can concentrate on the exam without being distracted by the noise around me.

(so-so)

-Because it was the first on-line exam in my life.

-No comment.

-It is a good idea to conduct entrance exams on-line, but people like me who are not good at using the computer will need time and cannot solve questions as smoothly as they do on pen and paper traditional exams.

-Since the sound was not good, it was difficult to understand minute points.

-When the computer did not function well, I panicked.

(well?)

-To me the old traditional way is easier.

(3) Write about the method where the number of correct and wrong answers are shown.

(good)

-It would have been better if the wrong answers had been clearly indicated.

-It is good that the numbers of correct and wrong answers are instantly shown to the examinee.

-I would like to know which ones are wrong and which ones are correct.

(so-so)

-It should be as it is.

-The wrong answers should be shown.

-Good.

-No comment.

-Good.

(well?)

-It is good to know the numbers of correct and wrong answers, but I would like to know which ones are correct and which ones are wrong.

(4) Write about the method where the questions are shown.

(good)

-One multiple-choice question and one fill-in-the-blank question were almost the same, based on the same part of the script, which made me a bit perplexed.

-Answering buttons and answering blanks did not appear a couple of times.

-Very good.

(so-so)

-The video should be built in the question page.

-No comment.

-No comment.

-In Test 1 or Test 2, among the fill-in-the-blank questions, there were a couple of questions where the intention was not clear as to which and where I should I answer.

Also, in the listening sections, the examinees should be informed in advance that as soon as the button is clicked, the sound starts.

-As volume control is difficult, it would be ideal if the preferable volume is automatically set for all the examinees.

(well?)

-I think it is just a common way.

(5) Is your computer at home connected to the Internet?

Yes……6 (One of them means “at her parent’s house.”)

No……1

No computers at home……2

(7) If your computer was connected to the Internet, would you to like to work on practice tests like these or take real examinations on-line at home?

Yes……6

No ……1

I don't know……2

7. Write the reasons. Also, are there any problems in doing these things at home?

(yes)

-Because I think examinations conducted on the computer will increase in the future.

-Nothing in particular.

-To improve my English ability.

-It will be necessary to limit time for each test.

-As practice for the TOEFL.

-Because I can listen to English as often as possible, and because the numbers of correct and wrong answers are informed instantly.

(No)

-It is easy to cheat.

(I don't know.)

-Because I don't know.

-Because working on the computer seriously makes me very tired.

8. Write freely your ideas and comments on the on-line exams you experienced this time.

(good)

-No comment.

-The sound sometimes was not clear enough, which made it difficult for me to answer some of the questions. But this is a very good try.

-An epoch-making try. It is a very suitable way to conduct exams in this age.

(so-so)

-The idea is very original and interesting. Technical problems such as images and sound should be solved before it is put into practical use.

-As my computer stopped functioning well, I felt nervous and impatient.

-This time it was only a practice, so it was OK. But if similar problems should occur during the actual entrance exams or TOEFL, the stress would be too much for

examinees.

-It is good because we can take the test anywhere. One problem is that cheating is easy.

-It was very enjoyable, but I had difficulties in listening.

-I saw Jane in the video, who reminded me of her English lessons.

(well?)

I think there are some things to be improved on the system.

7. The Fourth System: New Shiken System in September 2000 (New WebASC)

Based on the feedback from the students and from Hayase and Kobayashi as proctors of the on-line tests as is described in the previous chapter, Nagashima started improving the program. He spent the whole summer on a very innovative system, sorting out the problems having been pointed out so far. It has functions shown below:

(1) The list of on-line drill/quiz pages so far created on this system
(2) The script (source code) of each page
(3) The answers to the questions of each page
(4) The creator's page to create a single page of drills/quizzes
(5) The creator's page to create a compound page of drills/quizzes
(6) The log page

In this latest system, the teacher can make on-line drills and exams, and they are automatically saved in the server. These question pages are shown on a Web browser on a networked computer, and the learners can do the exercises on the pages created by the teacher and they immediately receive their results if they send their answers by clicking the button. The teacher can also look at his/her students' results or scores on the log page specifically made for each individual teacher.

The process of making on-line drills and exams are almost the same as that of in the previous one explained in the previous chapters. It can be used even by a novice by simply going to a Web page where he/she can create exam pages and they can be automatically uploaded, by clicking the button at the bottom of the page. The drills can be done on any machine with an Internet browser connected to the Internet.

The remarkable function that has been added is the one that can put several single pages into one compound examination. By this function six pages of questions previously made can be coordinated into one, with each of the scores automatically combined into a total

score. Although the final touch is now necessary to be given to this system to be ready for wider use, making on-line drills and tests has become very easy and accelerated, and Kobayashi and Hayase have made various kinds of drills in it, not only in English but also in Japanese, Spanish and Kanji (Chinese characters) which are presented at the following site: http://www.rikkyo. ne.jp/~kobayasi/webasc/. In order to send answers to the server to be graded, cookies on your browser must be enabled.

8. Conclusion

We are very happy to have been able to work on various Internet tools and devices which can contribute to the promotion of distance and lifelong education and learning. Especially we like the final on-line shiken system, WebASC, because of its practicality in making on-line exams and drills. It can be used for many subjects as long as the computer has appropriate fonts suitable for different languages. It can be used for mathematics and Japanese or Kanji drills.

However, it is also true that there are still problems in the use of the system, especially concerning the use of video files because they make the Internet or the Intranet so congested to the extent that the response of the WebASC system is made to slow down. There are also many ways of cheating this kind of Web-based shiken system which must be contained one by one by trial and error.

We hope that tools like our systems will be widely used as if they were teaching assistants and colleagues by many teachers. We are planning to put the creator's page on a Web site so that anybody can use the system in a more capable server which can deal with abundant use of the program in it. We would like to soon report about the use of the newest WebASC on such a public Web page, on another occasion, with a new analysis of the data collected.

<Notes>

(i) This prototype had been developed in 2000 and had been used for a while until the revised model was developed, but unfortunately its program files got dislocated due to a crash of the server. As of today, only the new WebASC system is working. Examples made by the new model are shown at http://www.rikkyo.ne.jp/~kobayasi/webasc.

(ii) Use of Saiten is reported in "The Online Automatic System for Distance and Continuing Learning", Bulletin of the College of Community and Human Services No.1, Rikkyo University. Use of Nyushi in "Distance and Life-long Learning (3): Conducting on-line

examinations in English —From Saiten (Grading) to Nyushi (Entrance Exams)—", Bulletin of the College of Community and Human Services No.3, Rikkyo University. See references below.

(iii) "Distance and Life-long Learning (3): Conducting on-line examinations in English —From Saiten (Grading) to Nyushi (Entrance Exams) —". See references below.

(iv) Michigan File is an audio material and S'more and Valentine are videos made as a part of this research.

(v) Up to 60 questions can be combined in the latest WebASC.

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(2) Etsuo KOBAYASHI, Mitsuaki HAYASE, Shinobu NAGASHIMA, "Distance and Life-long Learning (2) —Making Home Pages with MailWeb and WebMaker—", Bulletin of the College of Community and Human Services No.2, Rikkyo University ,pp.59-72, 2000.3.31

(3) Shinobu NAGASHIMA, Mitsuaki HAYASE, Etsuo KOBAYASHI, "On-line English Drills and Tests with Video and Audio Files", International conference: People, Languages and Cultures in the Third Millennium, pp.240-244, Far-Eastern English Language Teachers Association, 2001.4.1

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