

Development and Use of a Learning-Support Web-site for the University of the Air Japan

Kenji Inoue¹ and Katsuaki Suzuki¹

¹Graduate School of Social and Cultural Sciences, Kumamoto University,
40-1 Kurokami Kumamoto, Japan

ABSTRACT

We developed a Learning-support Web-site for the University of the Air. The site's target course is "The Human Informatics and e-Learning" [1]. The purpose of the Web-site was to provide experiences of an e-learning environment for the students and opportunities to communicate with the course instructor. The purpose of this paper is to report the functions, improvement, and use of the Web-site. At first, we made the discussion boards about the learning tasks. We then added the comment boards, quizzes, links to related sites, books for reference in Oct. 2006. As a result, we confirmed communications and synchronization with the broadcast time of the TV programs.

INTRODUCTION

In the unit of the Instructional Design of the course of the University of the Air "The Human Informatics and e-Learning", we made a learning support Web site as one of three pillars of "The Learner-support Environment in the Instructional Design (ID)" (See Figure 1): First, the TV Programs with the ID specialists interviews in USA were to enhance students' motivation for studying. Second, the textbook provided details of the TV programs and ID theories. Third, the Web-site was designed to supply additional information and communication space.



Figure 1. Learner-support Environment in the ID
(taken from p.88 of [1])

The University of the Air is a correspondence college. The University broadcasts lectures on TV and radio. The student who does not watch lectures on TV can watch the videos in learning centres.

The target course is a lecture to be available in from 2006 to 2009 (See Figure 2).

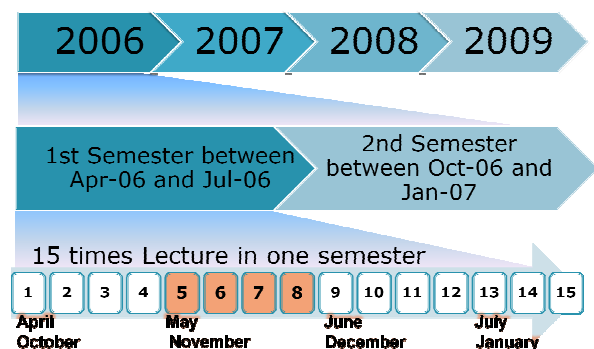


Figure 2. The Target course lecture schedules

There were 15 lectures in each semester-long course, broadcasted twice a year. The first semester is between April and July, and the second semester is between October and January. The target of the Web-site was lessons of "The Instructional Design" between 5th and 8th weeks. The students watch broadcasted TV programs in May and November.

Generally, courses in the University of the Air require students to submit a mid-term report of learning tasks by mail and to take a final examination. Therefore, in the Web-site, we prepared the discussion boards about the learning tasks, which enable the students to communicate among students and with a lecturer. The student who wants to deepen an argument participates in the discussions of this Web-site voluntarily, because the use of the Web-site was not related to the grading in the course.

FUNCTIONS OF WEB-SITE

The function of the Web-site was limited to discussion boards of the learning tasks and the user's registration for the first semester of 2006. We added quizzes, links to related sites, books for references, comment boards and self-introduction board from the second semester of 2006 to increase the functions provided by the Site (see Figure 3).

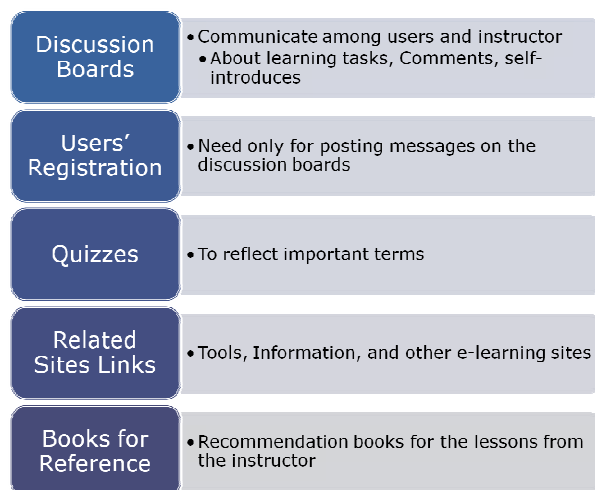


Figure 3. The list of the functions

DEVELOPMENT

The system reused "The Learning support Web-site for the e-learning fundamentals"[2][3] that we developed in the past. The development environment of the system was as follows:

- OS of the Server: Cent OS4
- Web server: Apache 2.0
- Development Language: CPAN Perl5 works as CGI on Apache

(1) Homepage

Figure 4 is the homepage of the Web-site. The left side in this figure is the menu frame. Here is a link to the page of user's registration and each time. The right side is the body frame. In the homepage, there are the explanation of the Web-site, user's registration, and links.

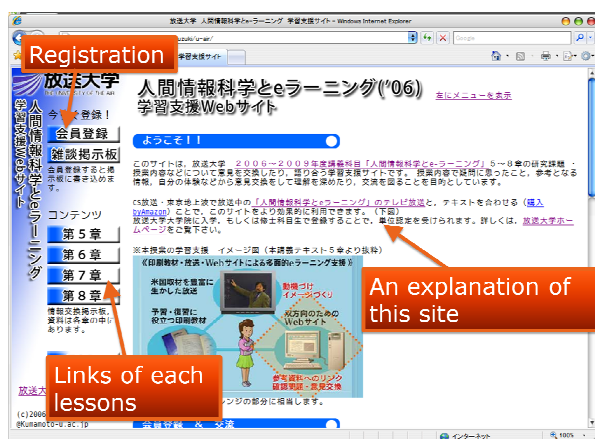


Figure 4. The Web-site homepage

(2) 5th lesson page (the same as 6th, 7th, 8th page)

Figure 5 is the 5th lesson page. The left side is the same as the homepage. There are summary of this lesson, quiz, discussion boards for learning tasks, comments board, links to related sites, and books for reference on the right side.

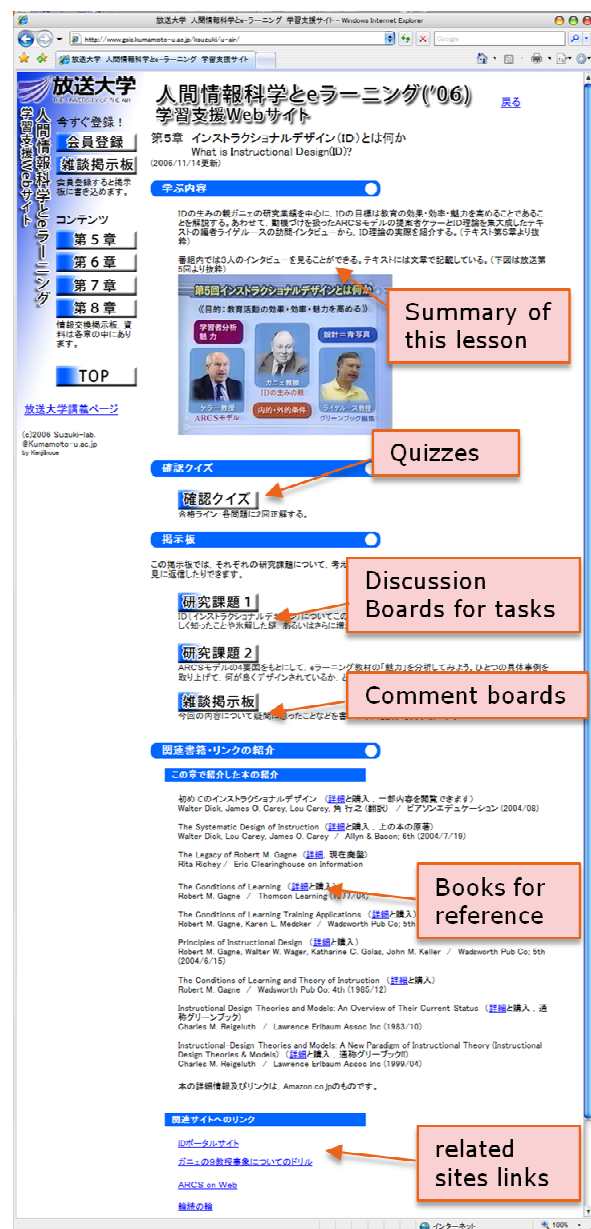


Figure 5. The 5th lesson's page

(3) The quizzes

The visitors can confirm the important words by taking the multiple-choice quiz. The quizzes are provided in the 5th and 6th lessons, and each lesson has 5 questions.

(4) The discussion boards

Figure 6 is one of the discussion boards. The visitors can read the discussion boards, comments boards, and self-introduction board without registration. When they post a message in it, they need the registered password.

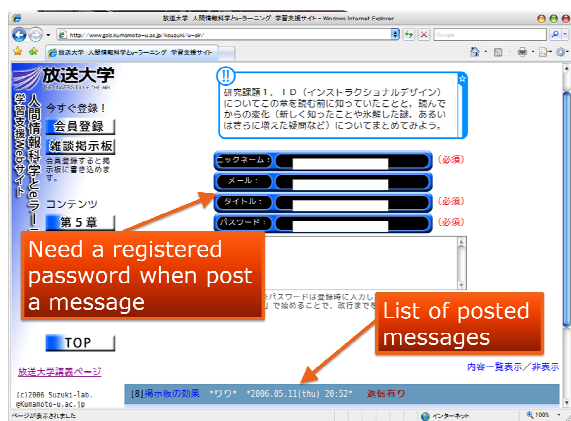


Figure 6. One of the Discussion board

USE OF THE WEB-SITE

We made our Web-site available from April 2006. Figure 7 summarizes the number of the posted messages and the number of the registration users from April 2006 to June 2007. Figure 8 shows the number of accesses to the Web pages, the quizzes, the discussion boards and the registration user profiles.

Both of the figures had three peaks in May of 2006,

November of 2006, and May of 2007. There were synchronized with broadcasts of the 5th to 8th lessons on TV.

We did not know how many visitors accessed in this Web-site, since they can view the Site without having the users' registration. Therefore, we used the detailed access log of the apache Web-server from May 2007, expecting an individual visitor from an individual IP address and the browser information (Referrer and Agent), and analyzed how the visitors used this Web-site. At this time, we distinguished the search engine robots (Bots) and the accesses of the visitors, and we confirmed the numbers of accesses of Bots. It is described in the number of the detailed access of May 2007 and June shown in Table 1.

In May, 185 visitors came, and the average reading pages of were 9.48, and the total access was 1753. According to the browser information (Referrer), the access that came from search engine was only 71, and came from a link was 51. The other visitors viewed the Web-site by the direct input of the URL or through their own bookmarks. We can expect that the visitors of this site to have obtained the URL from the textbook and the TV programs.

In June, it was found that there was the same tendency, except that the number of the accesses

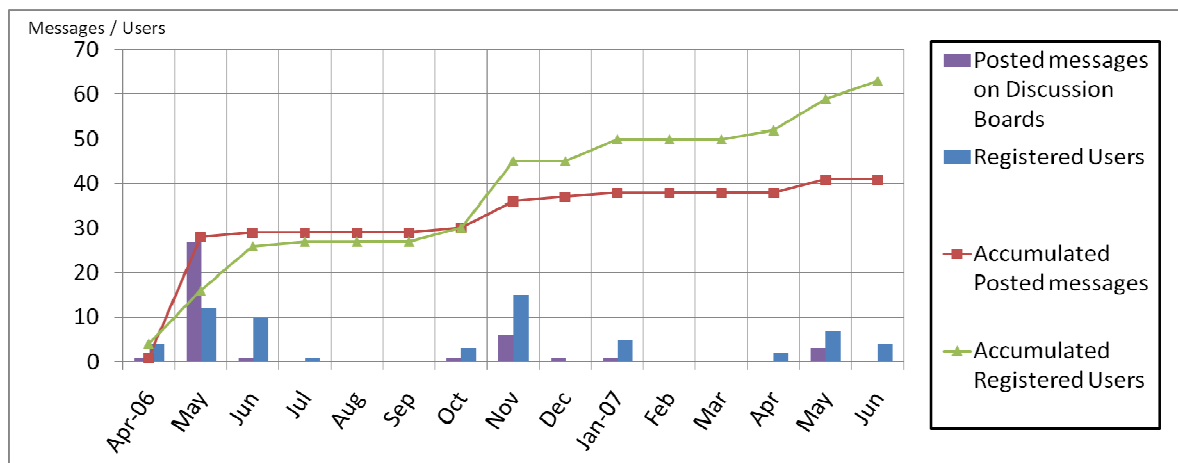


Figure 7. The Number of Posted Messages and Registered Users

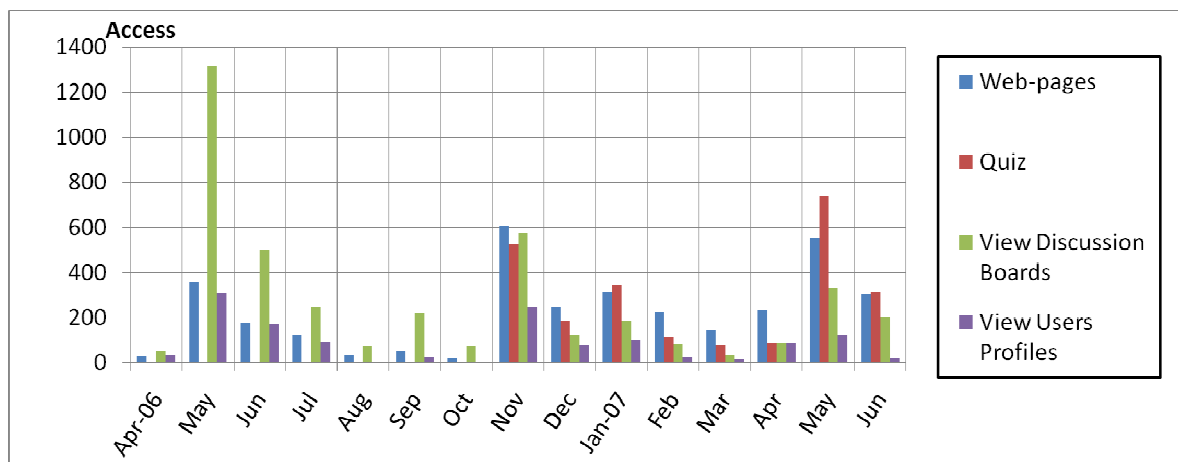


Figure 8. Number of Access in the site

Table 1. Access by Users and Bots in May and June-2007

		May-07						Jun-07					
		Access by Visitor	Visitor (Unique IP)	Access per Visitor	Access by bot	Total Access	% of bot	Access by Visitor	Visitor (Unique IP)	Access per Visitor	Access by bot	Total Access	% of bot
Web-pages Access	Total	555	-	-	70	625	11%	303	-	-	89	392	23%
	Home	207	123	1.7	21	228	9%	104	76	1.4	24	128	19%
	5	148	85	1.7	12	160	8%	73	48	1.5	16	89	18%
	6	83	54	1.5	10	93	11%	55	46	1.2	16	71	23%
	7	64	43	1.5	14	78	18%	36	25	1.4	19	55	35%
	8	53	38	1.4	13	66	20%	35	29	1.2	14	49	29%
Quiz	Total	742	-	-	24	766	3%	315	-	-	25	340	7%
	5	540	65	8.3	14	554	3%	253	33	7.7	13	266	5%
	6	202	28	7.2	10	212	5%	62	10	6.2	12	74	16%
View Discussion Boards	Total	330	-	-	326	656	50%	201	-	-	304	505	60%
	5	117	78	1.5	99	216	46%	55	47	1.2	100	155	65%
	6	60	46	1.3	65	125	52%	50	43	1.2	32	82	39%
	7	43	35	1.2	36	79	46%	33	30	1.1	52	85	61%
	8	43	31	1.4	71	114	62%	22	19	1.2	48	70	69%
	General	67	43	1.6	55	122	45%	41	24	1.7	72	113	64%
Post	Total	3	2	1.5	-	3	-	0	0	-	-	0	-
Users	Registered	7	7	1.0	-	7	-	4	4	1.0	-	4	-
	View Profiles	126	121	1.0	20	146	14%	21	20	1.1	56	77	73%
Total		1753	185	9.5	440	2193	20%	840	141	6.0	474	1314	36%
Visit from Search Engine		75						63					
Visit from Other Sites		51						25					

Table 2. The Frequency distribution table of Monthly access by Individual Visitors

	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120	121-130	Total
May-07	132	24	13	6	5	2	0	1	1	0	0	0	1	185
Jun-07	121	8	5	3	1	1	0	2	0	0	0	0	0	141
Total	253	32	18	9	6	3	0	3	1	0	0	0	1	326
% of Total	77.6%	9.8%	5.5%	2.8%	1.8%	0.9%	0.0%	0.9%	0.3%	0.0%	0.0%	0.0%	0.3%	100%
	77.6%	22.4% (73/326)												

Detail of 1-10

	1	2	3	4	5	6	7	8	9	10	Total
May-07	66	32	8	5	6	4	3	3	4	1	132
Jun-07	65	12	14	5	6	8	5	3	0	3	121
Total	131	44	22	10	12	12	8	6	4	4	253
% of Total	40.2%	13.5%	6.7%	3.1%	3.7%	3.7%	2.5%	1.8%	1.2%	1.2%	77.6%

decreased, probably because the broadcasts were over.

The number of the accesses by Bots was at the same level in May and June. Only the number of the access of the discussion boards showed much high ratios by Bot, because the bots access the "Delete message" and "Reply to this message" hyper-links without choice, whereas the human only click them as necessary.

Finally, Table 2 summarizes the access frequency of the visitors. The table shows 40% of people visited the Web-site only once during each month. On the other side, 22% people (73 visitors) visited more than 11 times during the two months.

CONCLUSION

We developed a Learning-support Web-site for a segment of a graduate-level course in the University of the Air. For the use of the Site, in terms of the number of the visitors and the access in the Site, we confirmed that there were three peaks that were synchronized with the broadcast time and communications among the visitor and the instructor.

We want to continue to conduct long-term detailed access analyses and questionnaire of visitors to improve the Site.

REFERENCE

- [1] Eiichiro Nojima, Katsuaki Suzuki, Aya Yoshida, "Human Informatics and e-Learning," The Agency for the Promotion of the University of the Air, 2006.
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- [3] Katsuaki Suzuki, Daiki Shibata, Shuntaro Noro, Hisashi Ichikawa, "The Learning support Web-site for the e-learning fundamentals," <http://www2.gsis.kumamoto-u.ac.jp/eLF/>, Retrieved on 3 Sep. 2006.