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# The Challenges of ICT Applications in Distance Higher Education in Japan

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ABSTRACT :

Japan is a technologically advanced country with a number of challenges being faced by distance education institutions. Applications of information and communication technologies (ICT) have the potential to transform educational practices from teacher-centered teaching to student-centered learning. However, few higher education institutions in Japan have actually realized the potential of ICT yet. Distance education in Japan is regulated differently from traditional on-campus education and still the majority of distance education programs operate in the mode of correspondence education, using postal mail as the main means of communication and instruction. In this paper, the current situation of ICT implementation in higher education institutions is explained especially focusing on distance education programs, and the current challenges are discussed.

## 1. INTRODUCTION :

Distance learning, the mode of education where students can take courses without physically attending classes on campus, has been around in Japan for more than 50 years. However, unlike those in the U.S., Canada, and Australia where distance learning has been flourishing with the effective utilization of information and communication technologies (ICT), in Japan, many distance learning programs are still old static correspondence schools, using postal mail as the main delivery mode of instruction. With the wide spread use of the Internet, e-learning has been started in many parts of the world and Japan is not an exception. However, e-learning in Japan is still far behind of other developed countries, not in terms of technology per se, but in terms of effective implementation of new paradigm of education where knowledge is constructed actively and collaboratively using interactive communication tools.

This paper will look at historical evolution of distance education in Japan in terms of the development of distance learning programs and schools and the educational status of those programs and schools, in relation to regulatory changes concerning distance higher education in Japan. Then, it will present the results of the survey conducted in March 2008 to find out the current status of distance learning programs and schools in terms of modes of instruction and discuss the implications the survey results present.

### 1.1 A Brief History of Distance Education in Japan

In Japan, the first occurrence of distance education can be traced back to the “lecture notes” used in higher education in the late 19th century. In the Meiji period when higher education had not taken a solid form yet in Japan and no textbooks existed in Japanese, the only learning materials students could rely on were the notes taken

from the lectures given by professors (this tendency still persists somewhat today and few good college textbooks exist in Japan). Thus, those "lecture notes" were printed and used by non-matriculated students in their studying. Waseda University, the Japan's premium private college, is well known for being the first one to implement this system. Those students who studied through the "lecture notes" could take an exam to obtain a certificate of completion. At that time, those who could not come to Tokyo to take college courses studied in this mode and took exams to gain certification. This is considered to be the origin of "correspondence education" or distance education in Japan.

In 1950, for the first time correspondence schools or distance learning schools were officially recognized by the Ministry of Education, which enabled recognized schools to offer degrees to their students. According to the Higher Education Council in Japan, this is the beginning of distance education in higher education in Japan. Since then, the Japanese Ministry of Education has maintained two separate accreditation systems or the University Establishments Standards: one for traditional on-campus institutions and the other for correspondence education.

The major part of distance education in Japan has been done by distributing print-based materials through postal mail. Though those distance learning programs had been officially accredited to offer degrees, originally 30 credits out of the 124 credits required to obtain a bachelor's degree had to be earned through face-to-face classes (i.e., schooling). In March 1998, the requirement of earning the minimum of 30 credits through face-to-face classes was relaxed and the government enabled those 30 credits to be earned through synchronous mediated communication such as videoconferencing. Then in March 2001, those 30 credits were allowed to be earned through interactions on the Internet. This made it possible legally to earn degrees solely at a distance without ever visiting the campus or learning centers. Also in March 2001, graduate programs that were through correspondence education began to be recognized officially, and four graduate distance education schools were established in the next year. In 2003, doctoral programs through distance education were starting to be recognized. Originally distance education programs were considered secondary to the regular on-campus programs. However, the notion has been slowly changing, and it has been discussed that the regulatory distinction between campus-based schools and distance education schools may disappear in the near future.

## 1.2 The Current Status of Distance Education in Japan

As discussed earlier, in Japan distance education programs have been regulated differently from campus-based programs of higher education. In 2008, 229,734 students were seeking degrees at a distance in 41 universities who provide distance learning undergraduate programs, accounting for 9.1% of total higher education enrollees (MEXT, 2009). As regular higher education institutions in Japan mostly cater to the needs of full-time students enrolling directly from high school, a majority of adult learners opt to enroll in distance education programs. Out of the 41 universities, 37 are universities that have both on-campus education and distance education programs, while four universities were distance learning institutions. As for distance learning graduate programs, 25 universities provide such programs, among which 20 universities have on-campus graduate programs and 23 universities have distance learning undergraduate programs as well. In addition, there are 10 junior colleges that also provide associate programs via distance education.

The graph in Figure 1 below indicates the increase in the number of universities who provide distance education programs. The number of distance education institutions dramatically increased after 2001 when the government started to allow all the credits to be earned at a distance. The number of students who enroll in distance education programs has also increased as indicated in Figure 2 below, to a maximum in 2005.

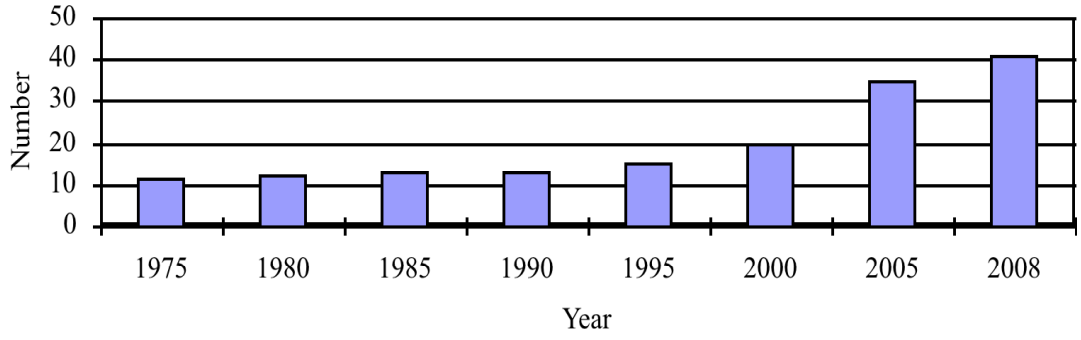


Figure 1 : The number of distance education universities in Japan

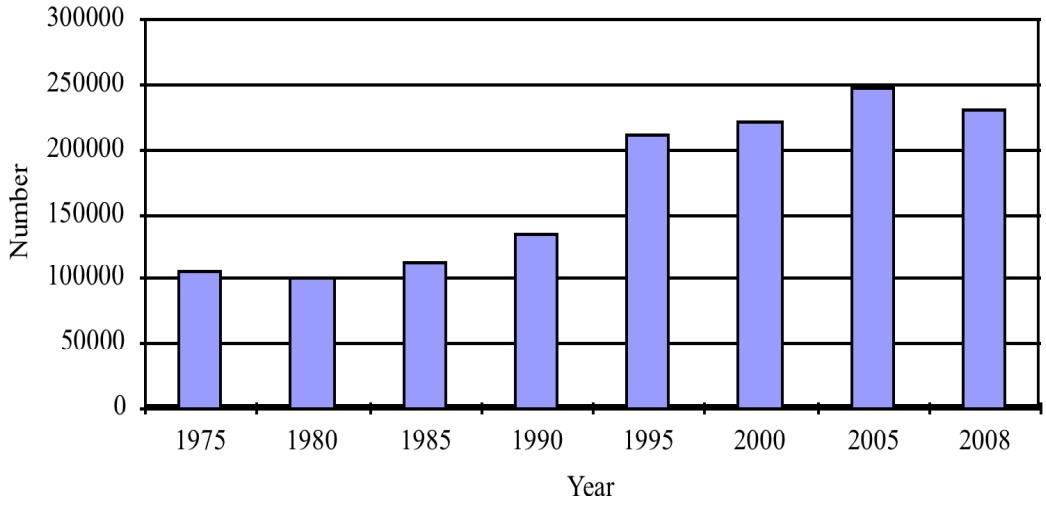


Figure 2 : The number of distance education students in Japan

### 1.3 The Open University of Japan

Though there are 41 higher education institutions in Japan that offer distance education programs, the Open University of Japan (formerly known as the University of the Air, in English) is very unique and worthy of special mentioning here. OUJ was established as an independent 4-year institution of higher education in 1981 and started its television and radio broadcast instruction in April 1985, modeled after the British Open University. The original objectives of the University were :

- to provide working people and housewives with a chance of lifelong university level education ;
- to provide an innovative and flexible system of university level education open to high school graduates ; and
- to co-operate with existing universities and make full use of the latest scientific knowledge and new educational technology in order to offer a system of higher education which matches contemporary needs (Abe, 1989).

For the first five years of its existence, only students in the Tokyo metropolitan area could receive the broadcasts of the university lectures. The university began broadcasting nationwide via digital communications satellite in 1998, although only those who installed a special antenna

and receiver could receive the signal. The main textbooks utilized as study materials for the courses offered by the university are still print-based. There are also 57 local study centers and support offices around the country; at least one in every prefecture. The university requires all students to take at least 20 hours of classroom instruction and final exams at the study center nearby their home. The study centers also provide video/audio recordings of lectures so that students who have missed the broadcast of a lecture can come to the study center to view or listen to the recordings. Those recordings usually cannot be taken out of the study centers, and those who want to obtain those recordings have to pay a large sum. The university sells those recordings to other universities, which use them to supplement their course offerings.

Currently the Open University of Japan has about 85,000 students in total. Among them, 56% of the undergraduate students and 36% of the graduate students are female. In terms of their age groups, 48% of the undergraduate students are in their 30s and 40s and 32% of the students are over 50s. As for graduate students, 54% of them are in their 30s and 40s, and 31% are over 50s. About 52,000 out of 85,000 students are enrolled in degree programs full-time, and the average student spends 6.5 years before graduating (The Open University of Japan, 2009). The university offers more than 350 courses each semester that can lead to undergraduate degrees in life and social welfare, psychology and education, society and industry, human and culture, and nature and environment. Its graduate programs, started in 2001, offer master's degrees in life health science, human development science, clinical psychology, social management science, cultural information, and natural environmental science. Unlike other universities in Japan, the university does not require undergraduate applicants to take an entrance exam, but requires one for admission into its graduate programs.

Though many other mega distance education institutions in the world such as the U.K. Open University evolved into a new institution fully utilizing interactive technologies such as the Internet, the Open University of Japan is still stuck in the mode of one-way broadcast instructional delivery for its most part. The Open University of Japan offers virtually no interaction between students and the faculty members who design and teach the courses except face-to-face classes offered at study centers. It has just started to use teaching assistants or tutors in graduate programs in 2010, and still none is available to undergraduate students. Undergraduate students are assessed mostly with machine-graded multiple choice tests midway through their courses, and only those who pass the tests are allowed to continue. The old model of correspondence schools, in which students study in solitude with little interaction with professors and no interaction among other students still persists in the Open University of Japan today.

In order to find out the current status of ICT use in distance education programs in higher education institutions in Japan, a survey was conducted in March 2008. The following sections discuss the method, the results, and the implications drawn from the results.

## 2. METHODS :

The list of all the distance education programs offered by colleges and universities in Japan was obtained from the Association of University Correspondence Education. In this study, only undergraduate programs were included. Though six universities offered multiple distance education programs, the unit of analysis was set to be an institution, not a program. In total, there were 42 institutions that offer at least one distance education program; among which 41 institutions responded to the questionnaire. Hence, the response rate was 97.6%.

The questionnaire was made available online using the REAS (Real-time Evaluation Assistance System) developed by the National Institute of Multimedia Education (which is now part of the Open University of Japan). The head of distance

education programs at each institution was contacted and asked for completing the questionnaire. If the questionnaire was not completed by one week after the initial contact, then a second contact was made. Likewise, subsequent contacts were made for those who did not complete the questionnaire. After the fifth contact, we could obtain the responses from 41 institutions mentioned above.

The items in the questionnaire consisted of the following seven areas : 1) the characteristics of the program (e.g., the year of establishment and the number of majors); 2) the demographic characteristics of students (e.g., the number of students, the percentage of students with full-time employment, and their average age) ; 3) instructional delivery methods (e.g., the course content, the delivery of learning materials, the method of producing learning materials, and the requirement of face-to-face sessions) ; 4) the ways to respond to student inquiries (e.g., the ways to accept student inquiries, the inquiry forms, the average time in responding to an inquiry, the existence of learning supports, and the assessment methods) ; 5) support given to teachers ; 6) the existence of student course evaluation ; and 7) the use of ICT.

## 3. RESULTS :

As mentioned above, 41 institutions completed the questionnaire. The results are shown below.

### 3.1 Characteristics of the Distance Education Programs

The oldest program was established in 1924, and about a half (21 institutions) the programs have been established after 2000. In other words, most of the distance education programs in Japanese colleges and universities were established after the law was revised in March 2001 to allow the 30 credits to be earned through interaction on the Internet.

The subjects dealt in most of the distance education programs are in the fields of social science and humanity. The actual names of the programs vary ; however, the approximate breakdown of the subjects is shown in the Figure 3 below.

The comparison of the programs that were established before 2000 and those after 2000 showed that those established prior to 2000 tended to be in the areas of law, literature, economics, and business while post-2000 programs tended to be in the area of social work.

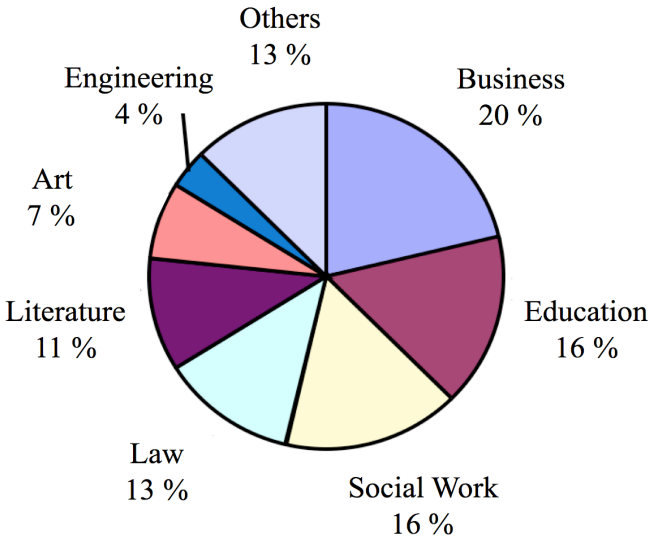


Figure 3 : Program subject classification

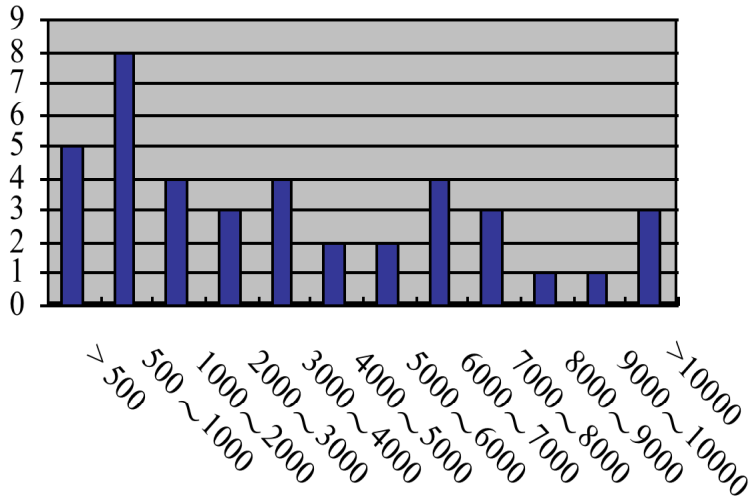


Figure 4 : The number of universities according to the number of students

### 3.2 Characteristics of the Students in Distance Education Programs

The number of students in a program varies depending on the institution. The largest distance education program in Japan, the Open University of Japan, has 83,126 students; the second largest program, Soka University, has 16,433 students; and the third largest program, Bukkyo University, has 15,600 students at a distance. The Figure 4 shows the number of universities according to the size of its student body. The programs which were started prior to 2000 tend to be bigger (the average number of students is 9,832) while those started after 2000 tend to be small (the average number of students is 1,847).

It is usually considered that distance education programs tend to have older and more mature students than traditional on-campus programs. The result of this survey shows that more than 60% of the students in distance education programs have jobs. In terms of the age of the students, the majority of the students are in their 30s.

### 3.3 Learning Materials

Among the 41 institutions which responded to the questionnaire, only three of them do not have any on-campus program. Other 38 institutions also have on-campus programs and they were asked if they offer the same degree program both on campus and at a distance; if so, if they use the same learning materials for both programs. As shown in the Figure 5, many of the institutions offer distance education programs on subjects that are not offered by on-campus programs, or even if they offer on-campus and distance education programs on the same subject, they use different learning materials for different mode of instruction.

More than 90% of the institutions use printed materials and about 40% of them use CD-ROM. Only less than 30% of the institutions make learning materials available online, and only one-third utilizes the Internet for putting lecture videos or utilizing Learning Management Systems (LMS). It seems that many institutions resist using LMS for managing student records. A few of them utilize social networking services for creating student communities.

As for the production of the learning materials, the respondents were asked if they use existing materials; a teacher in charge usually makes them on his/her own; a course production team will make them in collaboration with content experts; or the production is outsourced. The Figure 6 shows the distribution of the responses.

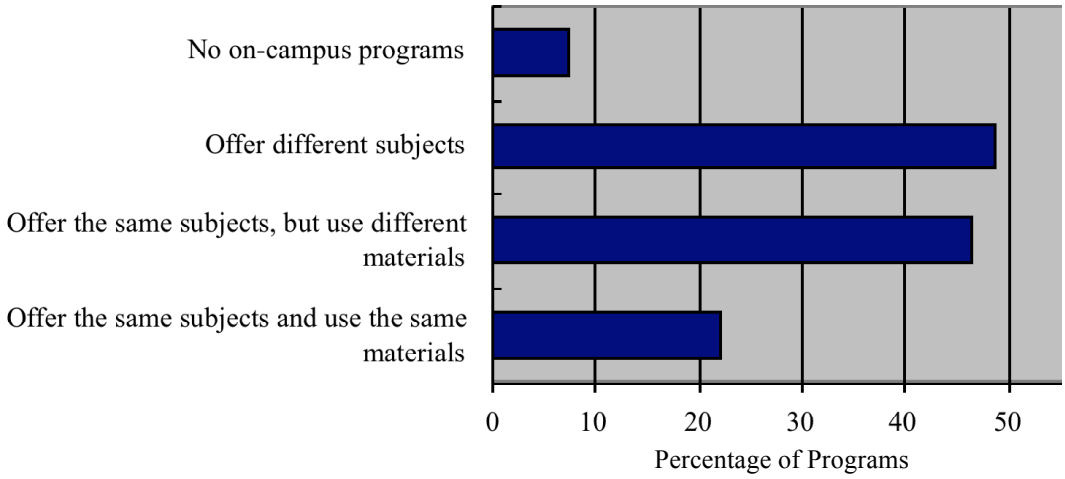


Figure 5 : Subjects and learning materials

collaboration with content experts; or the production is outsourced. The Figure 6 shows the distribution of the responses.

Nearly 80% of the programs use existing materials and only three institutions outsourced the production of their learning materials. The above three institutions are those that have more than 2000 students.

## 3.4 Schooling

In Japanese distance education, "schooling" plays an important part in facilitating the interaction between students and teachers. Most distance education programs in Japanese colleges and universities presuppose self-study of learning materials in most of the programs while offering "schooling" as the opportunity to interact with teachers and other students. There are many different forms of schooling the Ministry of Education, Culture, Sports, and Technology (MEXT) recognizes. The most traditional one is the face-to-face classes. Other forms of schooling are: media schooling in which streaming video of lectures is usually used, schooling that utilizes video conferencing, and schooling that utilizes web conferencing.

All the 41 institutions which responded except one offer face-to-face schooling, and only one institution offers schooling that allows its students to participate from home using internet-based web conferencing. Among those institutions which offer the face-to-face schooling, only three of them said those schoolings are mandatory for students to earn degrees. Other institutions offer face-to-face schooling, but they are not necessarily mandatory for students to attend and instead depend on which courses the students enrol in.

## 3.5 Student inquiries

Most distance education programs do not allow students to directly contact their teachers. About a half (54%) of the institutions said student inquiries would be first sent to the administrative office while only about a quarter (24%) of the institutions allow students directly ask questions to teachers. Only three institutions said tutors would respond to student inquires.

The respondents were also asked which media were most commonly used to receive student inquiries. The Figure 7 shows the percentage of respondents who said they would use the following media to receive student inquires respectively: postal mail, email, telephone, discussion board, face-to-face, and fax. The last item asked if the institution proactively inquired to students

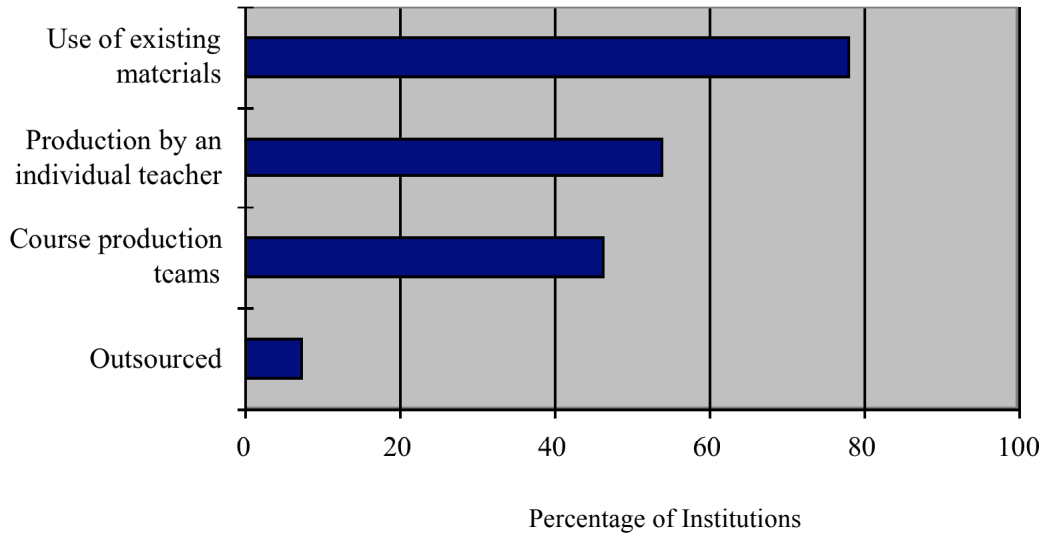


Figure 6 : Production of learning materials

about any possible questions they might have about the course work.

More than 70% of the institutions mainly receive student inquiries via postal mail and only three institutions said that they actively sought student inquires. At the age of the Internet, it is surprising to know that still the main mode of communication between students and teachers is the old postal mail.

As for the length of time it takes for an institution to receive an inquiry from a student and send the response back to the student, the most common answer was a few days (37%). Only three institutions said they would respond within 24 hours and four institutions said they would respond in real time.

## 3.6 Student support and assessment

The respondents were asked if they had student support personnel such as mentors, tutors, academic advisors, teaching assistants, etc., and if they held regular meetings with students for academic advising. A little more than half (59%) of the responding institutions have student support personnel and 54% hold regular meetings with students.

In terms of student assessment, a question was asked whether the institution conducted exams on site, received student reports via postal mail, conducted exams online, or received student reports online for the final assessment of a student. Nearly 90% of the responding institutions conduct exams on site and a little over 70% receive student reports via postal mail. Only about a third of the institutions conduct exams online or receive student reports online.

## 3.7 Support services to teaching staff

With regards to the support services provided to the teaching staff, only a little less than 40% responded that they have technical staff who provide technical support to teaching staff, and only a little more than 30% said they conduct seminars and workshops regularly in order to improve the educational quality of teaching staff. The breakdown here is shown in the Figure 8 below.

Although more than a half of the institutions said that usually an individual teacher create all the learning materials for a course, only one or two institutions responded that they currently offer release

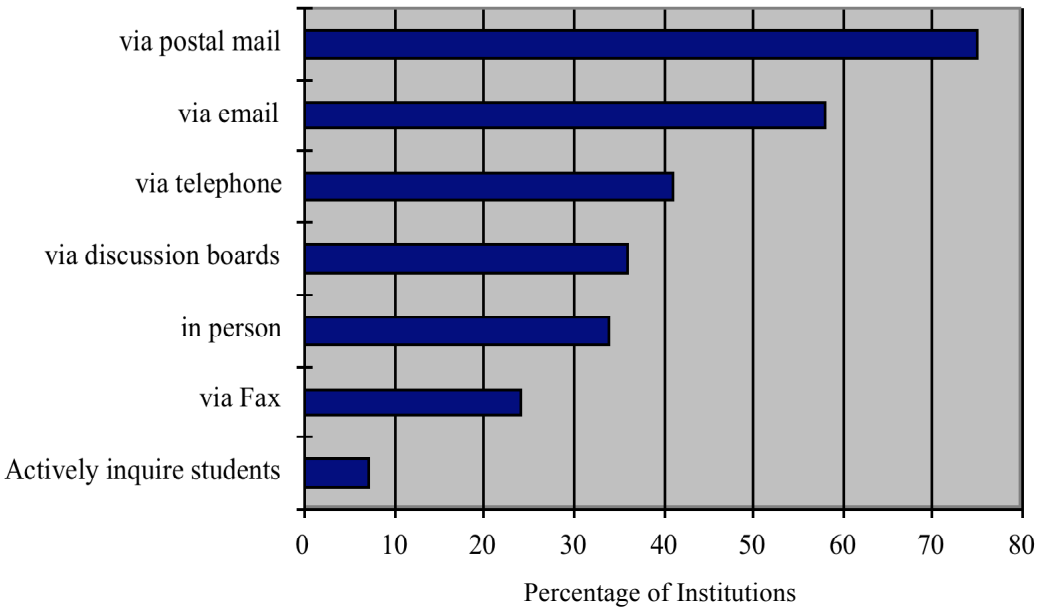


Figure 7 : The method of receiving student inquiries

time or some funding for teachers to develop new course materials or to renew and update the existing course materials.

### 3.8 Student evaluation of courses

In response to the questions asking what kind of student evaluation of courses is given, 42% have said they conduct student evaluation at the end of face-to-face sessions; 27% have said they do not conduct any student evaluation; 17% have said they conduct student evaluation online; and 12% have said they conduct it via postal mail or fax. It is amazing to know that 11 out of 41 institutions have not conducted any evaluation by students.

### 3.9 The current use of ICT

Lastly the current usage of information and communication technologies (ICT) was asked in terms of : synchronous communication, on-demand video streaming, the use of learning management systems (LMS), the use of online discussion boards, testing online, provision of courses to universities overseas, and the reception of courses from universities overseas.

The most commonly used ICT tools are: online discussion boards (43%), on-demand streaming video (42%), and LMS (41%). Only one institution has some agreement with an oversea university to provide courses online.

The last question asked the reason why those tools were not used or not planned to be used in the near future. The most common reasons were "lack of budgets (47%)," "lack of support service (34%)," and "lack of human resources (34%)." It appears that the lack of a systematic institutional support in the use of ICT is the major problem in facilitating the use of ICT in distance higher education in Japan.

## 4. CONCLUSION :

The results of the survey have shown that distance education programs at higher education institutions in Japan tend to be on social sciences and humanities such as economics, business, education, and social

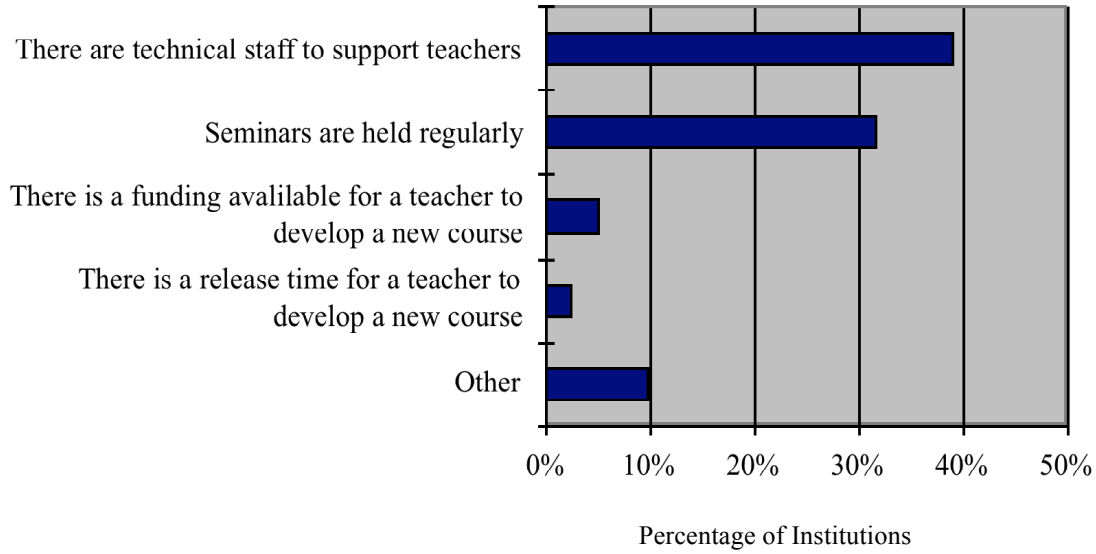


Figure 8 : Support services to teaching staff

welfare, and their enrolled student numbers range from four to more than 15,000. The majority of their students work full-time and more than 80% of the students are in their 30s or older. Besides the Open University of Japan, Yashima Gakuen University, and the University of Human Arts and Sciences, all the universities which offer distance education programs have on-campus programs; however, most of those universities offer programs on different subjects at a distance from those being offered on campus.

The main instructional delivery mode of all the distance education programs is postal mail, and about 90% of the institutions send printed materials while a little more than 40% send CD-ROM and DVD and 15% send audio tapes and video tapes. Only less than a half of the distance education universities use interactive communication tools such as online discussion boards and web conferencing. More than 80% of them use existing materials and if a new content is created, usually an individual faculty member does it on his/her own without any support from the university.

Though legally, face-to-face sessions are no longer required in offering a degree at a distance, all the distance education programs except one offer face-to-face sessions to their students. However, only three institutions make attendance of face-to-face sessions mandatory for students to earn a degree. The methods of responding to student inquiries are important considerations in the quality of distance education. The majority of the institutions accept student inquires at the administrative office, and only about 30% accept inquires directly by teachers or tutors. More than 70% of them receive the student inquires via postal mail, and it usually takes several days to respond to the inquiries. As for assessment, nearly 90% of the institutions conduct exams on site, and only about 30% conduct exams online or accept reports online.

Support services to teachers are rarely given as only less than 40% of the institutions employ technical support staff, and only a couple of institutions offer release time or some funding for a faculty member to develop or update course materials. Most faculty members who create content for distance education courses do so on their own without much support from their institutions.

In terms of the use of ICT in distance education, nearly half of the institutions use on-demand streaming video, LMS, and discussion boards; however, few universities offer synchronous communications to student and only one university, Cyber University, provide online courses to universities oversea. The main reason of not using ICT is the lack of budget.

Japanese distance higher education was originally started to provide those who could not attend universities in their youth or those who could not afford to attend on-campus universities with opportunities to receive university education at their convenience. In a way, distance education programs in Japan had been considered a "second-class" education programs for those who did not have the privilege to attend regular university classes. However, outside of Japan, the distinction between distance education and on-campus education is becoming blurred with the use of ICT in education. If the artificial distinction between these distance education programs and on-campus education programs is not re-evaluated soon, Japan could fall far behind all the other nations where universities dynamically design their curricula with the best use of ICT to maximize the achieved learning outcomes of their students.

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