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Generations of Distance Education and Challenges of Distance Education Institutions in Japanese Higher Education

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1. Introduction

Distance education has always provided some opportunities for pursuing education to those people who otherwise have not been able to do so. It had not been the mainstream of formal education until recently, but the status and attention of distance education has risen since the days of correspondence education, and now distance education has been discussed and practiced in many higher educational institutions around the world. In the near future, it may become a moot issue to discuss “distance” nature of “distance education”, but “distance education” as a field of inquiry may not disappear altogether.

There have been numerous attempts to classify distance education in the past. Most of them classify distance education in terms of dominant technologies used. Distance education and technologies are considered inseparable as in order to reach students at a distance, one must use certain tools or technologies to do so. While technologies of instruction have been examined closely, the organizational transformation those technologies necessitate tends to be overlooked. In changing the mode of instruction or the educational model of distance education, an institution must also rearrange or transform its organizational structure to enable and effectuate such changes. Actually many distance education institutions fail to transform themselves to adapt to the changes and stay behind in adopting new technologies and methods of teaching and learning.

Distance education institutions are different from traditional campus-based institutions as the whole systems and operations of teaching and learning at distance education institutions have to be designed institutionally while at campus-based institutions, there are more rooms for individual instructors’ discretion in deciding what methods and technologies to be used in their classrooms. In other words, divisions of labors among faculty and staff are more

prominent in distance education institutions due to the fact that many different technical aspects of teaching and learning come into play and instructors or tutors cannot be in charge of the entire operation and management of a course.

When an organization is centralized and the work flows in the organization are distributed among multiple stakeholders, the organization becomes rigid and difficult to innovate and change. If an institution is started in one mode of operation, it requires tremendous institutional efforts to change its mode of operation even if the change is relatively minor. Those distance education institutions that have been set up for mass production and delivery of learning packages are now facing big challenges in offering customized production and provision of learning experiences.

Theories of distance education have so far offered organizational models for industrialized operation of distance education [1] and later transactional models for interactive teaching and learning[2, 3], but few theories bridge the gap between those two; even those institutions who offer fully interactive teaching and learning have to have some theoretical base in organizing the institution, but organizational models for enabling such teaching and learning have rarely been discussed in the recent literature of distance education. As long as distance education is offered within the formal or non-formal educational frameworks, it is inevitable to consider organizational aspects of such offerings. As the industrial production model of Otto Peters was created to realize economies of scale, an organizational model to realize economies of scope should be provided for distance education institutions in the postindustrial era.

It may be the case that a division of labor within an institution, which was one of the main characteristics of industrialized operation of distance education, will be replaced by a division of labor across institutions: some institutions with relatively deep pockets may focus more on production of contents and make those contents widely available; on the other hand, other institutions may focus more on the provision of learning supports. Some other institutions may mainly focus on credentialing learning using the contents and learning supports provided by other institutions.

This paper first reflects on the evolutions of distance education practices as expressed in its generations. Then, it takes a look at the evolution of distance education practices in Japan, including the history of the Open University of Japan. It also discusses the obstacles and challenges many institutions of higher education in Japan are facing in offering distance education programs in the postindustrial era.

2. Generations of distance education

The history of distance education tells us the evolving use of technologies. Bates [4] as well as Peters [1] mentioned that distance education had gone through three stages. The first generation of distance education refers to those which mainly utilize written and printed texts and postal services for delivering such texts in the forms of books, newspapers, and manuals. It is so-called print-based correspondence education. In this stage, the interaction

between teachers and students was usually limited to correspondence, meaning hand-written texts that were sent via postal mail.

The second generation is characterized by the use of radio and television as instructional media in addition to print materials. This generation is often referred to as the “industrial mode” of distance education with highly specialized division of labor in producing and delivering instructional materials and the potential to educate thousands of students at once. Most open universities including British Open University, Anadolu University’s Open Educational Faculty in Turkey, Korea National Open University and the Open University of Japan also started as this second generation institutions.

In North America, many televised programs were developed to be broadcasted over closed-circuit television as well as satellite television in university settings. The teacher-student interaction can occur through postal mail, telephone, facsimile, electronic mail, face-to-face contact, teleconferencing or video conferencing. However, the interaction between teachers and students is usually discouraged in this mode mainly because the system is not designed for their full-interaction and it becomes too costly for the institution or too burdensome for the teachers.

The third generation of distance education utilizes information and communication technologies (ICT) to provide interaction in addition to content delivery. There are two aspects of interactivity in the use of ICT: the interactivity between the learner and the content as seen in interactive multimedia learning materials in CD-ROM as well as on the Web and the interactivity between teachers and students and among students. The latter interactivity makes the fourth generation of distance education.

It can be also said that there is an emerging generation of distance education where interactivity or two-way communication between teachers and students and among students becomes of utmost importance. In terms of technology, the social media or so-called Web 2.0 plays an important part in transforming learning experiences in distance education. In addition, the wide availability of the Open Educational Resources (OER) reduces the burden of content production by distance education institutions and enables them to focus more on learner support and design for learning.

Taylor [5] suggested five generations of distance education: First, the Correspondence Model based on print technology; Second, the Multi-media Model based on print, audio and video technologies; Third, the Tele-learning Model, based on applications of telecommunications technologies to provide opportunities for synchronous communication; Fourth, the Flexible Learning Model based on online delivery via the Internet; and Fifth, Intelligent Flexible Learning Model based on the interactive nature of the Internet. As this model was suggested before social media and Web 2.0 came into scenes, it is understandable that this model does not include the emerging generation of distance education, either, which was discussed above.

Criticizing those classifications based on technologies, Anderson and Dron [6] suggests three generations of distance education in terms of its dominant pedagogy: the cognitive-

behaviorist pedagogy, the social-constructivist pedagogy, and the connectivist pedagogy of distance education. According to Anderson and Dron, the first generation, the cognitive-behaviorist pedagogy, is characterized by the thinking that learning means some behavioral changes instigated by learning stimuli, and was the dominant thinking in computer-assisted instruction and instructional systems designs. The second generation of distance education pedagogy, the social-constructivist pedagogy, was originated in the work of Vygotsky and Dewey, and focuses more on learning instead of teaching. In this pedagogy, human interaction (student-teacher and student-student) is emphasized, which makes it costly for an institution to adopt. The third generation, the connectivist pedagogy of distance education, is built around networked connections and based on the learners' ability to actively participate in networked communities of their choice.

As Anderson and Dron state that, "Connectivism is built on an assumption of a constructivist model of learning, with the learner at the centre, connecting and constructing knowledge in a context that includes not only external networks and groups but also his or her own histories and predilections," the connectivist pedagogy does not seem significantly different from the social-constructivist pedagogy, but it may be significantly different from other paradigms of teaching and learning in terms of the degree of control an institution has over students' learning. In the previous paradigms of distance education, the role of institutions in designing and evaluating students' learning is quite large while in the connectivist model where learners rely upon existing networked communities to develop their own net presence, the role educational institutions play in individual learning may be reduced to credentialing what students have learned.

So far the evolution of distance education has been classified into generations in terms of its dominant technology and its dominant pedagogy. Here it is suggested that distance education can be classified into three organizational models. The first organizational model of distance education is the "supplementary model," where distance education is supplementary or complementary to traditional education, which targeted those who were excluded from traditional education for some reasons and needed some "access and equity" in their lives [7]. As the distance education programs are supplemental to on-campus programs, the institutional investment in offering the distance educational programs is minimal and usually managed by a special office called "extension programs," "external study," "independent study," etc. The second generation of distance education is the industrial model discussed earlier. The industrial model has been associated with mass education where hundreds or thousands of students learn in the same program using the same content and the same method. In order to enable this, the institution has to have a division of labors within the institution; hence, it becomes the "industrial" model of production and delivery of courses. The third and emerging model of distance education is the "ad hoc model," in which institutions may play one part in the whole process of learners' learning in various ways. For example, one institution may offer learning content while another institution may offer tutorials and student support. Yet, some other institution may offer evaluation of learning and credentialing of what students have learned. It's a division of labor across institutions to meet the demands of learners being

arranged by an ad hoc institution based on learning goals students want to achieve. In other words, the emphasis is placed upon economies of scale in the industrial model while the emphasis is placed upon economies of scope in this emerging model of distance education. This third organizational model is still emerging, and has not yet been seen beyond experimental bases. As discussed above, there are many different models (whether it is termed as “generations” or not) of distance education and it is usually the case that evolving from one generation to another, or transforming itself from one model into another requires tremendous institutional efforts. It is so much easier to start anew rather than transforming one institution into that of a different generation or model.

The technologies or the pedagogy that are dominant in one generation do not go away when the technologies in the next generation arrive. The new technologies tend to be just added to the old ones as the supplement of the existing ones in the beginning and later as the dominant technologies. The printed materials have not gone away yet and, still in many distance education programs, they are the primary learning materials. Radio and television have not gone away though, in many distance education programs, those pave the ways to DVDs and streaming audio and video on the Internet. The animated interactive programs on DVD or on the Web have not gone away though they might have become one of many open educational resources that are shared and made available publicly. In other words, distance education has been becoming more complex and multi-faceted as time has gone by with added features and technologies. This is also true to pedagogies. No single pedagogy has provided all the answers and usually a combination of different pedagogies is used as the technologies evolve. However, the organizational models cannot coexist within one organization.

In considering distance education theories and practices, it is important to look at from the three perspectives: technologies, pedagogies and organizations. In the following, distance education in Japan is discussed to consider its evolution from the three perspectives.

3. Background of distance education in Japan

3.1. 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 notes taken from the lectures given by professors. 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 in its history, those 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. Those distance education programs in Japan were mainly created to give access to higher education to those who otherwise did not have. Therefore, primarily the distance education programs were offered by existing on-campus universities and the credits earned through distance education programs were transferrable to the credits for on-campus programs (and vice versa). The distance education programs have to be open to anybody who wishes to study without any entrance selections unlike on-campus programs which mostly have some entry selection. The teachers of those distance education programs must be the ones who are full-time faculty of the institution. The distance programs were mandated to offer face-to-face sessions that worth 30 credits per year.

As indicated above, the Japanese Ministry of Education created and maintained two separate accreditation systems or the University Establishments Standards: one for traditional on-campus institutions and the other for correspondence education. This legal separation still exists today and distance education programs are regulated under the standards different from on-campus programs in Japan.

The majority of distance education in Japan has been done by distributing print-based materials through postal mail. Though those distance education 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), as mentioned previously. 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. In other words, currently there are four ways of teaching and learning that can be offered through distance education programs: (1) print material based, (2) broadcasting-based, (3) face-to-face schooling, and (4) media-based.

Also in 1998, graduate programs through distance education began to be recognized officially and four graduate distance education schools were established in 2002. In 2003, doctoral programs through distance education were started to be recognized. Originally distance education programs were considered secondary to the regular on-campus programs as discussed earlier. 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.

3.2. 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 2011, 217,236 undergraduate students

were seeking degrees at a distance in 44 universities who provide undergraduate distance education programs, accounting for 7.5% of total higher education enrollees. The number of students enrolled in distance education programs and its percentage of total higher education enrollees has been decreasing in the past few years while the number of full-time faculty members who engage in distance education programs has been increasing except in 2001 (see Table 1).

Year	# of institutions with undergraduate distance education programs	# of undergraduate distance education students	% of distance education students out of total undergraduate enrollees	# of full-time faculty members in undergraduate distance education programs
2007	40	240,076	8.5	458
2008	41	229,734	8.1	493
2009	42	226,384	8.0	644
2010	44	224,314	7.8	725
2011	44	217,236	7.5	602

Table 1. Undergraduate Distance Education Statistics in Japan (2007-2011) (based on the data made available by MEXT in 2012)

The graduate distance education programs also show similar trends in the past five years (see Table 2). In 2011, 8,241 graduate students were seeking post-graduate degrees at a distance in 27 universities.

Year	# of institutions with graduate distance education programs	# of graduate distance education students	% of distance education students out of total graduate enrollees	# of full-time faculty members in graduate distance education programs
2007	23	8,820	N.A.	72
2008	25	8,649	N.A.	88
2009	26	8,437	N.A.	111
2010	26	8,429	3.0	151
2011	27	8,241	3.0	87

Table 2. Graduate Distance Education Statistics in Japan (2007-2011) (based on the data made available by MEXT in 2012)

Seventeen universities offer both undergraduate and graduate distance education programs; hence, a total of 54 universities offer distance education at an undergraduate or a graduate level. In addition, there are 11 institutions that offer distance education programs at an associate degree level. Out of all the 65 institutions that offer distance education programs in higher education, seven of them solely exist at a distance (meaning offering no on-campus programs) and are for-profit institutions.

In terms of subject matters students are studying through those undergraduate distance education programs, excluding those categorized as “others,” the most popular one is social sciences, and the next popular is education. (see Figure 1).

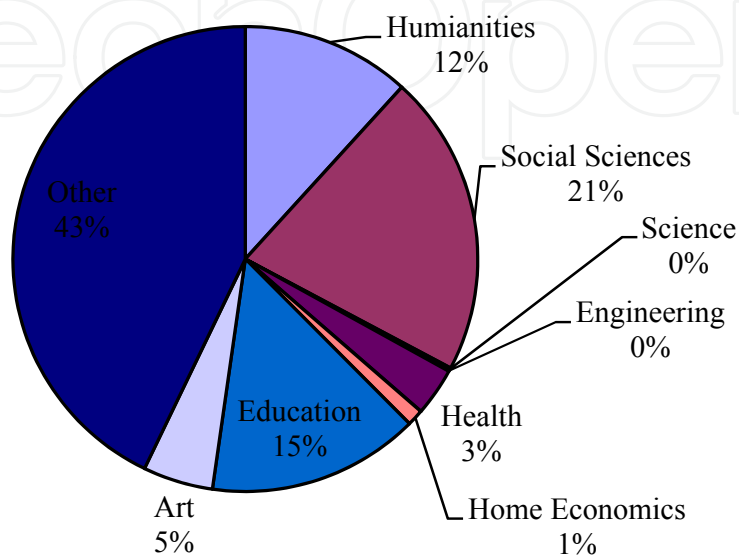


Figure 1. Subject Matter Breakdown for Students Enrolled in Undergraduate Distance Education Programs (based on the data made available by MEXT in 2012)

As for graduate programs, a majority of them are unclassifiable as shown in Figure 2.

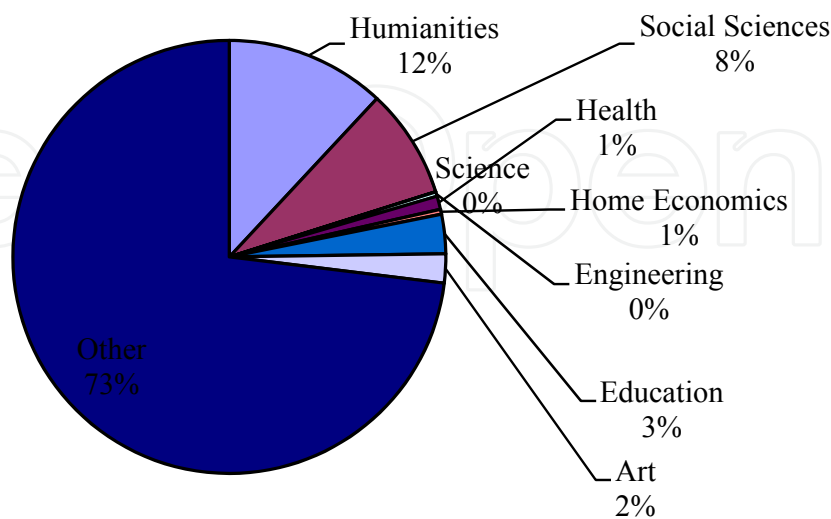


Figure 2. Subject Matter Breakdown for Students Enrolled in Graduate Distance Education Programs (based on the data made available by MEXT in 2012)

Many of the distance education programs deal with non-traditional professional subjects that are not unclassifiable in the traditional scheme of subject classification. As you see in those figures, the subjects in hard sciences are rarely offered at a distance in Japan.

The age distribution of students in distance education programs is also quite different from that of on-campus programs where almost all the students are within traditional college age cohorts (i.e., the ages between 18 and 22 years old). The largest age group in undergraduate distance education programs is 30s and the second largest is 40s (see Figure 3) while the largest age group in graduate distance education programs is 40s and the second largest is 30s (see Figure 4).

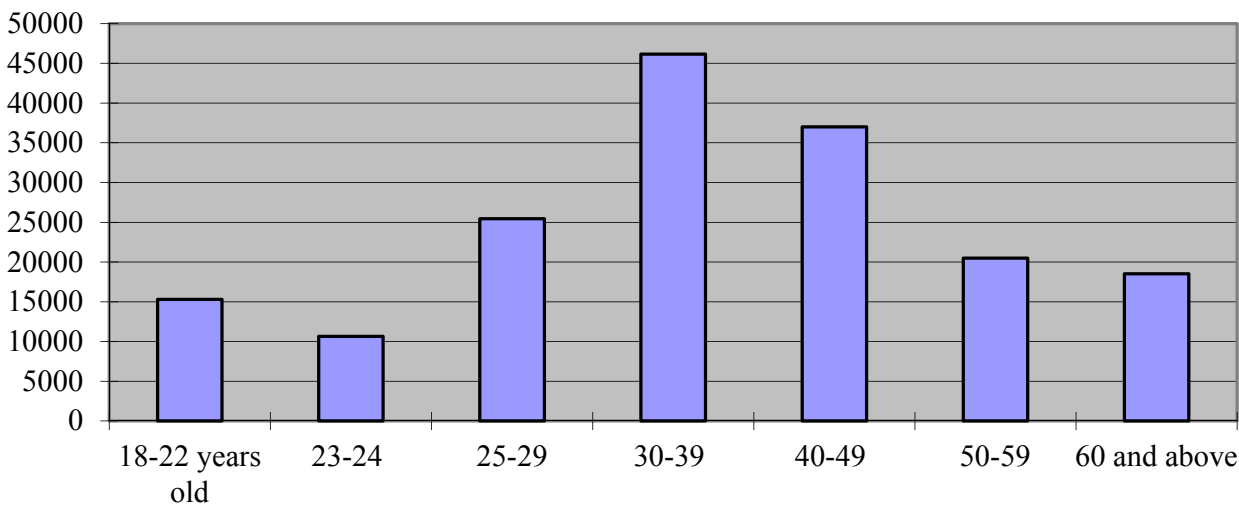


Figure 3. Age Distribution of the Undergraduate Distance Education Students(based on the data made available by MEXT in 2012)

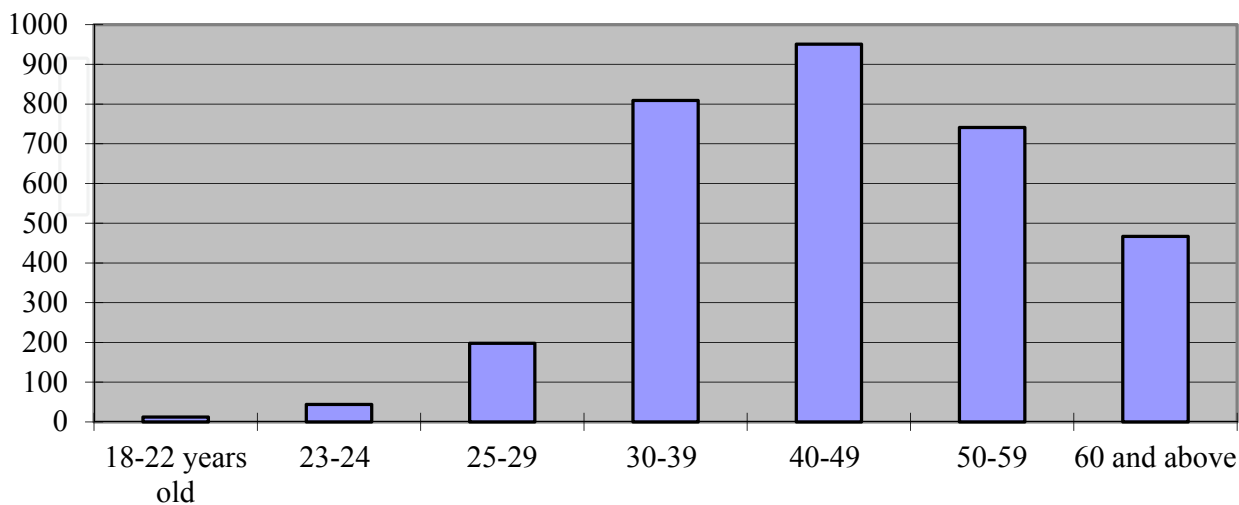


Figure 4. Age Distribution of the Graduate Distance Education Students(based on the data made available by MEXT in 2012)

The occupations of distance education students in Japan also show a difference from on-campus students who mostly study full-time. (See Figures 5 and 6.)

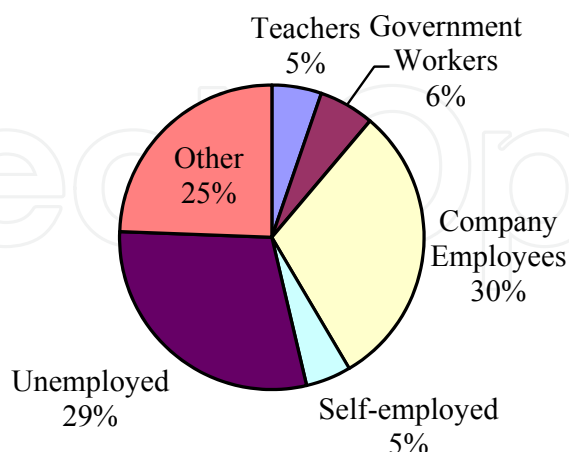


Figure 5. Occupations of Undergraduate Distance Education Students in Japan (based on the data made available by MEXT in 2012)

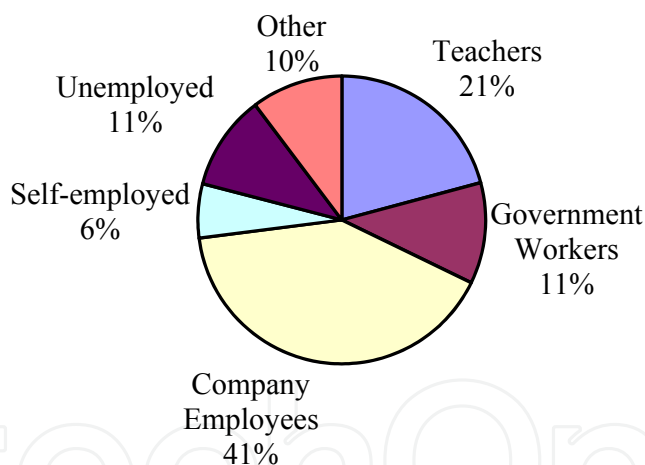


Figure 6. Occupations of Graduate Distance Education Students in Japan (based on the data made available by MEXT in 2012)

3.3. The use of ICT in distance education in Japan

Though Japan has been widely known in the world for its technological prowess, the use of ICT in education, especially in distance education, is amazingly behind of any other developed countries. The survey of distance education programs conducted by the author in 2008 showed that only less than 30% of the institutions made learning materials available online, and only one-third utilized the Internet or Learning Management Systems (LMS). A few of them utilized social networking services for creating student communities in 2008.

The number may have increased slightly since then, but not any drastic change has been observed.

Though since 2001 the law has allowed any distance education program to exist totally at a distance without offering any face-to-face classes by offering media or the Internet interactions, all the institutions surveyed except one offered face-to-face schoolings, and only one institution offered schooling that allowed students to participate from home using web conferencing. Those institutions which offered face-to-face schoolings, only three of them said those schoolings were mandatory for students to earn degrees. Schooling still remains a very strong component in distance education programs in Japan.

Most distance education programs in Japan do not allow students to directly contact their teachers. About a half of the institutions surveyed said student inquiries would be first sent to the administrative office while only about a quarter of the institutions allowed students to directly ask questions to teachers. Only three institutions said tutors would respond to student inquiries. In the same survey, the institutions were also asked about the ways in which student inquiries were received. The Figure 7 shows the percentage of institutions who said they would use the following media to receive student inquiries respectively: postal mail, email, telephone, discussion board, face-to-face, and fax. The last item showed if the institution proactively inquired students for any possible questions they might have. More than 70% of the institutions mainly receive student inquiries via postal mail and only three institutions said that they actively sought student inquiries. In this 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. This illustrates that the dominant pedagogy of distance education programs in Japan is the cognitive-behaviorist pedagogy, not allowing rich interaction between teachers and students or among students.

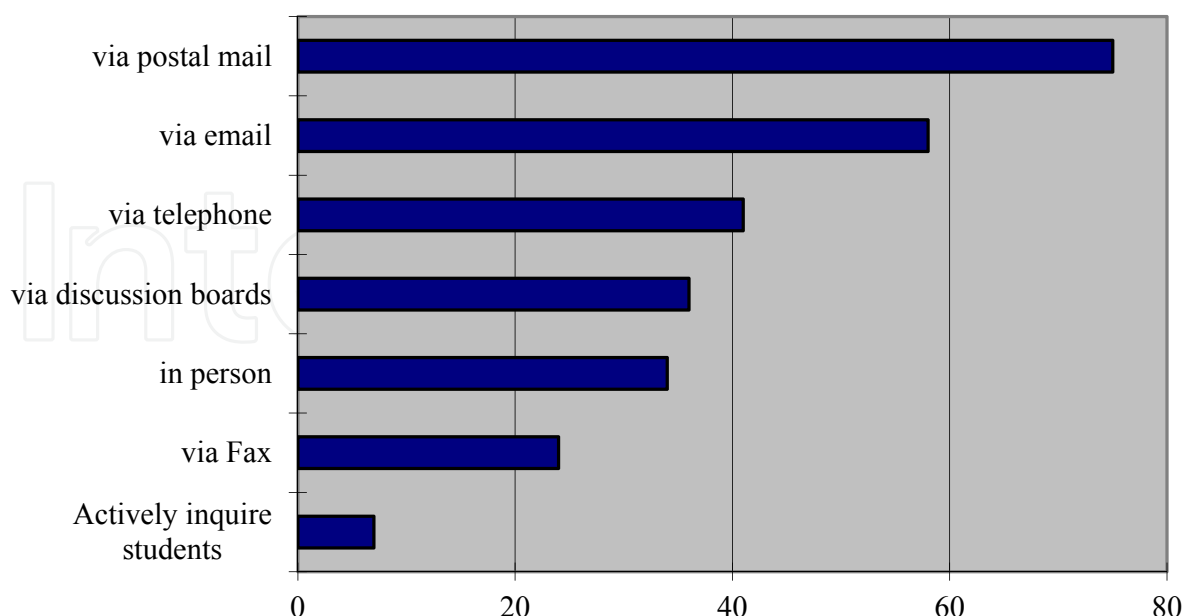


Figure 7. The Methods of Receiving Student Inquiries (based on the data made available by MEXT in 2012)

The length of time it takes for an institution to receive an inquiry from a student and send the response back to the student was mostly a few days. Only three institutions said they would respond within 24 hours and four institutions said they would respond in real time.

According to the same survey, the ICT tools most commonly used for teaching and learning at those distance education programs were: online discussion boards (43%), on-demand streaming video (42%), and LMS (41%). Even for the most commonly used ICT tool, online discussion boards, less than half of the institutions were using. As for the reasons 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 services (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. The Open University of Japan (OUJ)

4.1. History and characteristics

Among all the distance education institutions and programs in Japan, the Open University of Japan (OUJ) needs special attention in the history of distance education in Japan as it is the only distance education university in Japan that has been mandated by the government to use public airwaves to broadcast its instructional programs. OUJ was established as an independent four-year institution of higher education in 1981 and started its television and radio broadcast instruction in April 1985, modeled somewhat after the British Open University. The objectives and missions of OUJ were:

1. to provide working people and housewives with a chance of lifelong university level education;
2. to provide an innovative and flexible system of university level education open to high school graduates; and
3. 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.

These missions still hold currently though wordings were slightly changed.

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 though 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.

In addition to those courses that were offered through print materials and broadcast programs, the face-to-face schoolings also play an important part in the educational system of OUJ. Those face-to-face classes are offered at 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 credit hours of the classroom instruction that are mostly taught by adjunct

instructors hired through the local study center. Each face-to-face class comprises one credit and is taught from 10 a.m. to 5 p.m. on a weekend (Saturday and Sunday). The face-to-face classes offered at a local study center do not have any bearing to the broadcast courses and the topics of the classes are usually determined by the instructors hired to offer classes.

The local study centers are also used to give final exams. All the students belong to one of the local study centers nearby and they take final exams for the registered courses at the study center they belong to. Conducting final exams are a big operation at OIJ as final exams are the only ways to assess students' learning. The study centers also serve as the places where students can watch or listen to 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 or offers them to those universities with mutual agreements on credit transfer, which use them to supplement their course offerings.

Currently OIJ has about 82,000 students in total (about 77,000 undergraduate students and 5,000 graduate students). Among them, 57% of the undergraduate students and 44% of the graduate students are female. In terms of their age groups, 49% of the undergraduate students are in their 30s and 40s and 37% of the students are over 50s. As for graduate students, 51% of them are in their 30s and 40s, and 43% are over 50s. About 52,500 out of 82,000 students are enrolled in degree programs full-time, and the average student spends 6.5 years before graduating.

The university offers more than 350 broadcast courses each semester in addition to 2,900 face-to-face classes offered at the local study centers that can lead to undergraduate degrees in life and social welfare, psychology and education, society and industry, human and culture, and nature and environment or master's degrees in life health science, human development science, clinical psychology, social management science, cultural information, and natural environmental science. Like other distance education programs in Japan, OIJ does not require undergraduate applicants to take an entrance exam, but requires one for admission into its graduate programs. OIJ is largely supported by the government for its operational budget, but is classified as a private university as a public institution is not allowed to own and operate a broadcast station.

4.2. Broadcast materials at OIJ

Since its inception, OIJ has relied on broadcasting mediums as the main mode of instructional delivery as its Japanese name still indicates "broadcasting university." Though it has the mission "anytime, anywhere, anybody," the television broadcast of the lectures was limited to the Tokyo metropolitan area until the broadcast through the CS (commercial satellite) digital service was started in January 1998. The uniqueness of OIJ among all open universities in the world lies in the fact that OIJ owns and operates television and radio stations which OIJ has to fill their airtime from 6 a.m. to midnight every day.

As it has been always a dream of OIJ to have a nationwide coverage of their broadcast, OIJ applied for the license of analog BS (broadcast satellite) station not long after it started terrestrial television broadcasting in the Tokyo area to expand its coverage nationwide. However, as the launch of the satellite which was supposed to relay the BS signals got delayed and also the digital BS broadcasting started to be planned about the same time, OIJ gave up on doing the analog BS broadcasting altogether. The start of television and radio broadcast of OIJ lecture programs via CS made the potential coverage of OIJ nationwide for the first time since its inception. Though signals could be received anywhere in Japan with CS broadcasting, in order to watch programs delivered via CS, people had to purchase and install a special antenna and receiver. Once they installed the antenna and receiver, they could view OIJ programs freely. Some cable television companies carried OIJ's channels and subscribers of such cable television services could watch OIJ programs without any additional fee or equipment.

In December 2006, OIJ started terrestrial digital broadcasting. Again, its coverage was limited to the Tokyo metropolitan area. Though OIJ's original application for obtaining BS analog license did not materialize, OIJ succeeded in obtaining BS digital license. In Japan, analogue television service was virtually terminated on July 24, 2011, except those areas where switching to digital services were delayed due to the unexpected disaster in March 2011. The number of households that can receive BS digital signals has increased dramatically recently as the newly manufactured digital television sets now have the built-in BS antenna. OIJ started its BS digital broadcasting service in October 2011, which made the OIJ signal more viewable by millions of households outside the Tokyo metropolitan area where the OIJ digital terrestrial service covers. It required a tremendous investment in switching the transmission facilities from the CS broadcasting to BS broadcasting, but OIJ hoped it would give a significant advantage in terms of its visibility.

With a superior compression technology, one regular digital television channel can carry one high definition program or up to three regular definition programs. With the demand for an increase in course offerings, OIJ is making a full utilization of these simultaneous broadcasting of multiple programs. However, with the tight allocation of budget that is foreseeable in the future, it'll become the trade-off between the quantity of programs and the (aesthetic) quality of each program. What is unique about OIJ among all the open universities in the world is that OIJ owns and operates its television and radio stations which OIJ has to fill their airtime by themselves. Other open universities that utilize or used to utilize television broadcasts as an instructional delivery, including UKOU, bought or leased the airtime from national broadcasters for their instructional programs. OIJ is the only open university in the world that has its own independent television and radio station. This, in my opinion, is increasingly becoming a bottleneck for innovation at OIJ as a major portion of its budget has to be set aside for production of broadcast programs, maintenance of the facilities, and operation of the stations.

In addition to the broadcast delivery of lecturers, OIJ also has sold videotapes and audiotapes (nowadays DVDs and CDs) of recorded lectures through its subsidiary, the Society for the Promotion of the University of the Air (SPUA). As students have free access

to those materials, the purchasers tend to be those municipal and school libraries and college teachers who want to use those materials in their classes. The price is quite high as a set of DVDs for one course, consisting of 15 45-minute lectures, is usually sold at about US\$3800. A significant percentage of television lecture programs are now made available online to those registered students through the student portal though the video clips are only available as streaming video and not as downloadable video clips.

As for the actual production of broadcast programs, in the early days of OUJ history NHK (the only public broadcast network in Japan) and TV Asahi (a commercial television network in Japan) were assisting the production. But, gradually TV Asahi withdrew and NHK had become the sole technical support provider. Because of this, the relationship between OUJ and NHK has always been rather strong, and many technical people for video production at OUJ come from NHK. In addition, NHK Educational, a subsidiary of NHK, assists production of television lecture programs at the television studios located in the campus of OUJ. Recently under the new leadership, this relationship was reexamined and other television production companies were encouraged to bid for new production contracts. As a result, a few new independent production companies have started to work for producing OUJ's lecture programs, but still a majority of the production contracts go to the NHK Educational.

OUJ started producing all the television programs in digital format in 2006 when it started digital terrestrial broadcasting. It also started production in the High Definition Television (HDTV) format and since then it has been expanding the number of programs produced in HDTV format. Some OUJ programs take advantage of the HDTV format and offer high quality visuals. In addition, digital broadcasting allows providing additional data information and OUJ is planning to provide supplemental information to facilitate the understanding of the television lecture program via such data channels. About 20 percent of the programs were selected to carry subtitles for those who are hearing impaired.

It usually takes three years from the submission of a course proposal to the actual offering (i.e., broadcasting) of the course. For example, proposals for courses that will start in April 2014 are submitted in spring of 2011. Then, the decision is made in summer, 2011. A detailed syllabus for the selected course has to be submitted by the end of November 2011 and by March 2012 course team members have to meet for the first time to discuss the general structure of the printed material as well as the broadcast programs. A course team at OUJ usually consists of at least a chief lecturer who is usually a full-time faculty member of OUJ, a producer who is responsible for overseeing the budget for the entire production process, and a director who is responsible for the actual production process of the program. Directors are usually those experienced in directing educational programs in NHK programs or OUJ programs in the past. Within the three years faculty members in charge have to work very hard as they have to write a textbook of about 250 pages for each course by 16 months prior to the start of the course, and then have to produce broadcast programs within the year prior to the start of the course. It means the faculty members in charge have to prepare for all the scripts and visuals (sometimes with a professional help) and have to perform in front of the camera to produce 15 45-minute broadcast programs.

Once a course starts 15 broadcast lecture programs are usually broadcast one program per week on the national BS channel. The 15-week course is broadcast twice a year in addition to those intensive study weeks in summer and in winter when the course programs are broadcast every day for 15 days. On the terrestrial digital channels that are limited to the Tokyo metropolitan area, the programs are also broadcast every day for 15 days for each course. In other words, the same program is usually broadcast at least four times a year nationwide and two more times additionally in the Tokyo metropolitan area. The lifespan of a course is usually four years though the current tendency is to make it longer to recoup the initial cost of production. In 2011, a total of 330 course programs (169 television programs and 161 radio course programs) were broadcast during the first semester (from April 1 to July 21) and 331 programs (170 television programs and 161 radio programs) were broadcast during the second semester (from October 1 to January 20). Out of the 331 programs which were broadcast during the second semester, 71(21.5%) of them (36 television programs and 35 radio programs) were newly introduced programs. On average, 18 million yen (roughly US\$220,000) is spent on producing one course of television programs (i.e., 15 x 45-minute programs).

In the early days of OIJ, television programs were made by filming the actual scenes of classroom teaching, but the style has changed to focus on a teacher talking directly to the camera. It has been considered that in this way a learner who watches those programs may feel more like being directly talked to by the teacher instead of observing a classroom interaction as the third party. In addition to the talking head of the teacher, photographs, video clips, computer graphics, and tables and charts which are printed on a board are often used to supplement the lecture. Yet, those talking heads programs are considered boring by many students and they opt to study only with the textbooks. It has never been actually measured, but it can be said that the viewership of the OIJ programs consists mostly of those who are not enrolled in the programs, but become accidental viewers by flipping the channels of their television sets.

Most television programs are produced in one of the three studios located in the main campus of OIJ, but some programs are filmed at an appropriate location outside the studio. This method is usually used when the theme of the program requires filming of actual operations of something or interviewing of people who cannot be asked to come to the main studio such as those who reside outside the country. There is a budget set aside annually for overseas filming, and a few courses are allowed to have overseas filming up to 10 days in the maximum of two countries. With a decreasing budget of broadcast program production, professional filming of locations outside the studios is strongly discouraged nowadays and some faculty members have started to collect video clips when they make research trips to some locations.

Recently, a budget production method was also introduced for some courses. It is mainly due to the financial pressure to cut the cost of production of broadcast programs and the desire to keep the same number of television programs. In this newly introduced method, the number of cameramen is reduced to zero and the camera is remotely operated in the control room. In addition, the visuals are made mostly by the teachers themselves instead of

being professionally created by graphic artists. The use of copyrighted materials is also strongly discouraged and Chroma key is used as the background instead of an elaborate physical set in the studio.

4.3. Online offerings at OUI

Due to the recent prevalence of the Internet, the student demand to make the broadcast lecture programs available online has been increasing. OUI started putting streaming video of some of the television lecture programs online in 2008 and currently in 2012, 97 undergraduate television courses and 12 graduate television courses (more than a half of the total television courses) are also viewable online to registered students in the form of streaming video. In addition, those streaming videos will also become viewable on mobile phones soon. However, still all those online video programs are not available in a downloadable format due to copyright constraints, which make students difficult to access at any time they want as it requires a high-speed Internet connection to view the video. The efforts have been made to increase the number of video lectures available online; however, some materials borrowed make it very expensive to be made available online.

Besides the use of the Internet for making broadcast programs more accessible to students, the Internet has not been used much in teaching and learning at OUI, especially in facilitating communication between teachers and students or among students themselves. However, this has been changing slowly and for the first time in 2011, a very limited use of a Moodle-based learning management system (LMS) was started, which allowed students to ask questions online and to answer mid-term questions online that are mostly multiple-choice questions. Still the number of courses that allow students to do so is relatively small, but it is a good trend and so much better than filling the paper form of inquiry and send it via postal mail. It is still far from being an interactive course that is a characteristic of the third generation of distance education (technologically) or social constructivist pedagogy, but it is a step forward to the direction. A web conferencing system is also used in advising graduate students at a distance for their thesis writing.

The above indicates the official use of the Internet by the university. While the official use of the Internet is very limited still at OUI, students are forming communities informally and utilizing Web 2.0 tools such as Facebook, Twitter, and blogs to express their opinions, to exchange information among students, and to ask questions, though the percentage of the students who are utilizing those tools is very small among the total number of students. Actually, the current president of the university is an avid user of those tools and students can reach to the president of the university easily using those tools. As every operation at OUI is so centralized and systematized with little room for faculty members to be innovative in their teaching, it will require many more years for OUI to embrace those tools in its system of teaching and learning.

Another notable use of the Internet is the student administration system called System Wakaba. The System Wakaba, which was implemented in April 2009, enabled existing students to access to their grade records through a web browser and to register for courses

online. Through this system, teachers can access to student information or enter the course grade information directly anywhere through a web browser. As the single sign-on system was also implemented in the beginning of 2010, now a student or a faculty member needs to log in only once to use any Internet system offered through OIJ. In 2010, for the first time ever, OIJ students were also started to be given email accounts through Gmail.

With the increasing use of the Internet tools, there is an issue of training students and teachers to use such tools effectively. Regular universities, where a majority of students are young people who have just graduated from high schools, may have fewer problems in training students to use such tools as they have been grown up in the digital age. However, at OIJ, a majority of the students are over 40 who are digital immigrants and not very familiar with such ICT tools and it's imperative to provide them with training opportunities so that they will obtain the skills to utilize ICT tools effectively for learning. For that purpose, face-to-face classes on computer literacy was started to be offered in October 2010 at more than a half of the regional study centers. Like other face-to-face classes offered at each of the regional study centers at OIJ, the computer literacy class consists of two day intensive meetings on a weekend. Instructors are dispatched from the OIJ headquarter to ensure the quality and consistency across different study centers, and classes are taught using the same textbook that has been developed by the task force consisting of seven faculty members.

According to the survey conducted in 2010 to grasp the media use by OIJ students (a sample size of 1,769), 87.6% of the respondents have said that they have at least one computer with the Internet access at home. This figure was actually much higher than the administration of the university expected as the lack of the Internet access had always been the excuse of not offering much online in terms of teaching and learning. Among those who have a computer with the Internet access at home, almost a half (48.7%) have access through the fiber-to-the-home (FTTH) and 26% of them through Asynchronous Digital Subscriber Line (ADSL). In other words, a majority of the students have access to the broadband Internet on a regular basis.

4.4. Obstacles for transforming OIJ into the distance education institution of a new generation

As discussed above, technologically OIJ is still stuck with the second generation of distance education as its main educational mean is broadcasting. Currently it is very difficult for OIJ to move on to the Internet as the governmental funding is conditional to offering broadcast programs as the binding law requires the university to do so. The administration of the university is afraid that if broadcasting does not become the main mode of instruction at OIJ, the government will significantly reduce its funding or suspend its funding to the university. However, at the same time, the university cannot innovate in teaching and learning as long as it has to spend a significant portion of its governmental funding on producing, delivering and maintaining broadcast programs.

Due to the primary use of the broadcast media, the pedagogy of OIJ's educational offerings is still cognitive-behavioristic as intensive interaction between teachers and students or among students, that is required of social-constructivistic or connectivistic pedagogies, is not available at OIJ. In order to provide such interaction, OIJ has to reorganize itself to allow a completely different educational model of teaching and learning that puts students at the center of learning. It means the organizational structure, which is primarily the industrial model of distance education at present, has to be changed to something which is more flexible and nimble in accommodating changes and responsive to diverse students' needs.

Thus, the major obstacles for OIJ to transform into the distance education institution of a new generation are legal/structural in nature. Even with a strong leadership and innovative technologies, it is impossible for the university to change if it has to legally conform to the stipulations that require the university to operate in the broadcasting mode. OIJ was conceived 30 years ago when there was no Internet and broadcasting was considered as a noble way of reaching mass audience. The time has changed and the government has to relax its regulations over it if it wants OIJ to fulfill its missions in this dynamically changing period.

5. Conclusions

As discussed earlier, several scholars of distance education have argued the generations of distance education from the perspectives of technology, pedagogy, and, to some extent, organization. It is obvious that distance education has been evolving and changing in many different ways. The three factors: technology, pedagogy and organization, are so intertwined that it is actually very difficult to discuss each of the factors separately. Scholars should look at all of those factors in theorizing the evolution of distance education. In addition to those three factors, distance education is oftentimes also a matter of governmental regulation and the direction and strategy an institution will take can be severely limited by the ways the government imposes regulations upon them.

Though higher education institutions in many countries have started to seamlessly blend online and offline teaching and learning for better education that caters to differing students' needs, in Japan such practices are still rarely seen in regular classrooms as well as in distance education programs. Distance education programs in Japan are still mostly in the first or second generation of distance education in terms of its technological use, are cognitive-behavioristic in their pedagogy, and are industrial in their organizational structures. Though many distance education programs that are offered by on-campus institutions may have more flexibility in terms of innovating their practices of teaching and learning, few programs have a strong incentive to do so as distance education programs and on-campus programs are separately regulated by the government and distance education programs usually do not enjoy the status the on-campus counterparts have. In on-campus programs, still the classes in which teachers and students remotely or asynchronously participate are not officially recognized in Japan.

Education is the area where the governmental policy significantly influences. However, the governmental leaders who are in charge of setting those policies are rarely experts or practitioners in the field of education. In order for distance education to move on to a right direction and be competitive, scholars have to examine the issues of distance education from multiple perspectives and give proper advice to the policy makers.

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