

THE STATE OF DISTANCE EDUCATION IN JAPAN

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Japan is famous for technological advancement, spanning from high-speed trains, the automobile industry, and medical equipment to portable gaming and music devices. With this wealth of sophisticated technology at its disposal, people outside of Japan often may assume that this technological prowess is also well integrated into every phase of Japanese people's lives, including the education system. In point of fact, however, the integration of technologies in Japanese education, particularly within the higher education segment, is far behind that of other highly developed countries. Japanese online education has therefore also been lagging due to the low adoption of technologies in Japanese higher education settings and various cultural challenges surrounding education and employment present in the country. This article presents a basic overview of the Japanese educational system, highlights two Japanese institutions that have "found their niche" within online and distance education and promising future outlooks for high-quality online education, and concludes with a brief examination of the pedagogical and cul-

tural shifts and collaboration between government, industry, and higher education, which are all essential to make online education a viable option for Japan's future.

INTRODUCTION

Japan is a sovereign country in eastern Asia that has a long history of independent governance. Except for the post-World War II occupation by the U.S. military, Japan has enjoyed independence and has thereby developed its own unique culture, arts, and traditions. After World War II, Japan became renowned for advanced technology and manufacturing. Japan has a population of approximately 127 million, with a rapidly aging population; as of 2016, 27% of the Japanese population was 65 years or older (Central Intelligence Agency, 2017). An aging population has many implications for the Japanese economy and infrastructure, including a shrinking workforce and the burden of higher healthcare costs in coming years.

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Although an economic downturn since the 1990s has had a negative impact on Japan's GDP, the country stood as the second-largest economy in the world, moving to third place only very recently, following the United States and China (World Bank, 2017). Dedicated workforce based on lifetime employment and strong government-industry cooperation likely have contributed to the success of its unique economy (Crawford, 1998). In April 2017, Japan's unemployment rate fell to 2.8%, the lowest in 2 decades, mainly due to the shrinking working-age population. Despite the low unemployment rate, however, many Japanese workers now suffer from underemployment. Green and Henseke (2016) analyzed 2013 Organization for Economic Co-operation and Development (OECD) data and reported that nearly 50% of college graduates are underemployed in Japan. Educating and reeducating Japan's future workforce is therefore a critically important task for the nation.

THE EDUCATIONAL SYSTEM OF JAPAN

Before moving into a discussion of online education in Japan, it is helpful to establish a basic understanding of the educational system in place in the country. A brief discussion of the Japanese P-16 education system provides the context surrounding development of online and distance education.

Both national and local governments are responsible for managing public and private primary and secondary education in Japan. The Ministry of Education, Culture, Sports, Science and Technology (MEXT) oversees infrastructure and policy by setting national curriculum standards, teacher certification programs, and requirements for setting up primary and secondary schools (National Center on Education and the Economy, 2016; OECD, 2015a). Local and municipal governments are both responsible for hiring teachers and managing budgets of public primary and secondary schools, and for providing partial funding to

private primary and secondary schools in the country. Compulsory education begins at first grade and ends at ninth grade; however, most Japanese children (95% of 4 years old, and 97% are 5 years old) are enrolled in *preprimary* education for the period before compulsory education begins (OECD, 2015a). Ninety-seven percent of all Japanese students also complete upper secondary school, and the majority (71%) are also expected to complete tertiary education (OECD, 2015a). Japan has also demonstrated excellent educational performance over the years in comparison to other countries. Japanese 15-year-olds, for example, ranked among the top five positions for science and mathematics, and the top ten positions for reading in the 2015 Program for International Student Assessment (PISA) exam (OECD, 2015b).

Because Japanese upper secondary schools are not compulsory, students must take entrance exams to attend upper secondary schools of their choice. These entrance exams are highly competitive because many individuals in Japan believe that studying at a better upper secondary school will lead to studying at a better university, consequently helping them obtain a better job in the future. To succeed in these secondary school entrance exams, many Japanese youth spend hours in private "cram" schools called *Juku* (塾、じゅく). Entrance exams are also required to enroll at most universities; therefore, many Japanese youth spend a significant amount of time and effort studying outside of their schools in private tutoring from the ages of 14 to 18.

Japanese tertiary education includes a diverse array of institutions. Japanese universities are similar to U.S. universities in that both offer bachelor degrees and graduate degrees in various academic disciplines. Unlike its U.S. counterparts, however, all Japanese universities, both public or private, are required to follow standards set by the Japanese government and are required to be regularly accredited by the government (Newby, Weko, Breneman, Johanneson, & Maassen, 2009). Junior colleges offer 2-year subdegree qualifications in

liberal arts and vocational skills. Professional training colleges offer practical vocational and specialized technical education in various lengths, typically from 1-to-3 years of training. The most distinctive feature of Japanese tertiary education is that a high percentage of tertiary education institutions is private. Over 90% of junior colleges and professional training colleges are private institutions, as are nearly 78% of universities (Newby et al., 2009). The private educational organizational model results in an extremely high financial burden for students and their families. With the high cost of higher education and additional cost of private tutoring to prepare for entrance exams, low-income Japanese households are unlikely to be able to secure enrollment of tertiary education for their children (Newby et al., 2009). About 1 million post-high school students borrow money from government-sponsored loans, amounting to some 1.1 trillion yen (approximately U.S.\$10 billion at the mid-2017 exchange rate) nationwide (Brasor & Tsubuku, 2016). By comparison, the U.S. has 77 million student borrowers holding some \$1.3 trillion in debt (Center for Microeconomic Data, 2016, 2017).

Although the gender gap has narrowed in recent years, the gap still exists and requires improvement. Japan is one of only three OECD countries where more men attain tertiary education than women. A larger proportion of 25–34-year-old men (42%) compared to women (31%) had attained tertiary education by 2014 (OECD, 2015b). In addition to the gender gap in tertiary education participation, there is also a significant gender gap in employment participation. The rate of employment among Japanese women with tertiary degrees remains considerably lower than that of men (90% of men vs. 71% of women) (OECD, 2015b). Culturally, women are expected to take care of the majority of household chores and childrearing duties; therefore, a significant number of women leave their employment once their first child is born. Adult education participation may help women to return to the workforce, but Japan also has a

wide gap in adult education participation. While 48% of men in Japan participated in adult education activities in 2012, only 35% of women did so in that same period, which is the largest gender gap in participation across OECD countries (OECD, 2017). A case can be made, then, that increased participation of women in tertiary and adult education could potentially contribute to Japan's future economic growth (OECD, 2014).

AN OVERVIEW OF DISTANCE EDUCATION IN JAPAN

Japan possesses a fairly long history of distance education. Historians generally agree that the origin of distance education in Japan can be traced back to “lecture notes” in the late 19th century (Aoki, 2011). Lecture notes were written by teachers to be used in class and published by universities during that period. These lecture notes were purchased as study materials both by students who were enrolled in schools and students who could not enroll in schools. Those who could not enroll in schools would study these lecture notes materials, then take exams to gain certification. In the 1940s, several higher education institutions established correspondence programs that were officially recognized by the government to offer bachelor's degree programs. These correspondence programs were created by established universities to provide access to their programs to those who otherwise could not attend traditional, face-to-face classes. The credits earned in these correspondence programs were recognized as equal in value to transcripts from traditional institutions. The government mandated that the degree-bearing correspondence programs offer 30 credit hours in face-to-face format per year. This annual mandate of 30 credit hours was later revised to allow the universities to offer this instruction via the Internet (Aoki, 2011). Currently, approximately 50 universities offer correspondence/distance education programs in Japan

(Ministry of Education, Culture, Sports, Science and Technology, 2016).

In addition to higher education distance education programs, Japan offers several other unique distance education programs. High school distance education programs were established in 1960s for those who could not attend regular high schools for economic or social reasons. In recent years, these high school programs have come to accommodate students with emotional challenges or mental illnesses, and allow them to continue education via the distance format. Additionally, correspondence/distance education is also a popular format in vocational and enrichment education fields. There are currently thousands of vocational and enrichment programs offered via correspondence or online formats. These programs are popular among Japanese workers, students, and housewives because Japanese learners traditionally like to pursue many “shikaku” (資格、しかく)—official or unofficial vocational certificates—to expand their chances of getting a job as specialists in their fields of choice.

Distance Education in Japanese Higher Education

In examining distance education in higher education in Japan, it is important to distinguish between distance education *programs* and distance education *courses*. Distance education programs are regulated differently from campus-based programs of higher education in Japan (Aoki, 2011). MEXT has created and maintained two separate accreditation standards: one for traditional on-campus institutions, and the other for correspondence education. Distance education programs are regulated under the standards of correspondence programs in Japan. Although on-campus and correspondence programs are accredited by different standards, credits earned on campus or correspondence programs are generally transferrable, particularly between specific institutions. In 2011, 44 universities provided undergraduate distance education programs,

and 217,236 students were seeking degrees at a distance, adding up to about 7.5% of total higher education enrollees (Aoki, 2012). The number of universities that offer distance education remains generally unchanged in recent years.

In addition to distance education programs, Japanese universities also offer individual distance education courses. According to 2016 data from MEXT, 64 (74%) of all national universities, 30 (34%) of all local public universities, and 168 (28%) of all private universities offer distance education courses in a variety of topics, spanning from remedial courses to credit-bearing professional courses. MEXT has published the number of distance education courses every year since 2006, but the number of universities that offer distance education courses has remained practically unchanged during the past 10 years.

One possible reason for this growth stagnation in Japanese distance education courses is due to the low adoption rate of learning management systems (LMS) in Japanese universities. According to a 2014 report from Kyoto University, 80% of universities have adopted an LMS on their campuses; however, only 1–20% of courses on these campuses are taught using their campus LMS (Kyoto University, 2014). Another possible reason is that many universities lack strategic visions and actual strategies for instructional technology and eLearning. Only 50% of universities have designated units for planning and implementing instructional technology on campus; moreover, in many universities, the work of incorporating technology in instruction is mostly organized around individual faculty members or groups of faculty members, rather than institutional initiatives (Kyoto University, 2014). The Kyoto University report also points out that 20–40% of universities do not have dedicated budgets or personnel for instructional technology, which plays into this dynamic.

Although the current state of distance education in Japan is a bit oblique, there nevertheless remain a few organizations that have made concerted efforts to develop online education.

In the following section, I discuss case studies of two such organizations: one, the Open University of Japan (OUJ), and two, the Japan Massive Open Online Education Promotion Council (JMOOC). I highlight the history, current efforts, and future directions of these organizations to discuss their contribution to the advancement of Japanese online education. In preparing this article, I interviewed representatives from both organizations and collected public data available from their organizational websites. Also integrated into this discussion is literature that sheds additional light on these organizations.

Open University of Japan

The OUJ has the distinction of being the only distance education university in Japan that broadcasts instructional programs over the public airwaves. OUJ was established by the Japanese government as a 4-year higher education institution in 1981. It started its television and radio broadcast instruction in April 1985, modeled somewhat after the British Open University (Aoki, 2012). Originally, the OUJ's principal methods of instruction included broadcast programs, printed text materials, and face-to-face schooling at 57 local study centers and support offices throughout Japan. In recent years, online classes have been added and students can take these online classes as a part of the face-to-face instruction requirement.

The OUJ requires all students to take at least 20 credit hours of the face-to-face instruction at the local study centers. Each face-to-face class is considered one credit and is taught over weekends. A total of 124 credit hours are required to graduate with a bachelor's degree, which is approximately equivalent to on-campus higher education in Japan. At least 94 of those credits must be completed via broadcasted courses, which are 15-weeks in length and offered once a week for 45 minutes each week. OUJ broadcasts these courses via TV, radio, and Internet. OUJ is not currently planning to replace TV and radio broadcasting with Internet broadcasting, as the

government maintains the TV and radio modalities at OUJ to continue (S. Kisugi, personal communication, June 2, 2017). Each broadcast program enrolls more than 1,000 students.

OUJ is a relatively large higher education provider. The OUJ currently enrolls approximately 84,000 undergraduate students and 5,200 graduate students. About 45% of undergraduate students and 55% of graduate students are male; about 14% of undergraduates and 4% of graduate students are under 30 years old, while 45% of undergraduate and 59% of graduate are over the age of 50 (OUJ, 2017). About 10% of undergraduate and graduate students are retirees, which reflects the aging population of Japan. OUJ offers undergraduate degrees in liberal arts within five themed concentrations: *Human and Culture, Society and Industry* (including basic engineering), *Lifestyle and Welfare, Psychology and Education*, and *Nature and Environments* (including physics and chemistry). Approximately 340 subjects are offered by OUJ each year (OUJ, 2017).

In 2014, OUJ added online courses that could be used to meet the face-to-face instruction requirement mandated by Japanese government. OUJ currently offers 20 topics online and plans to increase towards 100 topics within a few years (S. Kisugi, personal communication, June 2, 2017). Online courses at OUJ employ the Moodle LMS, which provides students with video lectures, asynchronous discussion, assignments, and tests. Video lectures can be created fairly easily at OUJ because professors are very familiar with the broadcasting style of teaching, and production staff are available to assist them in their content development duties. In addition to video production staff, instructional designers, teaching assistants, and technical staff are available to assist teachers in creating online courses. Even with these additional support personnel, the president of OUJ stated during our interview that the instructor workload is an issue as they attempt to increase the number of online courses (S. Kisugi, personal communi-

cation, June 2, 2017). Moreover, humanities instructors tend to have stronger resistance to adopting online teaching although the reason for this is currently unknown (S. Kisugi, personal communication, June 2, 2017).

On the other hand, OUI students typically have little resistance to taking online courses and actually enjoy online courses. One reason for student preference for online courses is the frequency of assessments: students in online courses are not required to take final exams due to frequent assessments during the semester, but for all broadcast and face-to-face courses, final exams are required and administered at one of their local study centers (S. Kisugi, personal communication, June 2, 2017).

OUI will be facing some interesting opportunities and challenges in the near future. OUI's funding is currently 56% from government sources and 41% from student tuition. This funding structure is a "double-edged sword," because on one hand government funding allows OUI to maintain low tuition and thus stay comparably affordable within the higher education market. On the other hand, the government's specific requirements in OUI's operation strongly influences the future direction of the institution. The President of OUI, Shin Kisugi (S. Kisugi, personal communication, June 2, 2017), described two primary methods which the government employs to determine OUI's future direction. The first approach, which concerns program offerings, is the government's request that certain areas of studies should be offered at the university. It is challenging for the university to respond to this request because OUI has traditionally offered liberal arts education, and program offering requests places an additional financial burden upon the institution. Second, OUI is concerned that the institution may lose government funding if OUI attempts to transition some of their broadcast courses to the online environment because OUI was originally established to offer broadcast courses. Despite these challenges, OUI intends to expand their certificate programs. Currently, OUI offers

approximately 20 certificates, including qualifications to take national certification exams for education, nursing, accounting, social work and psychology.

The Japanese government's regulations on OUI to offer broadcast courses could also have a strong impact on the pedagogy of OUI's educational offerings (Aoki, 2012). Aoki posits that teaching on broadcast media molds OUI's teaching approach to a cognitive-behavioral approach, where students passively receive information from instructors, and limits OUI's freedom to advance teaching to social-constructivist or constructivist approaches, where students actively interact with instructors and peers to construct new knowledge and ideas. Aoki (2012) argues that OUI must reorganize its structure and work with the government to relax regulations, permitting new styles of teaching and learning that place students at the center of learning and accommodate the needs of diverse learners in the Japanese environment.

Japan Massive Open Online Education Promotion Council (JMOOC)

In an effort to globalize their *OpenCourseWare* initiative, the Massachusetts Institute of Technology (MIT) in the early 2000s approached several prestigious Japanese universities to offer information technology course content as a part of that initiative. In 2005, a group of Japanese universities launched the *Japan OpenCourseWare Consortium* (JOCW), and the member organizations began preparation for open courseware (OCW) sites. Because the program is not designed to offer content as online courses (because these courses do not offer learning activities or assessments that students could currently complete and receive feedback via an online modality), some JOCW member universities subsequently decided to create a new MOOC to offer interactive online courses, thereby establishing the *Japan Massive Online Open Education Promotion Council* (JMOOC) in

November of 2013. These MOOC-based courses were first offered in April 2014.

Although JMOOC started as a consortium of universities, the initiative now also includes corporate and individual members. Unlike MOOCs in the United States, JMOOC is a member-driven organization and fully funded by membership dues (Y. Fukuhara, personal communication, May 10, 2017). Annual membership dues structure includes premium corporate members who pay 5,000,000 yen (approximately U.S.\$45,000 at the mid-2017 exchange rate), regular corporate members that pay 500,000 yen or more (about U.S.\$4,500+), other nonprofit members that pay 100,000 yen or more (U.S.\$900), and individual members that pay 10,000 yen (U.S.\$90). Currently, JMOOC has six premium members (all business institutions), 89 regular members (49 universities, 32 business institutions, and eight miscellaneous organizations) and nine nonprofit members. Fukuhara (2017) stated that this funding structure is considered more sustainable than the American model, where only a few organizations or corporations fund the operation of any particular MOOC. In addition to the memberships, three corporations and one university are providing “in-kind” service by hosting and operating MOOC platforms for JMOOC (Y. Fukuhara, personal communication, May 10, 2017).

As of 2017, JMOOC offers 181 courses on a wide variety of topics including business management, humanities, social sciences, computer programming, education, natural science, statistics, mathematics, arts, and engineering. Course offerings are determined by individual member universities, corporations, and organizations. JMOOC is planning to continue these types of course offerings; however, JMOOC is also making a concerted effort to offer courses that Japanese industry and businesses need to maintain competitive advantage in an increasingly global business world (Y. Fukuhara, personal communication, May 10, 2017).

In response to a federal policy on human resource development in science and engineer-

ing in 2016, the Japan Business Federation (a federation of 1,500+ member organizations in business and industry), as well as representatives from higher education, met to discuss the challenges of providing recent college graduates with practical technical foundation skills that prepares them for advanced technical jobs. The Japan Business Federation sent a survey to early career engineers asking what training has helped engineers for the first few years of their work in business. More than 400 engineers from nine Japan Business Federation member corporations responded to the survey. Based on the results of the survey and with the consultation with the Japan Business Federation, JMOOC developed a series of practical foundational technical skill courses for IT engineers that help them transition to corporate environments. This series consists of 12 courses, including courses in programming, artificial intelligence, applied software design, project management, and networking. JMOOC started the series for IT engineers in the spring of 2017 and hopes to create an additional five series of some 60 courses for engineers employed within industrial technology, chemical engineering, mechanical engineering, and civil engineering jobs. JMOOC expects that their corporate members and clients will use these courses as a part of new employee training, or for professional development training for existing employees. JMOOC is also desirous that their university members will use these courses as a part of “flipped classrooms” within their university face-to-face classes (Y. Fukuhara, personal communication, May 10, 2017). JMOOC is thus uniquely situated and well-integrated into the fabric of Japanese economic development and government-industry-education collaboration

JMOOC had 380,000 unique users in 2015 (Fukuhara, 2017). Sixty-seven percent of those enrolled were male, 61% held full-time employment while studying, and 63% were college graduates. The age of participants consisted of 20% each for ages of 20s, 30s, 40s, and 50s; the remaining 20% were either teens or older than 60. The majority of JMOOC partic-

ipants were of working age (Fukuhara, 2017). Thus, JMOOC appears to cater toward individuals with secure employment who are looking to improve their careers or to satisfy their professional and personal interests. The JMOOC current completion rate is 15%, which is higher than that of other U.S.-based MOOCs, which hovers around 6.5% (Jordan, 2014). The completion rate is even higher for technically advanced JMOOC courses (Y. Fukuhara, personal communication, May 10, 2017).

JMOOC science and engineering courses are 6 to 8 weeks long; other courses are 4 weeks in length. Each week consists of 5 to 10 lessons that include two sets of a 10-minute lecture video and an accompanying quiz, discussion board, and a peer-reviewed assignment. Each course also includes a cumulative course assignment. The courses are designed to allow busy employees to take lessons they need from a course as well as to take entire courses while they continue their employment. A unique feature of JMOOC courses is that participants can enter a unique company ID to directly send academic progress to their companies (Y. Fukuhara, personal communication, May 10, 2017). This feature is part of corporate membership benefit, which costs U.S.\$4,500 annually. Approximately 30% of JMOOC courses offer the optional flipped classes, where students can pay an additional fee (3,500–5,000 yen, or about U.S.\$32–45) to attend face-to-face classroom sessions that can promote their learning in MOOC courses.

With these unique membership and instructional features, and with effective government-industry collaboration, JMOOC has all the hallmarks of success in online education. However, JMOOC's Fukuhara (personal communication, May 10, 2017) notes several challenges. First, despite JMOOC's intentions to increase the number of course offerings, particularly in science and engineering, member universities often lack the infrastructure required to create a MOOC course. Support staff, such as instructional designers and media specialists, are not common in Japan; thus, universities that desire to create a MOOC course may need to out-

source such support staff. As mentioned previously in this article, many Japanese universities also lack dedicated budgets or offices for instructional technology; therefore, individual faculty members must each locate budget and personnel that can help them develop and teach a MOOC course. Additionally, faculty support is not commonplace in many universities; therefore, faculty members may not know how to effectively teach in an online environment. For example, JMOOC currently does not offer faculty training to those who would like to teach in their system.

The second challenge JMOOC faces is related to their enrollment and client base. According to a research conducted by JMOOC and NTT Communication Online Marketing Research, Inc., 78% of respondents generally did not know about MOOCs (JMOOC & NTT Communication Online Marketing Research, 2016). Approximately half of respondents expressed interest in participating in MOOCs in the future. The most cited reasons for *not* wanting to participate are lack of time, interest, and motivation (JMOOC & NTT Communication Online Marketing Research, 2016). Thus, it is crucial for JMOOC to increase awareness of MOOCs among Japanese population in general and offer practical and engaging courses to attract more participants.

Additionally, JMOOC faces a challenge in increasing the number and types of courses that will attract additional participants. As discussed earlier, JMOOC already has a strategy to increase engineering and science course offerings in response to industry needs and governmental initiatives to develop human resources in these fields. In addition to science and engineering courses, JMOOC is planning to increase the number of courses in business-related topics, including finance, marketing, and accounting. JMOOC is additionally planning to increase course offerings that prepare individuals to become global citizens. JMOOC believes that global citizens require not only English skills, but also a foundational knowledge of liberal arts, history, and philosophy in order to communicate with people from differ-

ent countries and cultures. Such courses would attract more enrollment among their current customer base (i.e., 20s–50s working adults), but would also attract mature audiences, such as retirees and workers approaching retirement as they look for courses in personal enrichment.

JMOOC's short-range goals are to increase the number of offered courses to 100+, university members to over 100 institutions, and enrollment to 1,000,000 students in the next few years (Fukuhara, 2017). Despite these ambitious goals, JMOOC may face a challenge in attracting technologically savvy university members due to the lack of infrastructure and budget within Japanese universities. One of the incentives for universities to join JMOOC is that JMOOC courses can be used to showcase their faculty's teaching and to attract students from other countries (personal communication, May 10, 2017). All JMOOC courses are captioned in Japanese; this technique could aid foreign students in understanding course content and preparing them to participate classes when they are matriculated to study in Japan. Moreover, JMOOC would need to explore additional creative approaches to gain participation from higher education institutions and their faculty. It is also crucial to address the issue of the burden placed upon on faculty when creating a MOOC course. Therefore, it may be advisable for JMOOC to assist member universities by staffing instructional designers to streamline course design and planning, media specialists to work on video production, and faculty developers who can work with faculty to teach more effectively in an online environment.

SUGGESTIONS AND RECOMMENDATIONS FOR UNIVERSITIES IN EXPANDING ONLINE EDUCATION

The Overall Popularity of Online Education in Japan

As of 2017, Japanese online education has but a few key players such as OUI and

JMOOC that have found their own unique niches, employed continuous strategic efforts, and gained support from the government and industry. In addition to these two organizations, approximately 40 other universities offer distance education programs that grant undergraduate degrees to students who cannot attend on-campus programs. Although these programs are available, online education remains generally unpopular in Japanese higher education. One of the fundamental challenges for Japanese universities is that these institutions usually do not attract nontraditional students. According to the most recent OECD data, participation in formal education by 25–64-year-olds in Japan is 2.4%, and much lower than the OECD average of 10% (OECD, 2016). Participation in both formal and nonformal education by 25–64-year-olds in Japan is 40%, compared to OECD average of 50%; thus, formal education institutions, including universities, are not a place of choice for 25-year or older students to further their educational goals or gain new qualifications. Considering that lack of time, interest, and motivation are cited as reasons for nonparticipation in MOOCs (JMOOC & NTT Communication Online Marketing Research, 2016), Japanese universities need to come up with flexible course formats and practical course offerings for those who may want to complete college degrees later in their lives.

The low rate of participation in formal education also stems from Japanese business practice that favors traditional-aged college graduates without job experience rather than nontraditional-aged college students with working experience. With a recent low birth rate and a projected shortage of working-age adults in the near future, this practice may be forced to change. Therefore, online Japanese universities may be well positioned to train those who would like to obtain college degrees and advance their careers later in life. A university named “Cyber University,” for example, is already targeting nontraditional-aged students in Japan. Three-quarters of Cyber University students are older than 25

(Kawahara, 2016). Online education is suitable for working adults because it offers flexible scheduling and locations, and an inclusive environment where students with different background (i.e., older students and those with mobility issues or social difficulty) may not visibly stand out from traditional-aged college students.

Online Education and Women

In addition to catering to adult learners, online education may also become a great vehicle for women who hope to reenter the workforce after their children are grown. As discussed earlier, participation of women in the workforce, in tertiary education, and in adult education are all low in Japan, and women are severely underutilized in the society (OECD, 2014, 2015b). A low birth rate and a shrinking workforce also may require a shift in the culture and create an environment where women can thrive within the workforce. Flexible scheduling and inclusive environment with no visible differences in online education should be theoretically optimal for housewives who may not have time to participate in on-campus programs, or may feel excluded from traditional-aged university students. Therefore, it is critical that online education create a welcoming environment for people with diverse backgrounds and offer additional services (such as training on using computers, writing reports, and using quantitative skills) that help students to transition into higher education.

Recommendations for Structural and Pedagogical Changes

In order to expand online education, Japanese universities should invest in a variety of structural and pedagogical changes. As for structural changes, institutions need to create an infrastructure that permits their faculty to employ instructional technology more easily than currently is the case. As discussed earlier, Japanese universities have a low rate of LMS

adoption, and even the institutions that *have* adopted LMS rely heavily on faculty, not technology support staff, to plan, implement, and integrate instructional technology into teaching (Kyoto University, 2014). Most recent data show that only 40% of universities keep track of the number of courses conducted using an LMS (Academic eXchange for Information Environment and Strategy, 2015), which illustrates that LMS adoption is extremely decentralized in Japanese universities. In addition to LMS adoption, only 50% of universities have designated units for planning and implementing instructional technology on campus (Kyoto University, 2014). If Japanese universities wish to attract students with different backgrounds to online education, these universities will be required to allocate sufficient resources and to create dedicated units to plan and implement instructional technology.

In addition to the infrastructure, hiring experienced instructional technology support staff is crucial for the success of online education. Instructional designers and media specialists can help ease a faculty's workload in creating online courses. The preference of video-based, teacher-centered online courses in Japan (Funamori, 2015) makes creating courses time consuming. If text-based, student centered online courses similar to the ones in U.S. higher education were adopted in Japan, faculty workload could be reduced. Although it may be ideal to encourage Japanese universities to alter their pedagogical approaches to a more student-centered approach, this change would require a fundamental shift within the culture of Japanese higher education. Therefore, in the short-term, it may be desirable to offer Japanese students the familiar video-based, teacher-centered, lecture format online courses. Instructional designers who understand the unique cultural constraints associated with this environment would therefore be valuable to universities that would like to expand online education. Suzuki (2009) notes that "e-Learning Consortium Japan" offers an online master's program for e-learning specialists. Recruiting qualified instructional designers,

particularly those sensitive to the cultures present in the Japanese context, could be beneficial to online learning at universities in Japan.

Japanese universities could also undertake pedagogical transformations to expand online education offerings. As Aoki (2012) points out, online education programs in Japan are still using cognitive-behavioral pedagogies, where students receive knowledge in a one-way direction from faculty to learner, and where student-faculty/peer interactions are rare. Aoki (2012) posits that this type of pedagogy is making it difficult for Japanese universities to teach within the online environment. According to the 2007 National College Student Survey (University of Tokyo, 2007), 82% of courses are taught in the traditional lecture format, only approximately 30% of courses solicit student's opinions in class, and only 37% of courses have activities that require active student participation. Thus, Japanese universities heavily employ a teacher-centered knowledge-transfer style of teaching. Although a 2009 Central Council of Education Report emphasizes problem-solving, analytical, and communication skills as important goals for Japanese higher education (Japanese Central Council of Education, 2009), those skills are almost impossible to develop in students without adopting teaching methods that employ student-centered teaching and active learning. Therefore, it is critical that faculty receive training in active learning strategies and student-centered pedagogy. Faculty development activities at Japanese universities have been mandated by MEXT since 2008. Although the faculty development activities at the university level are mandated by the government, the specific types of activities or participation of individual faculty members are not (Suzuki, 2013). Thus, in order to promote participation in professional development activities, higher education institutions should create a culture where teaching is evaluated as part of their faculty promotion processes, as well as provide faculty incentives to take advantage of faculty development opportunities.

CONCLUSION

Although Japan is famous for its level of technological advancement, the development of online education programs has lagged due to various cultural challenges surrounding both the existing educational and employment cultural contexts. Life-long learning, especially at formal education institutions such as universities and colleges, is not common; therefore, only a small number of formal education institutions have implemented online degree programs. Hiring practices in Japan that show a strong preference for hiring new graduates of traditional college age contribute to a lack of learner interest in formal life-long education. In terms of online courses offered through brick-and-mortar universities, development has also been slow because about only half of Japanese universities have dedicated units and budgets for implementing and maintaining instructional technology. Thus, cultural and structural changes are crucial if Japan is serious about fuller adoption and integration of online education.

Despite these limitations, two institutions have found niches in online and distance education, and have a promising outlook. The OUI has been partially funded by the Japanese government to offer undergraduate and graduate degrees to students throughout Japan. Although their chief method of instruction is still broadcast media, OUI has begun offering online courses that have been well received by students. Some faculty members resist the move toward online education; however, it would be relatively easy for OUI to move their lectures into an online environment because OUI's teaching staff is used to delivering lectures to students at distance. In the future, OUI may also face challenges from governmental restrictions as they attempt to expand their online education.

The JMOOC, on the other hand, is a membership-driven organization that has a strong relationship with the Japanese government, business, and industrial sectors. JMOOC, funded mainly by business and university

members, has developed its expansion plans by incorporating input from the Japan Business Federation, and will expand its offerings in science, engineering and business that can be used as part of professional development training for member corporations, or as part of college classes at member universities.

In order to create a more effective online learning environment, all Japanese higher education institutions could benefit from implementation of a pedagogical shift that supports online learning. The current teacher-centered “knowledge transfer” model of teaching, evidenced in a large section of the higher education system, is simply insufficient to prepare students with problem-solving, analytical, and communication skills. Thus, it is important for Japanese university faculty to learn student-centered active learning methods of teaching in *both* face-to-face and online environments, and for Japanese universities to provide faculty support and create a culture that encourages student-centered learning.

At the national level, it is important to focus on women, as well as nontraditional-aged students because these populations can become great contributors to the future of the Japanese economy, particularly as the workforce continues to shrink and the population continues to age. Online education can be a great vehicle to encourage women and nontraditional-aged students to acquire additional education to prepare for future workforce because they may feel more integrated into their classrooms in an online environment where their identity may not stand out as greatly as in face-to-face environment. Collaboration among government, industry, and higher education is essential to allow these untapped talents to be developed and integrated into the future workforce in Japan.

This article has discussed and provided evidence that online education needs to play a greater role within the Japanese higher education system. Whether such a transformation will occur, and to what extent it might, remains an open question as the Japanese higher educa-

tional system and the Japanese government assesses its options for 21st century education.

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