E-Learning in Japan: Past, Present, and Future

Katsuaki Suzuki, Ph. D

Kumamoto University, JAPAN

ksuzuki@kumamoto-u.ac.jp

Introduction

In 2003, when Economist Intelligence Unit Limited and IBM Corporation announced that Japan was the 23ʳᵈ in the world in "e-Learning Readiness Ranking" (https://www-304.ibm.com/jct03001c/services/ learning/solutions/pdfs/eiu_e-learning_readiness_rankings.pdf), it was of great shock to those who were in the field of e-Learning in Japan. We knew at that time, that Japan was not a leading country, but nobody was realized it could be judged as low as the 23ʳᵈ. In the same Ranking, South Korea was the top of Asia (rank 5), followed by Singapore (rank 6), Taiwan (rank 16), and Hong Kong (rank 19). Malaysia was ranked the 25ᵗʰ, just after Japan.

The e-Learning Readiness was calculated using a total of 150 indexes in 4 categories and 4 criteria. Among the 4 categories of Education, Industry, Government, and Society, Industry was the highest in ranks (rank=22) for Japan, which was followed by Education and Society (rank=24), and Government (rank=32). The four criteria used to calculate the ranks were: Connectivity (the quality and extent of Internet infrastructure), Capability (ability to deliver and consume e-learning, based on literacy rates, and trends in training and education), Content (the quality and pervasiveness of online learning materials), and Culture (behaviors, beliefs and institutions that support e-Learning development within country).

In this paper, although the direct measures of e-Learning Readiness rankings for more recent years are not available, the latest trends of Japan will be first reviewed in various statistics that relate to e-Learning. Then, it will be introduced what have been done in Japan in the field of information and communication technology (ICT) education, with a future look at the end.

More Recent International Evaluation of Japan related to e-Learning

Economist Intelligence Unit didn't continue their e-Learning Readiness Rankings after 2003, "e-readiness" rankings are available in after years. The latest ranking of 2009 shows Japan as the 22ⁿᵈ in

the world (where as Singapore 7th, leading Asia, Hong Kong 8th, Taiwan 16th, and South Korea 19th: http://www-935.ibm.com/services/us/gbs/bus/pdf/e-readiness_rankings_june_2009_final_web.pdf). The rankings are calculated using Scoring Category that consisted of Connectivity and technology infrastructure (20%), Business environment (15%), Social and cultural environment (15%), Legal environment (10%), Government policy and vision (15%), and Consumer and business adoption (25%). The ranking for Japan has not been improved much since the ranking of the 24th in 2003 (when Hong Kong was 10th, leading Asia, Singapore 12th, South Korea 16th, and Taiwan 20th).

However, when it comes to the Internet users in Asia, the statistics show a very different view. Internet Worlds Stats reported that Internet users in Asia now occupy 42.2% of the World (cf. population of Asia is 56.3% of the World), almost a half (48.2%) of which is in China (Figure 1). China still has a low penetration rate of 25.3% (Internet users over the all population), which implies much more of dominance in the future (India, too, with 7% penetration rate). Japan is ranked 2nd in Asia both in terms of number of Internet users and penetration rate (74%), South Korea ranking 1st in penetration (77.3%).
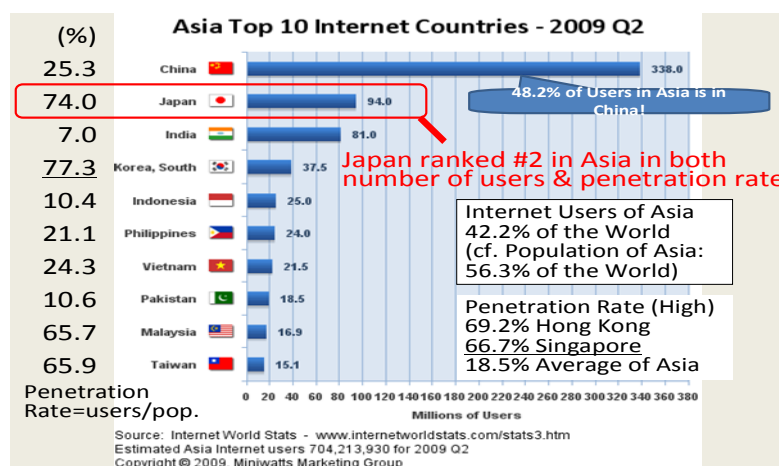

Figure 1: Internet User Statistics in Asia (Internet World Stats)

Digital Opportunity Index (http://www.itu.int/ITU-D/ict/doi/) by International Telecommunication Union ranked Japan as Number 2 (after South Korea being Number 1 of the World), leading the world in connectivity. The ranks were obtained by Indexes in Three areas: Opportunity (covered by mobile cellular telephony; mobile cellular & Internet tariffs), Infrastructure (households with a fixed line telephone, Mobile cellular, Internet access, households with a computers), and Utilization (Internet uses; Ratio of Fixed & Mobile Broadband Internet subscribers to total Internet subscribers). All Asian Economy mentioned in the above e-Readiness rankings dominates the World in Internet connectivity, occupying five of the top 8 of the world. Infrastructure is ready in Japan, too; for ICT education, it is just a matter of how to promote and advance the utilization.

The Networked Readiness Index 2008-2009 of World Economic Forum (Dutta & Mia, 2009) reported that behind 4th-ranked Singapore, five other Asia and Pacific region's economies place in the top 20 as follows: Korea (11th), Hong Kong (12th), Taiwan (13th), Australia (14th), and Japan (17th). This report provides an interesting observation regarding why Japan has not been catching up with the rest of the Asian countries. The following exerts show contrasts among Singapore, South Korea, and Japan:

- **Singapore** leads Asia once again in networked readiness at 4th place, one position up from last year, thanks to important strengths such as the world's most ICT-conducive market and regulatory environment and <u>exceptional levels of government readiness (1st in the sample) and usage (2nd)</u>. Singapore's astonishing growth into a vibrant high-tech economy in the space of a few decades has much to do with the <u>government's savvy promotion of ICT readiness</u> as a key element of its competitiveness strategy, coupled with <u>a continued focus on education and innovation</u> and important private-public partnerships. (p.15; underlines added by the author)
- Following a 10-place jump last year, **Korea** is fairly stable at a remarkable 11th position. <u>The Korean government continues to show the way as a major catalyst of ICT diffusion and innovation</u> (4th for both government readiness and usage).The latter have been a cornerstone of the government's development strategy followed in the last couple of decades and have resulted, among others, in <u>high-quality educational and research systems, producing a large number of scientists and engineers (19th) and leading research institutions (14th)</u>. Chapter 2.2 of this Report provides *an account of Korea's rise* to one of the most important high-tech global players in the space of two decades or so. (p.19; underlines added by the author)
- **Japan** is up two notches at 17th, thanks to a small score improvement from 5.14 to 5.19. Japan boasts undeniable prowess at leveraging ICT and innovating, as reflected by the level of business readiness (11th) and usage (4th), individual usage (13th), and the number of per capita utility patents (3rd). However, ICT readiness remains impaired by several regulatory, administrative, and infrastructural shortcomings. Furthermore, <u>the rating of government readiness (25th) and usage (34th) has plummeted, the result of a sharp fall in the measures of prioritization, promotion, and procurement of ICT</u>. (p.19; underlines added by the author)
  (From: http://www.weforum.org/pdf/gitr/2009/gitr09fullreport.pdf)

The figure 2 shows how the above observation was derived from ranks in subcategories.
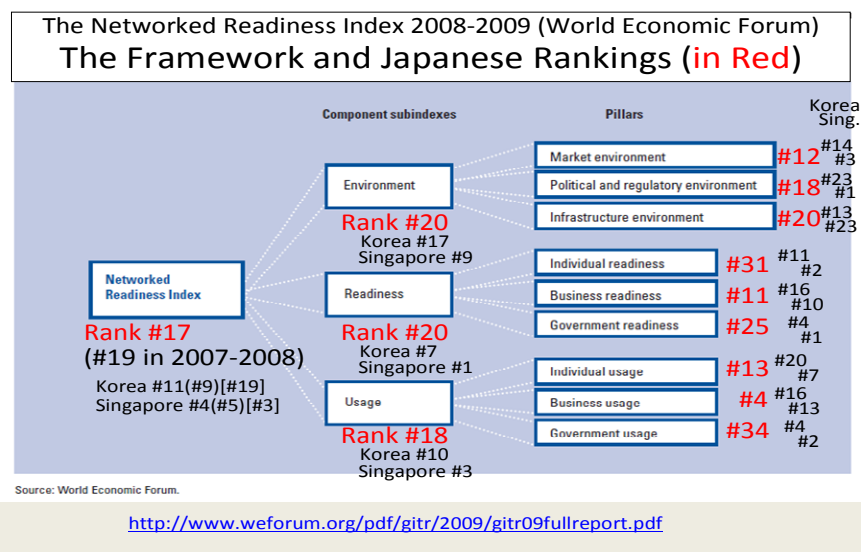

Figure 2: Ranks in Subcategories and Pillars of The Network Readiness Index

ICT Education in Japan: School-New Deal in 2009 (MOE)

In April 2009, the Ministry of Education, Culture, Sports, Science and Technology Japan (MOE) announced its initiative called "School Neal Deal Plan" to advance ICT in schools (Figure 3). It included in the Plan that all television sets should be digitized by 2011, before the terrestrial television broadcasting will be switched from analog to digital on July 24, 2011. New antenna will be placed to catch digital signals. Television sets will be replaced to so-called Smart Board, an interactive whiteboard; at least one set per school should be equipped. The Plan also aims to complete Local Area Network in all the schools (currently 85%), and the ratio of pupil to PC to be raised from 7.0 to 3.6 pupil per PC on the average. MOE announce an official letter to school boards to get ready to execute "School New Deal Plan" when FY 2009 extra budget clears Diet in May 2009. It was approved with a total of over 400 billion yen, or 10 million yen per school.
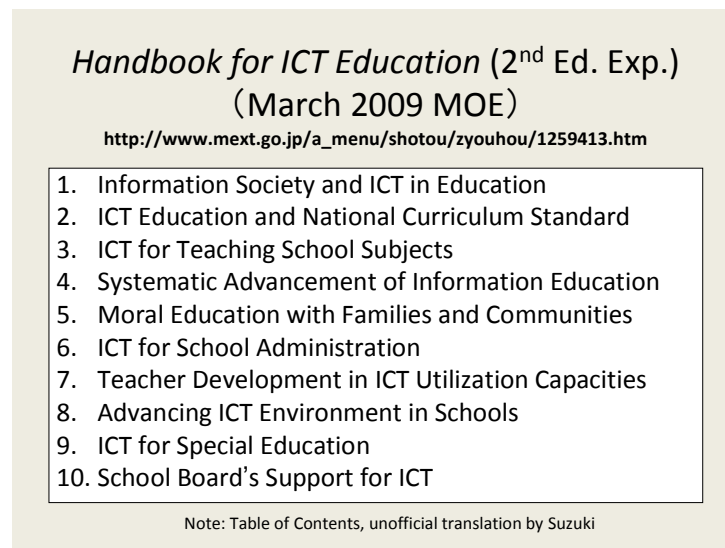
However, when Democratic Party of Japan (DPJ) won the general election of House of Representatives and took over the Cabinet in September 2009, new Prime Minister Hatoyama announced to stop execution of the budget formed under the old government of Liberal Democrats Party (LDP).

Figure 2: School Neal Deal Plan (MOE Japan, 2009)

ICT Education in Japan: *Handbook for ICT Education* **(2ⁿᵈ Ed. Exp.)**

Year 2009 marked another epoch in ICT education. MOE published an expanded version of the *Handbook for ICT Education*, 2ⁿᵈ Edition in March 2009. No portion of the *Handbook* has been made available in English. A tentative translation of Table of Content of the *Handbook* is shown in Figure 3.

Figure 3: Table of Contents of *Handbook for ICT Education*

Three aims of ICT education remains the same in the 2ⁿᵈ edition of the *Handbook*, which was set forth in the 1ˢᵗ Edition of the *Handbook* in 1990: (1) Skills for Information Utilization, (2) Scientific Understanding of Information, and (3) Participatory Attitude toward Information Society. For those purposes in mind, Integrated Study was introduced in curriculum from Grades 3 to 12 (3 hrs/week until Grade 9) in 2002, and "Information" was created in 2003 as a compulsory new subject in high school curriculum (one 2 unit course in 3 years).

It should be noted that the ICT education in Japan has always been emphasizing the notion of "Inquiry Learning," or meta-learning, by placing ICT as means to the end. As shown in Figure 4, ICT can help student's learning in various phases, but learning how to manupulate ICT is <u>not</u> considered to be the aim of ICT education. For example, being able to shoot a picture with digital camera is a skill to teach. However, what a good picture is would depend on the purpose and usage of the picture. So, one should ask, before taking a picture, "Why do I need this picture for?" It has been the goal of ICT education in Japan not only to make our students skillful in ICT, but also to make them aware of how such skills can be utilized to advance their learning and to communicate with others.
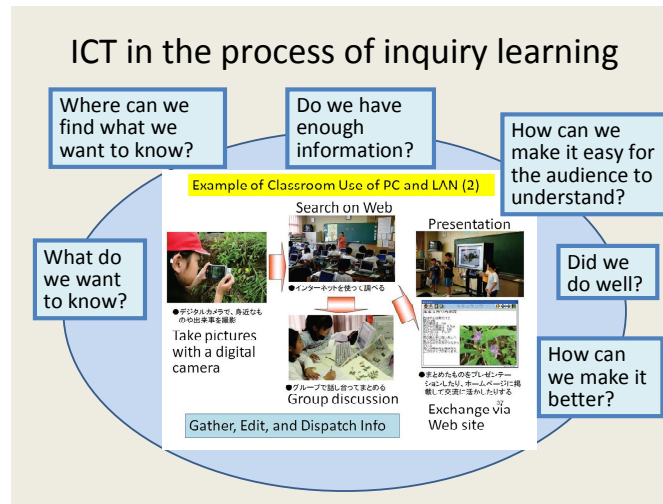
Figure 4: ICT in Inquiry Learning

Some of the changes in the *Handbook* include more emphasis on "Moral Education" (Chapter 5), which reflects changes in digital environment for children. It has become common for a child to have a cell phone as a communication device. Teaching children how to use wisely the new media, as well as establishing rules at school and among family members, has become a major issue in school communities. Much of the ICT education tend to deal with moral issues to protect teachers and children and assist to become wide users. Advancement can also be seen in teacher training (Chapter 7). Many opportunities have been developed online for teachers to access to ICT related skill development and good practices and hints for their teaching. National Information Center for Educational Resources (NICER: http://www.nicer.go.jp/), which was established in 2001 by MOE, has been one of the major resources for teachers (Figure 5).


Figure 5: An Example of Online Teacher Training (NICER)

e-Learning in Higher Education and Corporate Sector

National Institute for Multimedia in Education (NIME: http://www.nime.ac.jp/en), which was established as an MOE inter-university research institute (2004-2009 independent) was the most prominent organization serving for ICT in higher education (Suzuki, 2009). Major contribution included NIME-glad, Gateway to learning for ability development, aggregated cross-website searches (130,000 cases) with federated search function with ARIADNE, MERLOT, education.au.limited and LORNET, a peer reviewed *Journal of Media in Education*, *Annual Reports of ICT in Higher Education*, international seminars and workshops for the training of teaching staff in ICT, and development and provision of e-Learning courses in remedial education. In April of 2009, however, it was merged to Open University Japan to become their Center of ICT and Distance Education (CODE) for a smaller operation. Although it was done as a part of downsizing the government related institutes, it was a change in negative direction for the advancement of e-Learning in Japanese higher education.

According to NIME's *Annual Reports of ICT in Higher Education* 2008, over a half (51.1%) of Japanese universities answered that they are using e-Learning. The growth over five years of the ratio of introduction of e-Learning is as shown in Figure 5. It is still low, compared with other advance countries. However, when asked if e-Learning is for awarding credits, the situation becomes worse. The ratio of universities awarding credits by e-Learning was 20.7% only. Even if the universities planning for awarding credits (4.4%) are added, only a quarter of the universities are for e-Learning as a means of official channel of their program. As for e-Learning in higher education in Japan, we have much more to go than we have accomplished.
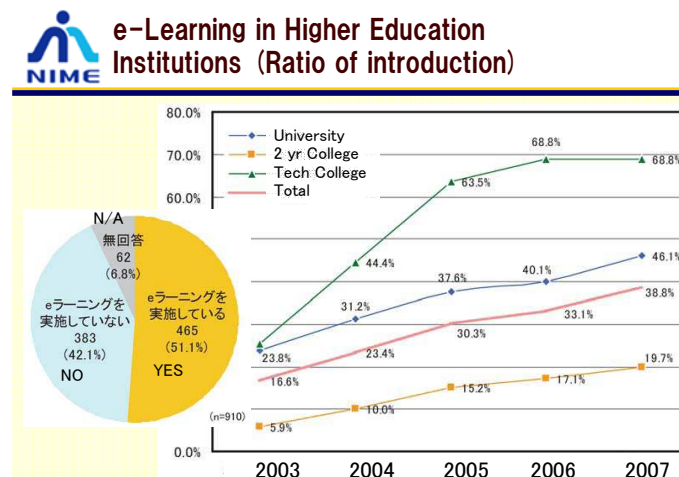
Figure 5: Ration of Universities introduced e-Learning (NIME)

On the other extreme, some online for-profit universities have been established in Japan, thanks to government deregulation. They include: Kenichi Omae Graduate School of Business (http://www. ohmae.ac.jp/gmba/), University of Digital Content (http://www.dhw.ac.jp/), and Cyber University (http://www.cyber-u.ac.jp/). Several major universities started online programs for degrees as well, including: Shinshu University's Graduate School of Science and Technology on the Internet (http://www.int-univ.com/sugsi/), Waseda University's e-School at College of Human Sciences (http://www.waseda.jp/e-school/english.html), and Kumamoto University's Graduate School of Instructional Systems (Suzuki, 2009; http://www.gsis.kumamoto-u.ac.jp/en/).

e-Learning Consortium Japan (eLC: http://www.elc.or.jp/) is a non-profit organization among e-Learning vendors and users (87 member organizations as of Oct. 2008), established in 1996 as TBT Consortium. It is the major group in business sector that holds monthly meeting among members, summer e-Learning World (Conference and Expo), winter e-Learning Conference, and published related books, information, and seminars for general public. In 2008, eLC started e-Learning Professional Certificates in seven areas of expertise: Learning Designer, Manager, Expert, Consultant, Contents Creator, SCORM Engineer, Learning Designer, and Tutor. Aoyama Gakuin University and Kumamoto University are the current partners of eLC's certificate program by offering courses and assuring its quality.

A final thought

I have reviewed current status of e-Learning in Japan and its history behind. What about the future? Can Japan become #1 in e-Readiness? Can Japan become #1 in e-Learning? I don't know, but Japan can surely learn from Korea, Singapore, and other countries, because we are not #1 now. I hope to keep a dialog going on among us to learn each other. I hope Japan will keep creating something new and valuable to share with other countries. For the start of such a dialog, I thank you very much for this opportunity!

References

Dutta, S., & Mia, I. (Eds.). (2009). *The Global Information Technology Report 2008–2009: Mobility in a Networked World*. The World Economic Forum. [Available online] http://www.weforum.org/pdf/gitr/2009/gitr09fullreport.pdf.

Suzuki, K. (2009). From Competency List to Curriculum Implementation: A Case Study of Japan's First Online Master's Program for e-Learning Specialists Training. *International Journal on E-Learning: 8*(4), 469-478.