



How has modern Information and Communication Technology (ICT) changed the way of teaching and learning?

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Topics

The use of technology has become an integral part of education and is changing ways of teaching and learning like it has never before. Driven by this current trend, our interest lay in modern Information and Communication Technology (ICT) – confined to the use of the computer in the classroom and the Internet in Japanese, South, North Korean and Chinese higher education institutions. For each of the four respective countries, we looked at two main topics:

- 1. Computerisation:** encompasses factors and curriculum reforms that have driven the use of the computer.
- 2. Virtualisation:** looks at how the Internet as an extension of computer usage has opened access to education by creating virtual classrooms, partnerships with universities worldwide and reinforcing information flow in a knowledge-based society.

State of the Art

Notably, there exist secondary sources on the respective topics for each of the countries, however, an explicit and distinct comparison between them has not been done before. It also has to be noted that secondary resources for North Korea were very rare and only partially helpful.

Methodology

We did a literature review with respect to the aforementioned two topics, for which we compared and analysed our findings for the countries Japan, South Korea, North Korea and China within the time frame 1945-2015 with a focus on differences and similarities between the countries. Taiwan was omitted in our research.

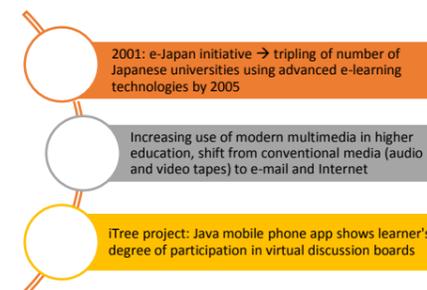
The Research Team

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Japan

1. Computerisation

From the late 1980s onwards, the Ministry of Education implemented reforms to promote information technology in education in order to improve the computer literacy and thus increase the economic vitality and international competitiveness.



2. Virtualisation

Facts & Figures

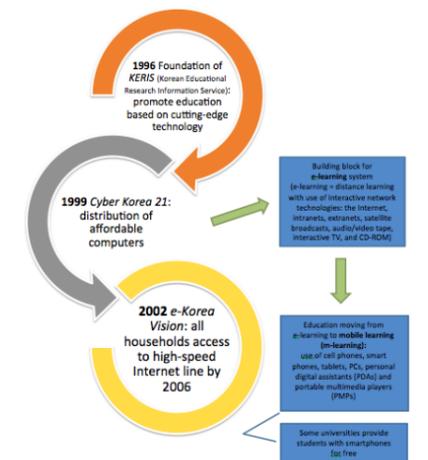
- 1950: first distance learning institutes officially recognised by Ministry of Education → distribution of print-based materials through postal mail
- 1998 & 2003: graduate and doctoral programmes through distance education (e.g. e-Learning) officially recognised
- 2001: legally possible to earn degree solely through distance learning (e.g. e-Learning)
- 2012: No. of universities offering e-Learning courses: 72 (no. increasing); mostly dual-mode (on-campus & e-Learning)
- 2012: No. of students enrolled at universities offering e-Learning courses: 225,477 (ca. 7.3% of total no. of students) → decreasing (peak in 2005)

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| Aims | <ul style="list-style-type: none"> education accessible for everyone, everywhere and at any time exchange with universities in Japan and around the world |
| Classes | <ul style="list-style-type: none"> recorded videos of lectures & course materials provided online, virtual discussion boards, online student administration system, face-to-face classes (not at every institution) exams: paper-based on campus or online version |
| Collaboration | <ul style="list-style-type: none"> collaboration with other universities (national & international) |
| Students | <ul style="list-style-type: none"> mostly 30-49 years of age usually full-time workers restricted access to university campuses (for geographic, physical or time reasons) |
| Survey (2008) | <ul style="list-style-type: none"> less than 30% of institutions provide learning materials online only 1/3 utilises Internet or Learning Management Systems (LMS) only a few utilise social networking services for creating student communities |

South Korea

Computerisation and virtualisation driven by **Lifelong Education Law and the Higher Education Law 1996** >> 'Edutopia': open and lifelong education to allow each and every individual equal and easy access to education at any time and place to court for the need of educated people to satisfy economic interests.

1. Computerisation



2. Virtualisation

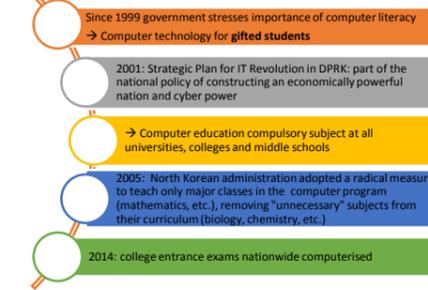
Facts & Figures

- 1998: Virtual University Trial project → participation of 65 higher education institutions
- 2001: Beginning of cyber education → first nine cyber universities; students accredited with the same degree as traditional college or university graduate

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| Aims | <ul style="list-style-type: none"> encourage partnerships, sharing of knowledge, cost-effective, access for larger student population, improvement of information technology literacy |
| Classes | <ul style="list-style-type: none"> video conferencing, video clips of recorded lectures + relevant course materials discussion forums, chat rooms real-time exams |
| Collaboration | <ul style="list-style-type: none"> Hanyang Cyber University > Massachusetts Institute of Technology, Tsinghua University, University of Cambridge etc. Korean National Open University > Hanoi Open University, Open Universiteit Nederland, The Open University of Israel etc. |
| Students | <ul style="list-style-type: none"> between 20-30 years of age more than 75% of cyber university students are employed while pursuing their degrees |
| Course offerings | <ul style="list-style-type: none"> discipline-specific courses on computers, information technology, and management, or certificate-related courses for majoring in languages (e.g., Japanese, English, Chinese), real estate, tourism or social welfare |

North Korea – DPRK

1. Computerisation

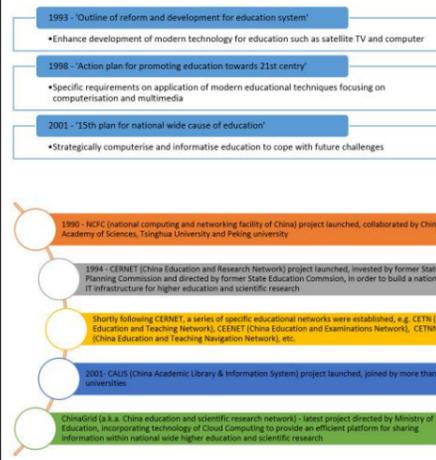


2. Virtualisation

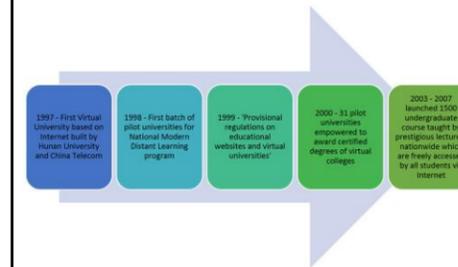
- 1997: Use of a national intranet (closed off from the global Internet) to provide materials related with science and technology to universities and research institutes
- 2006: Kim Chaek University of Technology establish first **digital library**; research collaboration with Syracuse University (New York) → Open at least in principle, Korean and international materials to DPRK scholars → More digital libraries, e.g. at the Kim Il Sung university → Developed into **e-Learning Center**
- 2010: The Grand People's Study House in Pyongyang has begun an **online-lecture service** → Providing e-Learning services to every local academic office, city and town library, science and educational facility

China

1. Computerisation



2. Virtualisation



Results

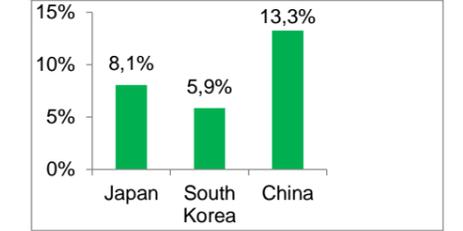
1. Computerisation

The emergence of computerisation has evolved in the late 20th century in Japan, South Korea and China mainly driven by economic needs. While in Japan, South Korea and China the use of modern ICT was driven by the need of mass education for economic competitiveness, the DPRK also saw ICT education as a political tool to earn foreign currency and strengthen their military capability. In Japan, the use of ICT in education is not very advanced yet. In most cases, technologies are only being used to reinforce the prevailing teacher-centered pedagogy instead of promoting a transformation to a new student-centered approach.

2. Virtualisation

It appears that in Japan, South Korea and China virtualisation was a means to elevate not only the quantity of educated people, but more importantly, the quality of education through facilitated and widened access to knowledge. Internet access has opened gates to international partnerships to further enhance the countries' global competitiveness. In reason of the information flow given by the Internet, the virtualisation trend is generally widely accepted in South Korea and China. Interestingly, in the pilot stage, twice as many higher education institutions were willing to implement virtualisation in South Korea than in China. The legal recognition and accreditation of cyber education degrees was approved earlier in Japan than in South Korea. Statistics show that China and South Korea are experiencing an increase in student enrolment; while in Japan there is a downward trend. Reasons for this could be the lack of face-to-face communication.

Student enrolment rate into e-Learning courses and universities (2010)



When looking at the DPRK, it is already quite remarkable that the Internet is not used for e-Learning unlike in the other countries. Furthermore, e-Learning courses are generally not for home study. There are signs that they are especially addressed to the factory colleges as in-house education. Japan, South Korea and China have a more diverse audience in a sense that these three countries have access to foreign cyber learning courses and even encourage the use of those resources. In North Korea, this is not allowed.

University of Vienna

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| Univis | <ul style="list-style-type: none"> 2004: first prototype in use for all courses online registration system: survey of studies, exam & course registration, payment of tuition fees, summary of grades, print service, etc. |
| Online databases | <ul style="list-style-type: none"> library course directory etc. |
| WebCT Vista | <ul style="list-style-type: none"> first online learning management (since WS 2004), later replaced by Fronter and Moodle |
| Moodle | <ul style="list-style-type: none"> current online learning management system (introduced WS 2007, fully replaced Fronter in WS2011) teaching & learning materials, discussion forums, submission of assignments, online quizzes, chat, calendar, etc. |
| u:stream | <ul style="list-style-type: none"> recording and broadcasting of lectures |

Selected References

Japan

- OECD (2001). 7th Seminar on E-Learning in Post-Secondary Education - Trends and Issues of E-Learning in Japan. [Online] Available from: <http://www.oecd.org/edu/skills-beyond-school/1853978.pdf> [Accessed: 10th December 2014].
- Aoki, K. (2012). Generations of Distance Education and Challenges of Distance Education Institutions in Japanese Higher Education. In Muynida, P. B. (ed.). Distance Education. [Online] Available from: <http://www.intechopen.com/.../generations-of-distance-education...> [Accessed: 2nd January 2015].

South Korea

- Insook, L. (2003). E-learning in Korea: Its present and future prospects. Korea Journal, 43(3), 61-88.
- Jung, I., & Rha, I. (2001). A virtual university trial project: Its impact on higher education in South Korea. Innovations in Education and Teaching International, 38(1), 31-41.

North Korea (DPRK)

- Lewison, G. & Shelton, R. D. (2013). Scientific collaboration as a window and a door into North Korea. Scientometrics, 97, 3-11.
- White, P. (2013). NK's Intranet Increases Cyber Courses. DPRK Business Monthly Volume IV, No.1. [Online] Available from: <https://rncankor.files.wordpress.com/2013/03/monthlyfeb13.pdf> [Accessed: 15 January 2015].

China

- Zhong, Z. & Zha, Q. (2007) An review on the development of informatisation of Chinese education system (in Chinese). Zhongguo Jiaoyu Xinxihua, (12), 8 - 11.
- Zhu, Z. (2011) Ten years of informatisation of Chinese education (in Chinese). Zhongguo Dianhua Jiaoyu, (01), 20 - 25.