ICT Education to Narrow Digital Divide in South Korea

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Introduction

The efforts to reform education using information and communication technology have been constantly made Korea ever since 1970s. For the educational informatization, Korean government played the major role in all levels of formal education and informal education. Life long learning is now the necessity for all and open education became the major educational philosophy of the educational reform. We believe that successful educational reform is the most effective way to build a creative knowledge-based society.

Adapting education to the information age does not simply mean taking some specific actions, but referring to the change of the educational system as a whole. It should include systematic change of organizations, environments, and human minds as well as physical changes toward the achievement of digital equality.

Directions to the education utilizing ICT

As the society changes, new types of people will be needed. The goal of education utilizing ICT should be to graduate students who can meet the requirements of society.

First, education should stimulate students to actively participate.
Second, education should enhance students’ ability to carry out self-directed learning.
Third, ICT should be used as a tool in learning.
Fourth, ICT should be used to provide high quality education inexpensively to everyone.
Fifth, in every teaching-learning activity, information ethics must be considered.

Adapting education to the information age

Korean government’s initiatives and national derive for installing information technology in educational environment is such a powerful one as to keep the plan of informatization in action. The project for adapting education to the information age was started in July 1970 as a plan for computer education. In early 1990 state level policy was outlined by the framework Act for the promotion of ICT, and in July 1996 the enforcement plan for adapting education to the information age was formulated.

Adapting education to the information age implies a reform of the educational system for the new society through ICT. The goal for adapting information to the current society is to foster creative human resources through implementation of open education, lifelong learning, and a cyber learning system, ultimately making this country strong as far as knowledge is concerned. This goal is being carried out in four areas, each of which is closely interrelated.
1. Elementary and secondary education
Korea runs highly centralized educational system which includes curriculum, school administration, personnel management etc for the almost 11,000 primary and secondary schools and about 200 higher educational institutes of approximately 10 million students over the nation. Four categories are considered.

a. Construction of information infrastructure
Phase 1 of the comprehensive project was completed at the end of the year 2000.
- One lab for one school with less than 36 classrooms: two labs for one school with more than 36 classrooms
- By 1999, one PC for per one teacher
- By 1999, one multimedia computer and related facilities(big screen, audio and video equipment) for the classroom instruction per classroom of 206,000 classrooms in the nation
- Updating 386 PCs or less version PCs (total 263,669 PCs as of March, 1997).
- Installation of LANs in all elementary and secondary schools and connecting these to a super high speed national information network (completion by 2001)
- Development of multimedia school libraries
- By 1998, infra for the educational program through the satellite broadcasting Computers and computer education are provided at no charge to low income students from different socioeconomic backgrounds to reduce the digital divide among students
- Pilot study of open education (distance learning)

b. Adapting curriculum to the information age
Adapting the curriculum to the information includes the development of the school curriculum and its implementation. In the regular curriculum, information literacy is provided as an elective and as extra-curricular activities. In the year 2001, computer education becomes compulsory from the very first grade of elementary school. Also, in every subject, more than 10% of classroom activities are supposed to make use of computers.

In order to equip high school graduates with the basic skills of computer uses, computer education curriculum should be enlarged and computer applications in various subjects are to be strengthened.
- Primary school level: 3-6 graders can choose computer education during their flexible time (schools can use one or two class hours per week for their own needs) and in the subject "Industrial Arts" of 5 & 6 grades, one sub-chapter is designated for computer education.
- Junior high school: computer education is selective and in the subject "Industrial and Domestic Arts", one chapter is for computer.
- Senior high school: "Information Industries" is selective and in subjects "Industrial arts", "Commerce" "Math I", and "Applied Math", one chapter is allocated for computer education.

An information literacy certification system is now being used to evaluate students’ skills of information literacy. The certification may be used as one criteria for college entrance, if the college chooses.
c. Staff education
Since cultivation of professional teachers for ICT education is a determining factor of the quality of education utilizing ICT, every year, pre-service and in-service training is provided to approximately 25% of all teachers, or 85,000 people. From 2001, this education is extended to 33% of all teachers. Training is also provided for 10,000 professional instructors, one from each elementary and secondary school. Strategies have been tried and are under consideration to motivate teachers to improve their ability to use ICT.

By 2000, all teachers at primary and secondary school levels (more than 300,000 people) received any forms of computer education in-service training of different levels:
- basic (140,000)
- professional (160,000)
- specialized training for computer lab teachers (16,500)
- the educational software development (9,600)
- school administrators (12,844)
- overseas training (420)

d. Development and dissemination of educational content
It is being handled in a systematic manner in public and private sectors such as public sectors include the Ministry of Education & Human Resources Development, each city and provincial Office of Education, and KERIS (the Korea Education & Research information Service). Beginning in 1988, the development of educational content by private sectors has steadily increased.

[Promotion strategies]
- Purchasing expenses of educational software are supported for each school.
- Hosting educational software exhibition
- Establishment of the 'Authorized software distribution committee' and issuing KERIS certification
- Development of Multimedia instructional software: By 2000, 4,500 pieces of instructional software and database for formal and non-formal education are developed.
- Role of EduNet: multi-purpose educational network containing instructional multimedia software, and various educational information
- Collecting data for EduNet: By 2000, 48 types of 6 educational information categories such as instructional resources, distance learning support, counseling and guidance posted through EduNet.

2. Adapting universities to the information age
The project aimed at adapting universities to the information age fosters academic research, cultivates high quality human resources, and develops cutting-edge scientific technology. Four projects are included.
a. Construction of the academic research information sharing system
The purpose of this project is to upgrade national competitiveness in academic and research activities by providing research information and by establishing a research information sharing system. At present, KERIS is taking the lead in this endeavor. By 2002, the full text services of nationwide doctoral dissertations and master theses will be available in an online database.

b. Management of the educational network
This project aims at supporting education and research activities by connecting educational institutions, government organizations, and other institutions relating education and connecting these to foreign networks. This environment will bring a rapid increase in internet usage.

c. Adapting the national university and college of education to the information age
To enhance prospective teachers’ ICT utilization skills, the Ministry of Education & Human Resources Development supported all 11 national education universities with multimedia labs. In year 2000, the 13 colleges of education of national universities received substantial support. However, facilities and equipment in most universities are insufficient or old, and further financial support is needed.

d. Operation of cyber universities
Operation of cyber universities is started in December 2000, after a series of experimental implementations. As of April 2001, 5,235 persons were registered in 9 universities over 39 departments. And 6 more cyber universities are opened in March, 2002. These should require curriculum requirements and methods of quality control through an evaluation system.

3. Adapting educational administration to the information age
The goal is to provide efficient and consumer-oriented educational administration, which promotes prompt and accurate decision-making. This is a systematic and hierarchical project in which the integrity and security of information and relevant laws and regulations must be taken into consideration.

By the end of 2002 a business process system will be developed enabling online process of various works of every school and every office of education.

4. Adapting lifelong education to the information age
In the knowledge-based society, formal education is not intended to provide knowledge to students that will sustain them for a lifetime. Since the body of knowledge is incredibly expanding and changing in this society, schools must prepare students for a lifetime of learning. The use of ICT for non-student learners provides an effective means for lifelong education.

The contents of lifelong education through ICT includes formal education, information literacy education, and occupation information. In order to provide this, a comprehensive information
service system for lifelong education is under construction. Also, a lifelong education service for people in foreign countries is planned and beginning to apply focusing on helping individual Koreans in all over the world to adapt to their respective country and to understand Korean culture.

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