

JAPAN

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Country Report on Education for Children with Disabilities and Use of ICT in Japan

I Preface

In the 1980's, small computers far less expensive than the conventional ultra-expensive large computers were developed. This allowed the use of computers at elementary and secondary schools as well as special education schools. The performance of these computers rapidly improved, and their use also rapidly spread. With the progress of the Internet from the mid 1990's, these computers and their spread brought about major changes not only to the field of education but to other diverse areas of the society. This phenomenon is called the IT Revolution. The Japanese government has come to set forth a policy to integrally promote measures designed to let all the people equally enjoy the benefits of the IT Revolution and develop Japan into an IT-based nation that has international competitiveness (the “Basic Plan for the Persons with Disabilities” formulated in December 2002 prescribes measures to cope with the IT Revolution as a priority issue, so that all the people can enjoy the benefits of the Revolution both in name and reality).

In the education for children with disabilities, since the time far before the word “IT Revolution” was coined, and from the early stage of the spread of the use of computers in school education, the efficacy of the use of computers had been recognized, and diverse attempts have been made actively. Today, with the advent of the advanced information society, expectations are being placed on the added efficacy of the use of ICT (information and communications technology) including but not limited to computers, for the education of children with disabilities and their independence and social participation.

This Report outlines the ICT-related government policies and the present state in Japan, centering on special education.

II Policies & Measures and Projects related to Use of ICT

1. Japan's IT strategy

The Basic Law on the Formation of an Advanced Information and Telecommunications Network Society (IT Basic Law) was enacted in 2000 and enforced on January 6, 2001. Based on Article 25 of this Law, the IT Strategic Headquarters was established in the Cabinet. It adopted

the “e-Japan Strategy” that aims for the realization of the world's most advanced IT state within five years (i.e., by 2005).

What concretized the e-Japan Strategy was the “e-Japan Priority Policy Program”. This Program points out the following five items as those to take measures on a priority basis for the realization of the IT network society.

- i) Formation of the world's top-level IT networks
 - ii) Promotion of education and learning and development of human resources.
 - iii) Promotion of e-commerce
 - iv) Promotion of administrative digitalization and use of IT in the public sector
 - v) Ensuring of the security and reliability of IT networks
- Among these five items, the Plan sets forth the following three measures for the “Promotion of education and learning and development of human resources”: “Information-orientation of school education”, “Provision of opportunities for IT learning” and “Fostering of human resources who have specialized knowledge and technology”. Among these, the section below specifically discusses “Information-orientation of school education”.

2. Information-orientation of school education

Based on the e-Japan Priority Policy Program, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) has been promoting the following measures with the aim of “developing the environment that all elementary and secondary schools can use computers in classroom lessons by fiscal 2005” : development and installation of computers for educational purposes and their connection with the Internet, enrichment of teacher training, development and extension of educational contents, and enrichment of the functions of the National Information Center for Educational Resources (NICER).

Table 1 shows the present state of installation of computers for educational purposes and Internet connection (at public schools).

Table 1. State of Installation of Computers for Educational Purposes and Internet Connection (as of March 31, 2003, survey by the Ministry of Education, Culture, Sports, Science and Technology)

| | No. of schools | Average No. of computers installed | Internet connection ratio (high-speed) |
|---------------------------|----------------|------------------------------------|--|
| Elementary schools | 23,094 | 24.4 | 99.4%(52.5%) |
| Lower secondary schools | 10,331 | 41.6 | 99.8%(57.8%) |
| Upper secondary schools | 4,118 | 94.7 | 99.9%(75.6%) |
| Special education schools | 929 | 23.2 | 99.8%(70.1%) |

As for teachers, training is provided on diverse levels namely the national government, prefectures and schools, so that almost all teachers can provide lessons using computers by fiscal 2005. Concerning this, the roles are shared as follows. The prefectures foster leaders of intramural training, while the national government fosters prefectural leaders and prepares and distributes teaching aids for intramural training. The National Institute of Special Education (NISE) has also established an “Educational and Information Technology Course”, and is providing training of about two month to those recommended by prefectural governments. Table 2 shows the current state of computer literacy of teachers.

Table 2. Current State of Computer Literacy of Teachers (as of March 31, 2003, survey by the Ministry of Education, Culture, Sports, Science and Technology)

| | Ratio of teachers who can operate computers | Ratio of teachers who can provide lessons using computers |
|---------------------------|--|--|
| Elementary schools | 88.0% | 66.3% |
| Lower secondary schools | 87.1% | 46.1% |
| Upper secondary schools | 89.0% | 38.1% |
| Special education schools | 82.3% | 37.4% |

For the teaching aids to be used in the intramural training, etc., the Ministry of Education, Culture, Sports, Science and Technology (MEXT) has entrusted their development to the Japan Association for Promotion of Educational Technology (JAPET). The latter has been producing guidebooks for the use of ICT and preparing and distributing pamphlets for the extension of the same. It is also preparing and distributing training CD-ROMs for teachers (NISE has also participated in this project).

MEXT is entrusting the development of educational contents such as images and animations that can be used in lessons to diverse development teams, and is providing such contents via the Internet.

In addition, at its National Institute for Educational Policy Research (NIER), MEXT has opened a portal site for all kinds of information related to education and learning in Japan.

In the area of curricula, the new curricula based on the National Curriculum Standards for elementary and lower secondary schools issued in October 1998 and those for upper secondary schools and special education schools issued in March 1999 have been implemented, since April 2002 in the case of elementary and lower secondary schools and since April 2003 in the case of upper secondary schools. These curricula are all designed to drastically promote the use of ICT.

3. Efforts in the area of special education

In Japan, the curricula of the special education schools are basically the same as those for the elementary and secondary schools. In addition to such curricula, measures in accordance with the disabilities are taken. For this reason, the measures mentioned in the previous section apply almost as they are to the education of children with disabilities. This section examines those measures from the viewpoint of education for children with disabilities, and also touches on other measures and efforts. In this connection, the final report submitted in 2001 by the MEXT Conference of Research Collaborators entitled “Special Education in the 21st Century: Provision of Special Support to Meet the Needs of Each Child” states the basic ideas concerning special education in the future. It points out the importance of compensating for the disabilities by the use of the state-of-the-art IT equipment and information networks and of utilizing such equipment, etc., as auxiliary means of supporting learning, thereby helping children with disabilities lessen or overcome the diverse difficulties they face due to the disabilities, expanding their communication with the society, and promoting their independence and social participation.

Table 1 has shown the state of installation of computers for educational purposes and the Internet connection at special education schools. The average number of computers installed per school of 23.2 sets may seem small. However, the number of students per computer at these schools is 4.0. The figures for the elementary, lower secondary and upper secondary schools are 12.6, 8.4 and 7.4, respectively, so that it can be said that more pupils have access to computers in the special education schools. Their Internet connection ratios are more or less the same as the case of elementary and lower secondary schools.

The computer literacy of the teachers of the special education schools is slightly lower than that of the teachers of the ordinary schools. Teacher training to improve the literacy is being provided on various levels. On the national level, the National Center for Teachers' Development (an independent administrative institution) is providing training. As mentioned, NISE has established a training course. On the prefectural level, Special Education Centers and others are providing training on information education. Some prefectures have established “Prefectural Information Education Centers” that specialize in information education. On the school level, schools are providing intramural training. NISE personnel are sometimes invited as lecturers for the prefectural training and intramural training.

As for the development of educational contents, through commissioning by MEXT, NISE developed web contents for the education of children with disabilities (2001 and 2002).

At NISE, the research divisions in charge of the respective types of education for children with disabilities are making efforts with digitalization of special education by type of disability. NISE has also established an information education research division to develop ICT, conduct researches on its utilization technologies, as well as researches for the improvement of the ICT literacy. As for the NISE activities related to this time's Seminar theme, several examples have been pointed out. Additionally, in recent years, it has conducted the following activities.

- Upon request by MEXT, NISE has prepared a “Guidebook on IT Equipment for Children with Disabilities” and distributed it to special education schools and boards of education nationwide. Moreover, it has opened an exhibition room of assistive technology called “iLibrary” in the Institute. It exhibits IT equipment in meeting with the type of disability including the equipment printed in the Guidebook. This exhibition room is used for such purposes as leader training.
- Jointly with Japan Foundation of Special Education, NISE has been holding a “Special Education Software Contest” to promote the development of software to be used in special education schools. Prize-winning works are presented on the NISE home page.
- “Schools for the Blind Braille Information Network” had been operated as a braille information distribution service for the pupils of the schools for the blind. NISE has reorganized it into “the NISE Information Network for the Education for People with Visual Impairments”, and restarted it as an information network for the education of the visually impaired in general in fiscal 2003.

Elsewhere, the following efforts have been made in the area of education for children with disabilities.

- The Center for Educational Computing (CEC) implemented “100-school Networking Project” for four years from 1995. In this Project, equipment were introduced in 100 elementary and secondary schools and special education schools nationwide, and examination was conducted on the efficacy and possibilities of the use of the Internet. Eight special education schools participated in this project. This project has developed into “E-square Advance Project” and is still being implemented.
- In the “School Internet” project implemented through collaboration by MEXT and the Ministry of Public Management, Home Affairs, Posts and Telecommunications (entrusted to the Telecommunications Advancement Organization of Japan (TAO)), activities such as joint study using the Internet and the TV conference system and inter-school exchange through the Internet have been carried out. 86 special education schools are participating in this project.
- The Ministry of Public Management, Home Affairs, Posts and Telecommunications (MPHPT) has been conducting an experiment on web accessibility. It is distributing the “Webhelper” software to check the accessibility of Japanese language web pages.
- In July 2000, the Ministry of Economy, Trade and Industry (METI) issued “Description of Accessibility Guidelines for use of computers by the people with disabilities and elderly”.
- Since 1996, the “ATAC Conference” (Conference on Assistive Technology and Augmentative Communication) has been held every year for the purpose of extending the “Electronic and Information Technology Based Assistive Technology” (“e-AT”) and the “Assistive Technology & Alternative Communication” (“ATAC”) to help persons with disabilities or elderly persons lead an independent life. This Conference is participated by teachers, welfare-related persons, equipment developers, etc.
- The e-AT Association has been implementing a test to approve Assistive Technology

coordinators. In 2003, an “e-AT Seminar 2003” to learn the technology to support the daily life of persons with disabilities is scheduled to be held.

III Measures and Efforts by Seminar Topic

1. Development of ICT to overcome difficulties due to disabilities

In the education for the visually impaired children, in addition to the conventional braille equipment, the use of speech synthesis software has been progressing.

In the education for the physically children with disabilities, the use of input devices in accordance with the type and degree of disability has been progressing. The use of alternative communication methods such as symbol communication is being carried out. In the education for the children with physical/motor disabilities who also have severe (and profound) mental retardation, the use of switch toys is progressing. For this reason, classes on simple methods to fix electric-powered toys covering teachers and guardians are being held in various parts of the country.

In the education for the children with mental retardation, communication boards are being prepared based on Picture Symbols recommended by the Japan Industrial Standards (JIS) for the mentally retarded to facilitate communication.

Hearing impaired children are using the email functions of the cell phones which have rapidly spread in recent years as a means of communication while moving.

2. R & D on IT support equipment

The government agencies are subsidizing the R & D on diverse support equipment that use the state-of-the-art information technology. Companies and research organizations are collaborating and participating in such R & D efforts.

3. R & D on educational software

The educational software is being developed by prefectures, schools, research organization, etc. As mentioned, jointly with Japan Foundation of Special Education, NISE has been holding the Special Education Software Contest to promote the development of software for use at special education schools. Prize-winning works are presented on the NISE home page. The prize-winning works before the spread of the Internet have been redeveloped into web contents and made public and available for use.

4. Cases of use of ICT in the education for children with disabilities

Each special education school is conducting practical researches on the use of ICT by children with disabilities. There are also prefectures and municipalities where boards of education or Special Education Centers are implementing promotion projects.

5. Training of teachers for the use of ICT

As mentioned in the previous section, teacher training is provided on diverse levels from national to school.

6. Remote education using ICT

In addition to the “Information Network for the Education of Visually Impaired” project mentioned in the previous section, in 2003, NISE has started to distribute lecture contents via the Internet for the training of teachers engaged in special education. This is a system where the contents of the lectures given at NISE are distributed to prefectural Special Education Centers for use in their training courses.

IV Summary

This report has explained the on-going reform of the special education in Japan, Japan's ICT utilization measures represented by the e-Japan Strategy, measures to promote information-orientation of school education, and policies, measures and projects related to the use of ICT in the education for children with disabilities. It has also presented activities that are actually carried out. I should be happy if this report should be of use in promoting “Education for Children with Disabilities and Use of ICT” in the Asia-Pacific region.