

**JAPANESE EDUCATION
IN THE INFORMATION AGE
SOCIETY***

Fumie Kumagai, Ph.D.

**Professor of Sociology
Kyorin University**

**476 Miyashita-cho, Hachioji, Tokyo,
Japan 192-8508**

Phone: 0426-91-0011

FAX: 0426-91-8617

E-mail: fkumagai@sfc.keio.ac.jp

URL: <http://www.sfc.keio.ac.jp/~n96287fk/>

*This is a revised version of the paper presented at the 4th Conference of the Asia Pacific Sociological Association held from the 14th to the 16th of September 2000 at Kwansai Gakuin University in Nishinomiya, Japan. The article has been published in the Annual Review of Kyorin University Department of Foreign Studies, vol. 13: 59-85, 2001.

JAPANESE EDUCATION IN THE INFORMATION AGE SOCIETY

Fumie Kumagai, Ph.D.

KYORIN UNIVERSITY, TOKYO, JAPAN

E-mail: fkumagai@sfc.keio.ac.jp

URL: <http://www.sfc.keio.ac.jp/~n96287fk/>

ABSTRACT

Asian Pacific societies are in transition, and Japan is not an exception. As the globalization of the economy has accelerated in recent years, the Internet has become an essential part of the infrastructure, primarily as a communications medium. In the Information Age society, the ADC principle (autonomy, distribution, and collaboration) has become an underlying assumption, which also applies to the institution of education.

The fading power of Japan may come from its educational system, which emphasizes standardization and uniformity, while discouraging creativity and individuality. Now is the time for Japan to reevaluate its educational system at every level so that it better supports the societal and business needs of the Information Age economy. This paper proposes five kinds of changes to the Japanese educational system. They are:

- Community network,
- Digital kids and participatory education,
- Growing up digital and youth education,
- Online higher education, and
- Media literacy education for the elderly.

With respect to **community networks** in Japanese communities today, each person is expected to lead an independent life, making the best use of local resources and services of the community. The role of a community network is to provide citizens better and more convenient access to local services, activities, and information. A successful community network project must find a way to turn “old economy” processes (of information distribution) into new and creative information best suited for the community. To do so, one must understand both community information needs and community information resources, and must understand how to convey it to others using digital network communication technology. Human life in the era of the Information Age society will be deeply dependent upon these new information resources provided by the community network; the ability to use this new global communications network will become part of our lifestyle.

Second, the notion of the *digital kid* suggests that children's education in the Information Age society should not be restricted to the “old economy” methods of rote learning, but should be participatory, including all members of the community (Kumagai, 1998). Both pupils and teachers learn together through active and reciprocal communication. The most important concept in this approach is to help children develop a healthy human intellect based on real, two way dialogues with teachers, parents, and the

elderly in the community. Multimedia, especially Internet-based multimedia, will be a primary means of communication in this participatory type of education for the children.

Third, as digital kids *grow up digital*, learning opportunities for youth in the Information Age society will differ significantly from what it used to be. Its essence would be "...to enhance communication between the 'net generation and adults," in Don Tapscott's words (Tapscott, 1997). This approach would be facilitated in cyberspace initially, with the goal of increasing the awareness of young adults of others needs and wants in the community. The initial dialogues could later lead to increased volunteerism in the community (because of the heightened awareness of their place in the community). Both intergenerational and intra-generational communication in the 21st century would be enhanced by using the Internet.

Fourth, *online higher education* will become widely available in Japanese society in the 21st century. Distance education by means of the Internet in Japan is still immature. Distance education will provide education on demand to those who really want to study. This approach will open the way for Japanese citizens who want to participate more fully in the global society. The global society will help Japanese citizens feel at ease communicating in English (a major problem for many Japanese). English in this context is regarded as lingua franca, maintaining both the native tongue and one's own cultural identity firmly, as Samuel Huntington contends (Huntington, 1997).

Fifth, **media literacy education for the elderly** in Japan is yet to come to its maturity. Japanese elderly have just started to explore possibilities for enhancing their quality of life by using 21st century technology, although it has not developed up to the level of American systems. Nonetheless, senior network groups in Japan are beginning to receive wider attention. It is strongly hoped that they will provide Japanese elderly with the new avenue for communication with their relatives and friends.

Japanese education in the 21st century must go through dramatic transformation if Japan is to be accepted as a true partner in the rapidly evolving global community. When and only when such educational reforms are pursued, will Japanese people be able to participate effectively in the global society.

KEYWORDS:

Japanese Education; Information Age Society; Distance Education; Community Network; ADC

JAPANESE EDUCATION IN THE INFORMATION AGE SOCIETY

Fumie Kumagai, Ph.D.

KYORIN UNIVERSITY, TOKYO, JAPAN

E-mail: fkumagai@sfc.keio.ac.jp

URL: <http://www.sfc.keio.ac.jp/~n96287fk/>

1. Introduction:

As the globalization of our economies and of our societies progresses, the Internet has become an essential part of the infrastructure, and is fast becoming an effective new communications medium. In the Information Age society, the ADC principle (autonomy, distribution, and collaboration) is becoming an underlying assumption, especially as it applies to the institution of education.

With advances in information technology and media networking, a new network society is emerging. In this society, highly unexpected, discontinuous, and sudden changes are likely to occur. In order to better adjust to these changes, organizations must alter their management systems from the authoritarian power of the top-down organization to the autonomous, distributive, and collaborative system of bottom-up organizations (Kumagai, 1998: 6). This transition from top-down to bottom-up can be facilitated by the ADC system itself.

There are several fundamental elements that constitute the ADC system. They are:

- High flexibility and scalability of the system because of the accumulated knowledge and information for adjusting to the diverse needs of customers afforded by the ADC system (Okuda, 1995: 231);
- Informal networking and fast flow of information via one link (Okuda, 1995: 232-233);
- Quick permeation and high level of understanding of messages when the final decision is being made (Okuda, 1995: 233-234; Kumagai, 1996a: 221);
- Requirement of high reliability of information (Okuda, 1995: 234-235); and
- The time-consuming process of achieving group consensus in bottom-up decision making (Kumagai 1996a: 181-184).

Let us apply this ADC system for the study of Japanese education in the Information Age society. Japan's fading power may result in part from its educational system, which emphasizes standardization and uniformity while discouraging creativity and individuality. Now is the time for Japan to reevaluate its educational system at every level so that it better supports the societal and business needs of the Information Age. This paper proposes four kinds of changes to the Japanese educational system. They are community network, digital kids and participatory education, growing up digital and youth education, and online higher education.

2. Community Networks

As the Information Age progresses, we hear the phrase "community network" quite often. When we are asked what it really means, however, we are not sure of its proper definition. In recent years, most Japanese communities have begun to make use of the new Internet-based communications technologies. Consequently, gaps in information

services due to regional variations has been narrowed significantly. It seems clear that this new medium being used by the Information Age society can revitalize local administrations, especially with respect to distributing information beyond the boundaries of the local community.

It is, therefore, necessary that the local administration understand clearly what services to provide and how to provide them to meet the needs of Information Age citizens. Put differently, there are dual meanings for these services. First, the content to be placed into the network must be proposed clearly and understood fully. Second, for the effective distribution of the content the telecommunications infrastructure must be widely available in the community (i.e. universal service). It should cover both information infrastructure (cabling, equipment, etc) and information services (email, Web, etc) as well.

Figure 1 about here

A community network is defined as "networks used for broad-based community support of commerce, local government, personal use, and civic use with four important components of people, infrastructure, services, and information" as shown in Figure 1 (Cohill, 1998: 3). Of them two components are integral to the success of the community network. They are people and the content they create, because the technology and equipment in and of itself is of no interest to the general public (Cohill, 1998: 3).

With respect to community networks, in Japanese communities today, each person is expected to lead an independent life, making the best use of local resources and services of the community. The role of a community network is to provide citizens better and more convenient access to local services, activities, and information. A successful community network project must find a way to turn "old economy" processes (of information distribution) into new and creative information best suited for the community. To do so, one must understand both community information needs and community information resources, and must understand how to convey it to others using digital network communication technology. Human life in the era of the Information Age society will be deeply dependent upon these new information resources provided by the community network; the ability to use this new global communications network will become part of our lifestyle. (Kumagai, 1999: 83-84).

3. Digital Kids and Participatory Education:

Second, the notion of the *digital kid* suggests that children's education in the Information Age society should not be restricted to the "old economy" methods of rote learning, but should be participatory, including all members of the community (Kumagai, 1999: 19-22). Both pupils and teachers learn together through active and reciprocal communication. The most important concept in this approach is to help children develop a healthy human intellect based on real, two way dialogues with teachers, parents, and the elderly in the community. Multimedia, especially Internet-based multimedia, will be a primary means

of communication in this participatory type of education for the children.

Both pupils and teachers learn together through active learning and communication. The most important concept in this approach is to help children develop healthy human intellect based on mutual dialogue with teachers, parents, and the elderly in the community. Multimedia, especially Internet-based multimedia, will be a primary means of communication in this participatory type of education for the children.

A complete change to participatory education in Japanese primary education in an Information Age society would have four features. They would be:

- education fostering humanity,
- assistance developing creativity and independence,
- meeting the human needs of the Information Age society, and
- establishing a sense of community sharing.

Education Fostering Humanity:

The entire curriculum approach of both the primary and the secondary education in Japan is geared toward the entrance examination for colleges and universities. What counts most in the current system is the amount of information one has memorized rather than the intellectual growth of the learner. Communications skills are not emphasized in the current system. Both parents and teachers need to demonstrate that they are willing to listen to what children say, and that the learning process is more important than the performance on an exam. The learning process is a series of trial and error explorations, and therefore, it naturally entails occasional “failure.” However, these failures are valuable experiences, and the pupil will learn that the very failures they experience can lead to later success. Establishing such an educational environment would eventually result in the development of fully formed human being equipped with the ability to act autonomously and creatively (character attributes lacking today in Japanese society).

Education Encouraging Creativity and Independence:

Figure 2 about here

Communication in an Information Age society demands the ability to engage in true two way dialogues. There are two characteristics of this fundamental skill. First, state one's conclusion clearly at the onset of dialogue. Second, state the logical reasoning for the conclusion. There is no single absolute answer in the given assignment in the field of the humanities and social sciences. Instead, there could be as many answers as the number of students who work on the assignment. What counts most here is one's ability to develop his or her own arguments logically, rather than emphasizing the amount of information one possesses. Therefore, throughout the process of primary education it is crucial for Japanese pupils to acquire a sense of their own creativity and independence if they want to be part of the global society. (See Figure 2.)

Education Meeting the Demand of the Information Age Society:

In this global Information Age society, there are multiple layers of cultural and value orientations across the world. Under these circumstances, maintaining a single cultural/values orientation is not appropriate for this new global citizen. Cross-cultural learning, sharing values, communications, and empathy for other cultures would eventually lead pupils to a mastery of an international education.

Figure 3 about here

Multimedia can be an integral pedagogical agent of education. To fully utilize the this educational approach, each individual must be well equipped with information technology and high bandwidth network access. With so much information available, students must learn that understanding the method used to select the information that one truly needs is more important that the mere accumulation of information. When all of these aforementioned abilities and skills are combined, students will be better prepared to communicate effectively. Once this task is accomplished, the formation of the autonomous self will follow naturally, eventually resulting in the formation of international citizens, as shown in Figure 3 above.

Education Establishing the Sense of Community Sharing:

The fundamental objectives of an education with a sense of community sharing would be *autonomous learning* and the *formation of both imagination and creativity*. This kind of education is fulfilled if and only if there exists mutual collaboration among the family, community, and local leaders. Under these circumstances, education is pursued on the basis of autonomous learning by the students, with the active application of multimedia technologies.

Figure 4 about here

Teaching children a sense of community sharing cannot be achieved without the active participation of the elderly who can share their valuable experiences. Direct interactions between children and the elderly enable them to have intergenerational contact. Children are strongly interested in hearing oral histories of the elderly. Children may make videos and/or make Web sites of the oral history presentations. After watching these videos and/or visiting these Web sites, everyone involved in the process can participate in the discussion. Thus, what we see here is really an education with a sense of community sharing as shown in Figure 4.

Children should acquire attitudes toward the appreciation for autonomous study by using Internet search engines actively. They should examine not only Web sites in Japanese but also those in English, especially because a great majority of Web sites in the

world today are written in English. Children should expand their communication network beyond the borders of their own country. They should, then, make Web sites of their own to transmit their information to the worldwide cyberspace community. Students will need an attitude of open mindedness, and a willingness to study on their own. This type of education would enhance an international education. It may not, however, be useful to pass the entrance examination. Therefore, it is quite likely that education-minded Japanese mothers would discourage their children from mastering this the new type of education.

Japanese Ministry of Post and Telecommunication has published the report on Youth and Media Literacy Education in Japan at the end of June 2000 (http://www.mpt.go.jp/press_release/Japanese/housou/000623j701.html). The report highlighted three elements that comprise media literacy. They are as follows: first, the ability to read and understand media, second, the ability to access media and utilize them effectively, and third, the ability to communicate creatively. Our lives in the 21st century are inconceivable without the use of various information technologies. However, Japanese education so far has paid scant attention to their impacts on school and everyday lives. Now is the time, therefore, to reconsider the meaning of media and to ask ourselves the significance of the media literacy education.

Computer literacy education is strongly recommended in the early stage of educational career among Japanese children. Education in the global era is pursued through active communication with children across the world, leading to a better understanding of international issues and other cultures.

Some examples of Web site URLs relating to children's education are as follows:

? Child Research Net: <http://www.crn.or.jp/index.html>

? Dan's Wild Wild Weather Page: <http://www.whnt19.com/kidwx/index.html>

? MaMaMedia: <http://www.mamamedia.com>

? MediaKids: <http://www.mediakids.or.jp>

? Welcome to the White House for Kids:
<http://www.white-house.gov/WH/kids/html/home.html>

4. Media Literacy Education in Primary and Secondary Education

In the Information Society, children will have more self-directed learning opportunities if the media tools and environment are well organized. Computer facilities would assist the development of creativity and imagination in children. In other words, the goal would be to have the learning focused on the children, and with the teaching staff facilitating the learning activities with the children. Throughout such a learning process teachers would offer advice and suggestions on the content matter, while the children take the initiative on the technical aspects of learning.

Certainly, it is essential to provide the proper instructional tools (manuals, etc) for children. Upon acquiring basic media literacy, it would be ideal to have children master the operation of the computer through the trial-and-error method.

It is the children who will take the initiative and will become well integrated in the coming Information Age society. In the 21st century, the skills of composing and formatting information are essential. In the child-centered education, children learn through cooperative activities, and can publish the results of their studies in the Internet so that anyone in the world can access the information. This way, networks of interest and international exchanges will be established naturally.

There are some Web sites emphasizing the aforementioned study objectives. As examples, in Japan there is My Town, Map Contest: PC and Constructing Life Map by Using Media (<http://www.mytownmap.or.jp/>), and in the United States, there is Education World: Cool Schools (<http://www.education-world.com/cool-school/>)

Through participation in these programs children not only learn media literacy, but also expand their communication with other communities throughout Japan and throughout the world. In this way, child-centered learning can be pursued in media literacy education programs.

5. Growing Up Digital and Youth Education:

The nature of education for youth in the Information Age will differ significantly in two ways. In the first way, youth socialization in the context of the family will become more important, and in the second way socialization will occur at school as part of the formal education.

The locus of youth socialization at home would be the intergenerational communication between parents and youth. Its essence in the Information Age would be "...to enhance communication between the 'net generation and adults," in Don Tapscott's words (Tapscott, 1997). This approach would be accomplished in cyberspace, which then would develop into volunteer activities of the youth generation. Therefore, communication in the 21st century would be pursued most effectively using the Internet in both the occasions of intergenerational communications between parents and youth, and intra-generational communication among youth.

A good example of a Web site which aims at enhancing intergenerational communication is Growing Up Digital by Tapscott (<http://www.growingupdigital.com/>). This is the cyberspace version of the best selling publication written by Tapscott. The Web site divides the forum into two groups of the N-Gen and the Grown Up. The N-Gen stands for the Net-Generation of under 16, while the Grown Up includes all the others. In the forum these two groups discuss topics of interest with each other.

These forums enhance communication not only intra-generationally, but also inter-generationally. Thus, youth communication in the 21st century will occur commonly in cyberspace via the Internet. The parent generation will participate in these exchanges as well. Consequently, human interaction by way of the Internet will become integral parts of a lifestyle for both intra-generationally and intergenerational communication.

Enhanced communication encourages many young people to develop interests in volunteer activities in cyberspace such as Youth Voice Collaborative, as one example (<http://www.yvc.org/>). Cyberspace communication among the youth in the 21st century will become global in scope, both geographically and time-wise. Such direct contacts among youth themselves will lead to the formation of better understanding of international affairs.

6. Online Higher Education:

(1) Online Degree Programs in Higher Education

Some Japanese wives living abroad in the United States complain that they have no activities outside the home. Others express the desire that they would like to further their knowledge through university level education, but they cannot pursue it, as they might have to return to Japan any time. These complaints were heard quite frequently during the course of group discussion interviews with Japanese mothers in America. In addition, Japanese businessmen who work as managers at foreign firms say that they would like to acquire advanced professional degrees to increase their chances for promotion.

To overcome the above complaints and desires university level education is now available online (At Home in School: <http://www.mercurycenter.com/Local/education/docs/online013199.htm>). Looking back at the history of correspondence course college education in the United States, we note that in the 1980s the VCR was introduced as one of the pedagogical tools. Then, in the 1990s the rapid progress of the Internet led to online education programs. It certainly indicates that the style of education has been changing in the era of the digital network society.

Online education can be considered the Internet equivalent of the correspondence course. Therefore, autonomous and active participation of the students is essential for success. Some may wonder if only a small proportion of those who have matriculated actually complete the program and obtain degrees. For Athabasca University in Canada, known as one of the most advanced online higher educational institutions, the dropout rate for the undergraduate programs has been as low as 5 percent. For the MBA degree, at the time the program started in 1994, only 64 students were enrolled. After four years from its initiation, however, the total number of students enrolled in the program increased to as many as 736, and 79 students obtained MBA degrees by that time. This good outcome illustrates the very nature of online education. That is, it enables students to pick the location and the time for studying that meets their own schedule (Growing Trend--Online Education will be the Core of Education in the 21st Century:

<http://frontline.cmclub.com/99110/html/P38-internet-2.htm>).

The majority of online educational programs so far have been undergraduate or junior college level programs. Since the fall of 1998, however, a growing number of graduate level programs have been offered online, and their contents have been quite innovative. Up until then, most of the online courses had used videos and/or handouts. Today, however, like Athabasca University, more and more programs have been organized entirely around an Internet-based curriculum, and it is possible to complete the entire program and obtain the degree via the Internet.

As educational opportunities have become global the student can access the program anywhere in the world, at any time, at one's own convenience, and can select the programs suitable to one's own needs. In fact, students throughout the world have been enrolled in the online higher educational programs in North America, even from the South Pole, and Russian students have enrolled in U.S. MBA programs.

(2) Enrollment of the Japanese People in Online Education

It will not be long before Japanese adult students will enroll in online degree programs in higher education in North America. At this point, what English language abilities will be required? Will it be difficult for Japanese, whose command of English is poor in general, to pursue the online education programs offered in North America? There is encouraging data for those Japanese who wish to pursue this kind of education. Japanese students studying via online degree programs are performing better than those enrolled in the regular on-campus education.

The explanation for this is that the English required for pursuing online education in North America is primarily the ability to express one's ideas, and conversational skills are secondary. Therefore, Japanese who lack good conversational English skills are not at such a disadvantage.

In fact, the Athabasca University administration believes that Japanese students will enroll in their programs soon. There is no question that English language skills are essential, but nothing is more important than the determination of the students to pursue the online educational program. For the extended period of two to three years when the student is enrolled in the online program, one must be willing to limit one's activities to focus on the online studies. In addition, it is of utmost importance that support from one's family would be helpful to successfully complete the program.

In North America, higher education Web sites have been an essential source of information, providing students with various information on school educational services and programs. Documents such as the program catalog, admission applications, scholarship/fellowship applications, and the course catalog can be obtained via the Internet. Furthermore, a growing number of online educational institutions today accept requests to issue certificates for the graduation and grade reports (transcripts) via the Internet.

In the 21st century, therefore, the majority of these administrative activities will be handled through the Internet. However, it is disappointing that of all the higher educational institutions in the United States only about 5 percent are actually engaging in campus e-commerce on their educational program. The campus e-commerce here does not mean online business transactions such as selling college T-shirts, ordering books, or paying fees and tuition through the Internet. Instead, it is the construction of study on demand programs (via the Web) consisting of course related materials and lecture notes. These study on demand Web sites enable students to access them anytime at their convenience (Colleges Struggle with IT Planning: <http://www.campus-computing.net/summaries/1998/index.html>).

In the United States where the Internet has been in wide use among the general public, it is puzzling why such a small number of higher educational institutions have been active in their campus e-commerce. To this question, Dr. Andrew Cohill, Director of Blacksburg Electronic Village (BEV: <http://www.bev.net/>), answered most appropriately. That is, "Being a good teacher will not contribute much toward one's tenure and promotion." In fact, it is extremely time consuming to make lecture notes using computer, and to place them on the Internet. Therefore, few instructors are willing to make this effort.

(3) Online Education and Burden to the Instructors

Many instructors who conducted online programs in higher education indicate candidly that it absorbed too many hours in lecture preparation, and that responding to students' queries by email was very time consuming (At Home in School: <http://www.mercurycenter.com/local/education/docs.online013199.htm>). Education on demand for the students in turn puts a greater burden on instructors because they must prepare for the lectures and respond to questions by email constantly. One instructor, responsible for a six-week course, received nearly 2,700 questions relating to the course via email. It is quite understandable that responding by email to each of these thousands of questions exhausted him mentally.

In American colleges and universities, it is usually the case that after six or so year as an assistant professorship, one comes up for tenure and promotion to an associate professorship. The basis for the tenure evaluation is typically one's research achievement, rather than teaching performance. Therefore, excellence in teaching does not carry much weight at the time of tenure consideration. Instead, an instructor who excels in research will usually receive a higher evaluation than an instructor who excels in the classroom. It seems that placing too much emphasis on research and development has put American university faculty under enormous pressure.

As a consequence, few faculty are willing to put much effort in developing innovative ideas and teaching materials for their classroom activities. This is not only a problem in the United States, but the same is true in Japan. Although it would be difficult

to do so, characteristics of Japanese management style such as "kaizen" and "QC circle" should be applied to higher educational programs. In the Information Age society, such efforts should be put into effect at higher educational institutions in America and Japan.

Instructors interested in online education may not possess appropriate media literacy. Middle-age Japanese instructors, in particular, who are not familiar with using a keyboard, may feel it quite burdensome to conduct an online class. Despite the rapid progress of the Internet in educational settings, it is a serious problem that instructors who can make the best use of this valuable pedagogical tool are extremely rare. To make the situation worse, media literacy education to teaching staff has not been offered to any satisfactory degree yet. This is due primarily to the lack of appropriate personnel capable of giving easy-to-understand media literacy instructions to novices in this field. This problem is not confined to Japan, but the same is true for American educational institutions (Report: Teachers Lack Computer, Net Training: <http://www.Washingtonpost.com/wp-srv/Wpcap/1999-02/22/015r-022299-indx.html>).

Education in the Information Age will progress in collaboration with the Internet. To make the results most effective, however, teaching staff need to be familiar with new developments in media tools in the field of education. Otherwise, the best results will not be attained.

URLs on Online Education

- At Home in School: <http://www.mercurycenter.com/local/education/docs.online013199.htm>.
- BEV: Blacksburg Electronic Village: <http://www.bev.net/>
- Colleges Struggle With IT Planning: <http://www.campuscomputing.net/summaries/1998/index.html>
- Education World: Cool Schools: <http://www.education-world.com/cool-school/>.
- Growing Trend--Online Education will be the Core of Education in the 21st Century: <http://frontline.cmclub.com/99110/html/P38-internet-2.htm>
- My Town, Map Contest: PC and Constructing Life Map by Using Media: <http://www.mytownmap.or.jp/>.
- Report: Teachers Lack Computer, Net Training: <http://www.Washingtonpost.com/wpsrv/Wpcap/1999-02/22/015r-022299-indx.html>.

(4) Higher Education as Distance Education:

Online education will be an increasingly important component of higher education. It will become possible to pursue and complete a degree program entirely through the Internet. There will be no campus in the traditional sense. Instead, there is a virtual campus in which learning takes place by use of cyberspace multimedia.

Today, the way the institution perceives education and the students has been changing. Traditionally, higher educational institutions perceived students as raw

materials to turn into marketable products. Recently, however, the meaning of education has shifted focus to perceive students as customers. That is, the higher educational institution has shifted from the secondary industry of manufacturing to the tertiary industry of services.

When considering the content of education, it is apparent that the skill acquisition is emphasized rather than the mastery of the discipline. At the time of recruitment, therefore, practical abilities to pursue business are considered more important than substantive understanding. This is true not only for engineers, but also for white-collar workers. This is in perfect accordance with the skills needed for the international focus of individuals discussed earlier.

(5) Online Textbooks:

Some publishing houses in the United States are eager to adopt IT in their college textbooks such as Dushkin McGraw-Hill (<http://www.dushkin.com/>). The author of the present paper, specializing in the field of sociology, makes the best use of such IT pedagogical tools in her teaching. Contemporary social issues are better studied if recent developments on each side of the issue are incorporated into the lecture and discussion sessions. The Internet is an ideal source of learning for not only the students but also the instructor responsible for the course. The students acquire the attitude of independent learning, and are most eager to give oral presentations on what they studied to their fellow students in the class.

The home pages of academic publishing houses (professionally designed), but also innumerable numbers developed by academicians, journalists, specialists on the topic, students, and even laymen are available to anyone interested in browsing the Web sites. It is remarkable that anyone today has easy access to them at home regardless of the location from which the material is created. Education in the 21st century is truly global in the sense of space and time.

7. Media Literacy Education for the Elderly

The existence of a digital divide in Japan is apparent, not between the middle class and the poor, but among the disabled and the elderly. It is not appropriate to assume that all elderly are inactive. Nevertheless, it is often true that when we grow older we lose some energy and alertness. However, seniors are most willing to learn and to try the burgeoning information technology of the 21st century.

There is no doubt about difficulties that Japanese elderly who have never used keyboard would face in acquiring new technology skills. However, a positive attitude and a willingness to study will solve various obstacles all by itself. A good example of an active senior in Japan would be writer Tsutomu Mizukami who began suffering from serious eye disease at age 78. Before the illness he was unfamiliar with the digital network. Once he recovered from the illness, however, he began to use a personal computer for his writing and editing, and has come to use it to communicate with editors by

email. His interests in new technologies is so strong, that he even became a software tester for an innovative word processor software allowing one to input data orally (Mizukami, 1999).

There is a lesson in this story for the many middle and upper managers who have been reluctant to begin using a personal computer. When an elderly person nearly 80 years old could manage a digital appliance, why not managers in their 40s and 50s? What is important here is the innate curiosity to master these new information tools.

However, media environments for the elderly must be re-evaluated so that they are suitable for providing services they need. Technology education for the elderly should differ greatly from that offered to a younger generation. The Japanese Ministry of International Trade and Industry has just announce new guidelines for Japanese computer manufacturers. It states that manufacturers should be most sensitive in designing machines for the disabled and the elderly so that they have few difficulties in using them (Japanese Journal of Economies, 7/2/00). MITI emphasizes that it is an important task for the Japanese IT industries to provide the disabled and the elderly with equal opportunities for using information technologies.

As new equipment and software reaches the market, the elderly in Japan will be more willing to try the new technology, which in turn will enhance daily activities of the elderly. It is encouraging that the Japanese computer industry is willing to meet these demands. Voice recognition software, for example, assists people who do not feel at ease using mouse and/or keyboard. Instead, this software allows users to input information orally rather than by the traditional methods of keyboard and mouse (ViaVoice by Japan IBM; Smart Boy by NEC).

Software has also been developed for people with vision problems. The Zoom Text by NEC enlarges the screen text by a maximum of 16 times. The Me-no-tasuke (Visionary Assistant) by Fujitsu enlarges letters on Web sites into five different sizes, and reads out written information to users. This software provides Web site viewers with aural recognition of the information. The PC Piko developed by Richo Elemecs in November 1999 allows computer users to input letters by pencil rather than by keyboard. All of these new attempts just discussed would make it easier for the elderly to learn to use the new technology, and significantly participation in community networks in the future.

Japanese elderly have just started to explore possibilities for enhancing their quality of life by using 21st century technology, although it has not developed up to the level of American systems. Nonetheless, senior network groups in Japan are beginning to receive wider attention. Some URLs on senior network activities in Japan are as follows:

URLs on Senior Network Activities in Japan

- Friends Saloon: <http://www5a.biglobe.ne.jp/~tsalon/toppage2.htm>
- Links for Aging Society: <http://www.kahoku.co.jp/senior/links.htm>

- Mellow Society Forum: <http://www.mictokyo.co.jp/mellow/index.html>
- Senior Live: <http://asahi-net.or.jp/~by7m-kkmm/>
- Senior Network: <http://www.lec.handy.n-fukushi.ac.jp/senior/index2.html>
- SeniorNet Link: <http://www.seaple.icc.ne.jp/~fukai/no.8link-link.html>
- SeniorNet Sendai: <http://www.kahoku.co.jp/senior/index.html>
- SeniorNet: <http://www.seniornet.org/>

Mellow Society Forum (URL <http://www.mictokyo.co.jp/mellow/index.html>) is the program organized by the Japanese Ministry of Trade and Industry aimed at preparing for the coming collision of greatly increased numbers of elderly and the information society. Until recently policies for the elderly had a tendency to view them as fragile and in need of care. The Mellow Society Forum, on the contrary, envisions a society in which all the elderly lead healthy and active lives. The elderly in the Mellow Society are active volunteers who are an integral part of the community network. The Mellow Society, companies, merchandisers, and local governments are all contributing to develop an affluent and energetic aging society. Outstanding projects are nominated for their excellence, and newsletters are published to keep organizations informed of Mellow Society activities. The group solicits suggestions online, and provides chat and email facilities for the elderly to communicate with each other. The organization also offers a wide variety of online courses for the elderly, including Web site design, HTML, and introduction to the PC operations.

8. Conclusion:

Japanese education in the 21st century will and must progress in accord with the advancements made in the field of information technology. In other words, the Information Age society will provide education on demand to those who really want to study. This approach will open the way for Japanese people who want to participate actively in the global society. The global society will help Japanese citizens feel at ease communicating in English. English in this context is regarded as lingua franca, maintaining both the native tongue and one's own cultural identity firmly, as Samuel Huntington contends (Huntington, 1997).

Japanese people have been notorious for their command of English, especially with respect to oral communication skills. It is sometimes hard to believe because English language instruction is compulsory starting at in junior high school in Japan. In fact, the average TOEFL score for Japanese students is one of the lowest both in Asia and worldwide. It is an irony that although English is studied extensively, the great majority of Japanese people express uneasiness in using it as a means of communication.

Given this situation, the Japanese Ministry of Education has been proposing that English be taught to Japanese pupils starting at the beginning of primary education. This proposal should be given careful consideration before it is really enacted. It is generally said that regardless of the language the basic formation of the native tongue is completed

sometime around the age of eight. When the Japanese pupils are in the first grade they are still in the process of acquiring the basic skill of the Japanese language. When English is added to the curriculum the students will have an additional burden. Therefore, it may be premature to assign the second language as early as in the first grade.

It might be better to learn the Japanese language first to form one's ideas firmly before acquiring the second language. The acquisition of the second language will progress relatively smoothly after the mastery of one's native tongue. Globalization of Japanese society should follow basic four steps. That is, first to know oneself, second to understand the partner, third to realize the ethnocentric orientation of ourselves, and finally to be a cultural ambassador (Kumagai, 1996).

It has been reported that the US government plans to wire all the classrooms of American public schools so that they are connected to the Internet by the end of the fiscal year 2000. In Japan, on the contrary, the end of the 2005 fiscal year has set for such goal. Japanese authorities should realize the urgency of the matter, and should take proper action. Otherwise, Japan will be left behind other industrialized countries. What is important in education today is not to teach how to use the technology itself. Instead, it is an important task for the Japanese school authorities to provide students with technology-based media environments so that they can use the facilities in the studies of humanities, natural and social sciences. Otherwise, Japanese children will find themselves on the wrong side of the so-called digital divide.

Providing school children with appropriate media environments means that children have easy access to those facilities in the community whenever they want to use them. It is widely known that Bill Gates, who made a significant contribution to the coming of the Information Age society, grew up in a community where computers were readily available to those who wanted to use them. Such a community would be ideal for socializing children to the newly emerging Information Age society.

Programs such as EPGY (Education Program for Gifted Youth: <http://www-epgy.stanford.edu/>) and Cisco Networking Academy (<http://www.cisco.com/warp/public/779/edu/academy/>; and Site in Japanese <http://www.cisco.com/japanese/warp/public/3/jp/event/training/academy/index.html>) should be given careful consideration. The former is the program for gifted youth developed by Stanford University. Currently over 2200 students from 28 countries, ranging from 5 to 18 years of age, are enrolled in EPGY.¹ The latter is the program to compensate for the worldwide problem of the lack of IT engineers. It is a partnership between Cisco Systems, education, business, government, and community organizations around the world.²

Some worry that addiction to the computer makes children unable to interact with peers. On the contrary, however, the Internet facilitates human to human communication

throughout the world. Japanese education in the 21st century, therefore, should train children to know and to express themselves, which will be the best way to enhance mutual understanding.

_ In the United States many communities are wired with active collaboration between community residents and business organizations. Executives of Sun Micro Systems, for example, began such initiatives in 1995, and the Clinton administration has extended support for such programs. As a consequence, all the public schools in the United States will be connected to the information super highway by the end of 2000. It is imperative for the Japanese authorities to realize the urgency of the matter, and make the utmost efforts to wire all the educational institutions in Japan to emulate American counterparts. If not, Japanese children in the 21st century will be seriously hampered without appropriate media literacy, an essential skill for internationally minded individuals.

Japanese education in the 21st century will have to go through dramatic transformation if Japan wants to be accepted as a true partner in rapidly evolving global communities. If and only if such educational reforms are pursued, Japanese citizens will participate in the global society effectively.

Providing school children with appropriate media environments means that children are placed in an easy access to the media facilities in the community whenever they want to use them. It is widely known that Bill Gates who made a significant contribution to the coming of the information age society grew up in the community where computers were readily available to those who wanted to use. Such a community would be an ideal for socializing children to the newly emerging information age society.

REFERENCES

Books and Articles

Cohill, Andrew Michael 1998 "What is a community network?" pp.3-13 in Blacksburg Electronic Village (ed.), *Community Network Briefing Book*, July.

Huntington, Samuel P. 1997 *The Clash of Civilization and Remaking of World Order*. New York: Simon & Schuster.

Kumagai, Fumie. 1996a. *Nihonteki Seisan Shisutemu inn Yu Esu Ai--Masatsu kara Sogo Rikai he* (Japanese Style of Production System in the U.S.A.: From Friction to Friendship). Tokyo: JETRO. ISBN 4-8244-0730-6 C3060.

Kumagai, Fumie. 1996b. *Unmasking Japan Today: The Impact of Traditional Values on Modern Japanese Society*. Westport, Conn: Praeger. ISBN 0-275-95144-8.

Kumagai, Fumie 1998 "From friction to friendship: Alleviating intercultural communication problems resulting from Japanese foreign direct investment in the United States, Scotland, and ASEAN with emphasis on Malaysia." *Kyorin University Review of the Faculty of Foreign Languages*, 10: 1-21.

Kumagai, Fumie 1999 *Degitaru Nettowaaku Shakai no Mirai: Shakaigaku kara Miru Sono Hikari to Kage* (The Future of Digital Network Society: Pros and Cons through a Sociological Perspective). Kyoto: Minerva Shobo (230+viii pp). ISBN4-623-03086-5.

Kumagai, Fumie 2000a "A digital network model for Japanese families living abroad." *Annual Review of the Institute of International Relations of Kyorin University*, vol. 3: 1-39.

Kumagai, Fumie 2000b "Adjustment of Japanese families abroad." *Annual Review of the Faculty of Foreign Languages of Kyorin University*, vol. 12: 1-34.

Minakami, Tsutomu 1999 *Cyber Life* (in Japanese), Tokyo: Tetsugaku-shobo.

Okuda, Sakae. 1995. "Soshiki chinou wo motsu shakai." (Society with organizational intelligence.) Chapter 7: 215-240 in Takagi, Haruo, Kijima, Kyouichi, and Ideguchi, Hiroshi. 1995. *Maruchi Media Jidai no Ningen to Shakai--Poli Aigento Sosaiteti*. (People and Society in the Era of Multi-Media: Poli-Agent Society.) Tokyo: Nikkagiren.

Takagi, Haruo, Kijima, Kyouichi, and Ideguchi, Hiroshi. 1995. *Maruchi Media Jidai no Ningen to Shakai--Poli Aigento Sosaiteti*. (People and Society in the Era of Multi-Media: Poli-Agent Society.) Tokyo: Nikkagiren.

Tapscott, Don 1997 *Growing up Digital: The Rise of the Net Generation*. New York: McGraw Hill Publishing.

URLs

URLs on Digital Kids and Participatory Education:

? Child Research Net: <http://www.crn.or.jp/index.html>

? Dan's Wild Wild Weather Page: <http://www.whnt19.com/kidwx/index.html>

? MaMaMedia: <http://www.mamamedia.com>

? MediaKids: <http://www.mediakids.or.jp>

? Welcome to the White House for Kids:

<http://www.white-house.gov/WH/kids/html/home.html>

? Youth and Media Literacy Education in Japan by Japanese Ministry of Post and Telecommunication, June 2000:

<http://www.mpt.go.jp/pressrelease/japanese/housou/000623j701.html>

URLs on Media Literacy Education in Primary and Secondary Education:

? My Town, Map Contest: PC and Constructing Life Map by Using Media:

<http://www.mytownmap.or.jp/>

? Education World: Cool Schools: <http://www.education-world.com/cool-school/>

URLs on Growing Up Digital and Youth Education:

? Growing Up Digital, Don Tapscott: <http://www.growingupdigital.com/>

? EPGY: Education Program for Gifted Youth: <http://www-epgy.stanford.edu/>

? Cisco Networking Academy: <http://www.cisco.com/warp/public/779/edu/academy/>

? Cisco Networking Academy in Japanese:

<http://www.cisco.com/japanese/warp/public/3/jp/event/training/academy/index.html>

URLs on Online Higher Education:

? At Home in School:

<http://www.mercurycenter.com/Local/education/docs/online013199.htm>

? Athabasca University: <http://www.athabascau.ca/>

? BEV: Blacksburg Electronic Village: <http://www.bev.net/>

? Colleges Struggle with IT Planning:

<http://www.campus-computing.net/summaries/1998/index.html>

? Dushkin McGraw-Hill (<http://www.dushkin.com/>)

? Growing Trend--Online Education will be the Core of Education in the 21st Century:

<http://frontline.cmclub.com/99110/html/P38-internet-2.htm>

? Report: Teachers Lack Computer, Net Training:

<http://www.Washingtonpost.com/wp-srv/Wpcap/1999-02/22/015r-022299-indx.html>

URLs on Media Literacy Education for the Elderly:

? Friends Saloon: <http://www5a.biglobe.ne.jp/~tsalon/toppage2.htm>

? Links for Aging Society: <http://www.kahoku.co.jp/senior/links.htm>

? Mellow Society Forum: <http://www.mictokyo.co.jp/mellow/index.html>

? Senior Live: <http://asahi-net.or.jp/~by7m-kkmm/>

? Senior Network: <http://www.lec.handy.n-fukushi.ac.jp/senior/index2.html>

? SeniorNet Link: <http://www.seaple.icc.ne.jp/~fukai/no.8link-link.html>

? SeniorNet Sendai: <http://www.kahoku.co.jp/senior/index.html>

? SeniorNet: <http://www.seniornet.org/>

FOOTNOTES:

¹ **The Education Program for Gifted Youth (EPGY) at Stanford University**

[\(http://www-epgy.stanford.edu/\)](http://www-epgy.stanford.edu/) is a continuing project dedicated to developing and offering multimedia computer-based distance-learning courses. Combining technical and instructional expertise, EPGY provides high ability students of all ages with an individualized educational experience, optimized in both pace and content. Through EPGY, students have access to courses in a variety of subjects at levels ranging from kindergarten through advanced-undergraduate.

EPGY has been actively involved in the education of gifted students since the late 1950s and has been working with computer-based education since the mid 1960s. Our current set of courses represents the culmination of more than 35 years of experience teaching computer-based courses at Stanford.

EPGY courses use a combination of CD ROM and Internet technologies to provide gifted students with a multifaceted, highly individualized learning environment. Students who demonstrate ready mastery move quickly through a course, while slower learners receive additional instruction.

EPGY instructors provide support by telephone, electronic mail, and through a virtual classroom. EPGY uses sophisticated data collection and analysis techniques, allowing instructors to keep detailed records of individual student progress and assuring appropriate support for every student.

EPGY strives to deepen and improve the nature of computer-based distance-learning instruction. We revise our courses regularly based on the data that we collect on student performance. In an effort to continually enhance the quality of our courses of instruction, we evaluate new technologies as they become available and incorporate them into our courses when it is appropriate.

Students gain credit for EPGY courses through Stanford's *Continuing Studies Program (CSP)*. Currently over 2200 students from 28 countries, ranging from 5 to 18 years of age, are enrolled in EPGY.

2 Cisco Networking Academy Program

[\(http://www.cisco.com/warp/public/779/edu/academy/\)](http://www.cisco.com/warp/public/779/edu/academy/) is a partnership between Cisco Systems, education, business, government, and community organizations around the world. The centers on teaching students to design, build, and maintain computer networks. The Program prepares students for the 21st Century workplace, while serving as a valuable model for e-learning.