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Social and Cultural Issues: Social, Cultural and Economic Issues in the Digital Divide - Literature Review and Case Study of Japan

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Introduction

The definition of the digital divide generally refers to unequal access to digital and network resources, including the Internet, and opportunities to learn using information and communication technologies. The gaps are usually concerned with economic, social and cultural issues, such as income, age, education, gender, ethnic background, and physical handicaps.

In the real world, however, there is an essential confusion as to what the "digital divide" is. There are substantial differences in the definition of the digital divide between "digital have countries" and "digital have not countries." The purpose of this paper is to use the case of Japan to demonstrate that even in one of the most technologically advanced countries of the world, with satellites and wired infrastructure networks reaching everywhere, the digital divide still exists. The key factors affecting the digital divide differ much from unwired countries. This paper illustrates how Japanese culture plays a more fundamental role in shaping the impact of the digital divide rather than either economic, racial or technological factors.

First, I will discuss what the differences in the definitions of digital divide between "digital have countries" and "digital have not countries." Then, I will show what the current situation with the digital divide is in Japan, and how cultural factors affect the form it takes. I will argue that, unlike developing countries, the digital divide in Japan depends on individual choice. Japanese cultural factors, especially, the Japanese users' difficulty with the English language and a non-alphabet typing culture has led to active avoidance of computers and the Internet. The result is a distinct "information gap" in Japan. Finally, I will discuss possible solutions, including the contributions of satellites in closing of the information gap.

Understanding the Digital Divide

Researchers began examining the problem of information inequality within the media in the 1970s but paid little attention to it as a social issue. When the Internet began to be widely used, leaders of international organizations, such as the World Bank, the European Union, the United Nations, and the G8, and as well as international scholars began to look at the different factors affecting the information gap (Mun-cho and Jong-kil, 2001). The term "digital divide" became

popular when U.S. President Bill Clinton raised his concern about this issue, and submitted a new national plan to bridge the "digital divide." Basically, economic factors - income and related social factors, such as race, gender, and class were thought to have created the digital divide that existed in most countries of the world (OECD, 1999; Norris, 2001; Mun-cho and Jong-kil, 2001).

Norris (2001) is one of the researchers who has focused on the economic and political aspects of the nature of the digital divide, and has distinguished three hierarchical levels: the macro-level, the technological and economic resources available and their distribution, the meso-level, the role played by political institutions, and the micro-level, individual resources and individual motivation.

Norris suggests that the digital divide is a mixture of circumstances which need to be considered from global, national, and democratic perspectives. Having examined the digital divide within developed countries, this study argues that "the heart of the problem lies in broader patterns of social stratification that shape not just access to the virtual world, but also full participation in other common forms of information and communication technologies" (pp. 91-92).

Compaine (1998; 2001) concludes that the many kinds of gaps that exist among societies are associated with the state of the economy. Compaine thinks that the digital divide has been ill-defined from the beginning. The author is skeptical of the whole concept, and believes that the digital divide is not a real issue: as a result, the digital divide will fade away as costs go down and ease of use increases. Hence, Compaine's work pays most attention to the economic, technological, and political factors influencing the digital divide.

Often, studies claim the definition of the digital divide has been confused. In From Digital Divide to Digital Opportunity (2003), Kuttan and Peters state, "the term has become a favorite phrase for academics and pundits, educators and politicians. Unfortunately, it has been misused and overused so often that it has become just another amorphous catchphrase that has clouded the real and pressing problem that it represents." These authors conclude that the digital divide is at least a technological problem having to do with IT training, personal computers, and access to broadband Internet. Consequentially, they choose to divide society into suburban and rural communities, minorities and the majority, and rich and poor which are separated into the technology "haves" and "have nots."

While most scholars focus on economic and social factor within countries, a few have pointed to essential differences in the definition of digital divide between "digital have countries" and "digital have not countries." For example, in "digital have not countries," 90% of the population is said to lack even the choice to access digital resources, and would find it difficult or impossible to get access to digital resources even if they wanted to (Foulger, 2001; Nua survey, 2003). The total Internet bandwidth in Africa is the same as in the Brazilian city of Sao Paolo, and the total bandwidth in all of Latin America is the same as in Seoul, South

Korea (UNDP Human Development Report, 2001). Thus, individual choice cannot be an issue in these countries because people have little real prospect of using digital resources.

By contrast, people who live in "digital have countries" have greater access to a variety of communication media and information. While Internet access may or may not be ubiquitous, it is certainly set up in most schools, companies, and communities in order that people who want Internet access can get it. Therefore, the digital divide is really a continuum of choice. The choice is a fundamental issue informed by psychological and social concerns, not just economic concerns. Some people choose to make extensive use of digital resources. Others do not. Most people fall somewhere in between (Foulger, 2001).

For "digital have countries", Foulger (2001) says that "The digital divide is the continuum of use of Internet and other digital media that separates those that choose, for whatever reason, to use such media from those who choose not to use such resources." On the other hand, for "digital have not countries," he writes, "the digital divide is the cliff that separates the five billion people who cannot, for whatever reason, choose to use Internet and other digital media from the half billion or so people who can choose to use such resources." In this sense, the key difference is divided by choice and the lack of choice.

A study by Min-cho and Jong-kil (2001) defines three stages of digital divide: information accessibility, information utilization, and information receptiveness. At the first stage, information accessibility is closely associated with the economic factors under which the user can have access or not in terms of digital opportunity. The next stage, information utilization is related to obtaining and creating added value in using the information. Both are linked to the expansion of life expectancy. Information receptiveness refers to whether the user can use the information to enrich quality of his/her life. In this stage, cultural capital plays an essential role, such as in the cognitive and the emotional dimensions which influence people's decision making. As the information society develops, the focus of the digital divide will shift from economic factors to social factors, and then to cultural factors.

The Digital Divide in Japan

The term digital divide is translated into the Japanese language as the "information gap. One main reason may be that Japan has one of the most developed telecommunication infrastructures in the world. Japan has wired phone lines everywhere, and high levels of Internet availability (MPHPT, 2001; Shinohara, 2001). Thus, the concept of the digital divide in Japan carries a meaning that is different from lesser wired countries. Economic and social factors play a role in all countries. However, the predominant affective (Nigate-ishiki) and linguistic factors (non-English language and non-alphabet typing) lead many

Japanese to feel uncomfortable accessing the Internet through computers (Mikami, 2001, & Kaigo, 2001, Sekine, 2002, & Hashimoto, 2001).

Some studies have examined the relationship between computer attitudes and anxiety, gender, age and education. Gender and anxiety seem to have the greatest influence on computer use. The young and old show a negative relationship between computer anxiety and computer experience (Parasuraman & Igbaria, 1990; Igbaria & Chakrbarti, 1990). Chua et al. (1999) explored the relationships between computer anxiety, gender and age through a meta-analysis. This study suggested that while the relationship between computer anxiety and gender was shown to be unstable, age inversely influenced computer anxiety, and is related to computer experience. These researchers also found computer anxiety to be different in different countries because of differences in cultures.

Nakayama (2001), Kaigo and Sasaki (2001), Mikami (2001), and Kaigo (2002) attempted to define the Japanese perspective for the digital divide. Nakayama suggests that the most important reason for Japanese users' discomfort with the computer is that they have to overcome two huge barriers: making the transition from hand writing to electric communication and from ideograms to alphabet typing. In other words, the alphabet-based keyboard is a big obstacle for most Japanese. According to a computer literacy survey by UNESCO in the late 1990s, the Japanese were far behind Europeans and Americans since the average Japanese citizen had no training in the alphabet-based keyboard until high school. Thus, while Westerners had moved from hand written to electric communication, the Japanese had not. Especially for the elder Japanese, they avoided using computers and the Internet altogether.

Kaigo and Sasaki (2001) and Kaigo (2002) pointed to other ways traditional Japanese culture influenced computer and the Internet use among the Japanese. The non-alphabetic language is an obvious obstacle for the Japanese using the newest information and communication technology (ICT). Their survey found that the Japanese behavior called nigate-ishiki (a self conscious difficulty dealing with something or someone, which leads to shyness or avoidance) was useful in explaining information gaps related to gender and age. According to the research, because of a lack of adaptation to the English language, the Japanese nigate-ishiki leads to computer anxiety and lack of self confidence in using new ICT. This anxiety and exists much more commonly among adults than children. The report also found that ICT terminology has a negative influence on attitudes toward ICT.

To apply these analyses, it is necessary to look at how the current information gap is defined in Japan. Surveys were conducted by the Japanese Ministry of Public Management, Home Affairs, Posts and Telecommunications (MPHPT) and other research institutions from 2001 to 2003. The digital divide seems to exist in five layers. First, the gaps between urban and rural Internet users are not very wide. A higher percentage of users access the Internet through personal computers in major cities, Tokyo being the top, followed by smaller cities, towns and villages.

However, the percentage of Internet users accessing the Internet through mobile phone is the highest in smaller cities (17.3%), followed by major cities (16.8%), and towns and villages (14.5%). In September 2002, the Japanese had the highest ratio in the world of Internet users via mobile phones (79.2%) (MPHPT, 2002; Internet Association, 2003).

Although the percentage of male Internet users (55%) is higher than female users (44.5%), the gap is also not wide. The Japanese housewives represent a higher percentage of non-internet users because they have a lower chance to access the Internet. However, the younger generation of Japanese women have become active mobile Internet users. Third, the reports show that the annual income range among Internet users is only 10 percent. Among the average Japanese household annual incomes (over US$ 50,000), the gaps are extremely narrow.

Significant gaps do exist between the different age groups. While the highest percent of Internet users (80%) are in their twenties, users over sixty have the lowest percentage (15%). In other words, elderly people rarely use personal computer communications and the Internet. Fifth, those with disabilities have very low percentage but they also have higher percentage of using mobile Internet access than those without disabilities. Therefore, the information gap in Japan is mainly divided into two groups, one is elderly people and housewives, and the other is people with disabilities (Sekine, 2001; Digital Opportunity Site, 2001). On exploring the reasons for the digital divide, all of these reports argue that neither the economy nor technology account for the main reasons in Japan.

Race is also not an issue since Japan is a homogenous country. The Japanese mentality and culture seem to play more important roles (Mikami, 2001, & Kaigo, 2001). The following figures display the reasons for not using the Internet (percentages derived from the total non-Internet users) and why non-users will not begin to use Internet.

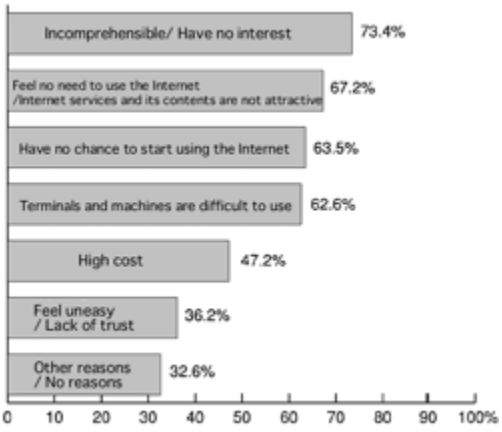

Figure 1: The reasons for not using the Internet (Source: White Paper on Information and Telecommunications in Japan, 2001).

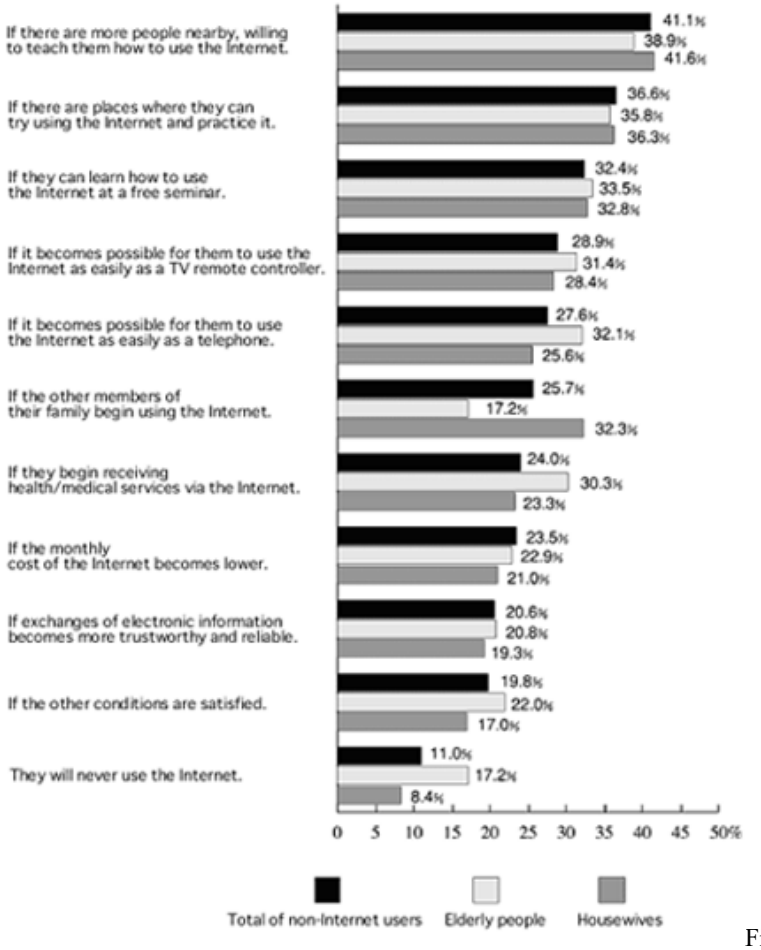

Figure 2: The conditions for non-internet users beginning to use (Source: White Paper on information and Telecommunications in Japan, 2001)

These figures suggest that the largest group of respondents need someone to teach them how to use the Internet. They also indicate an important fact: Japan lacks support for new technology. The mentality and culture of Japan are reasons holding back computer and Internet adoption (Sekine, 2002; & Hashimoto, 2001).

At the same time, the same studies, including the White paper on Telecommunication (2003), the Dentsu Institute for Human Studies (2000), and Internet on White paper (2002) found that the Japanese are among the highest users of mobile phones to access the Internet in the world. Hence, there is an inconsistency. While the Japanese have access to some of the most advanced digital devices in the world and maintain a well developed telecommunication infrastructure, the Japanese culture, its non-alphabetic language and non-alphabetic typing leads the Japanese nigate-ishiki to cause the avoidance of computers and Internet use.

Discussion and Future Development

Since Japan has been rapidly expanding the number of its mobile Internet users, some Japanese companies and scholars have argued that mobile Internet access represents a unique model for overcoming the digital divide (Nakayama, 2001; Mikami, 2001; Kaigo & Sasaki, 2001). Some of them, such as Nakayama, suggest that mobile Internet access will become the universal standard, especially in Asian countries. The largest population in the world, for example, uses Chinese characters. However, unlike the Japanese language which is a mixture of Japanese and Chinese characters, the Chinese language uses alphabet typing. Every Chinese character is pronounced in its alphabet. Because the Chinese do not experience the same barriers as the Japanese, it is hard to say whether the Japanese model will become the universal model or not.

Mobile Internet access may hide a different kind of digital divide in Japan and elsewhere, due to the lower access speed, the smaller amount of accessible information on the handhold computer, and the entertainment-oriented websites catering to mobile Internet usage. The mobile web is less robust. Quite possibly, the input method popular with the Japanese-one-thumb input with 10 digital might lead to weakened Japanese digital skills and diminished information literacy. Since English is the dominant language of the Internet, the Japanese solution of developing web-enabled mobile phones in response to the digital divide should be very carefully examined (Kaigo, 2002).

To close the real information gap in Japan, it will be necessary to create more useable forms of information technology and provide computer skill training, cultivate a greater understanding about the importance of the Internet-digital opportunity, and increase contact with computers. Regional seminars now provide support for those Japanese seeking access to the Internet. The seminars will make a significant difference when they address cultural as well as information and technology concerns (Sekine, 2002).

Also, it is necessary to realize that without technological innovation in terms of making the man-machine interface much friendlier, the digital divide cannot be closed in Japan. Broadband access significantly affects this issue because high speed data transmission provides sound, video, and rich graphical images. The digital divide will be divided further according to who has hardware and software for accessing these new forms of entertainment and information (Kuttan and Peters, 2003).

Role of Broadband Satellite Communications in Japan

One of the emerging technologies, broadband satellite communications, will be an important solution in bridging information gaps in Japan where broadband access has not reached, or cannot be reached. Japan is a country with mountains, frequent earthquakes and volcanoes, and many isolated islands. Satellite communication is extremely useful for building regional access networks. The satellite provides wide coverage and high speed data transmission by-passing ground networks.

The National Space Development Agency of Japan conducted a Wideband InterNetworking engineering test and Demonstration Satellite Project (WINDS) in 2001 under the Japanese government policy, e-Japan Strategy. The project has as its goal is to make Japan the most advanced IT nation in the world by 2005. Under the strategy, a new satellite telecommunication system (WINDS) will be developed to provide ultra high speed-Internet (up to 1.2 Gbps) to be launched by 2005. In 2003, the configuration of the satellite system is close to its final design. Not only will WINDS address regional information gaps in Japan but also serve to the global digital divide in the Asia-Pacific region.

In short, while the United States has been the leader in Internet-related technology development, the Japanese hope to be leaders contributing to development of mobile internet communication, human interface technology, and information appliances.

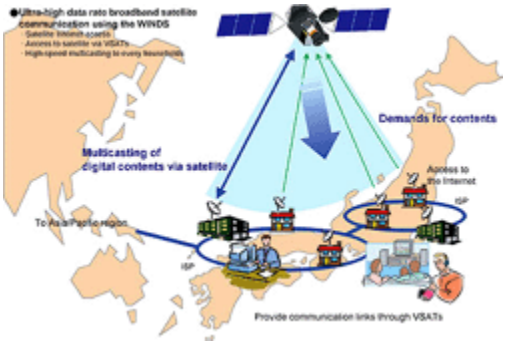

Figure 3. Concept of WINDS Application Experiment

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