

## **Family Consumer session**

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Korea – Speaker

: Family and Consumer Culture in the Information Age,  
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We have experienced the personal computer revolution during the past twenty years. The giant mainframe computers have been almost universally replaced by personal computers. The PC revolution characterizes this period in history as the Information Age. Computers can change and manipulate information in completely new ways and can handle it at increasing speeds.

Now that computing is increasingly inexpensive and computers inhabit every part of our lives, we stand at the brink of another revolution. Professor Negroponte (1995) in Media Technology at MIT has noticed that we are passing into a post-information age. In either case we call this period as an information age or a post-information age, the most fundamental difference we will see in future information is that almost all of it will be digital.

Digitization will consummate the marriage among computers, television, and telephones, making it possible to communicate with anyone, anywhere, anytime. The benefits and problems arising from this upcoming communication revolution will be much greater than those brought about by the PC revolution.

We are all beginning another great era of a digital world, so-called information superhighway. Nobody knows where this will lead us, but it is obvious this revolution will transform family and consumer life dramatically, because the change will be exponential. That is, small differences of yesterday can have suddenly shocking consequences tomorrow. Therefore, I want to spend most of my time in speculating about the information superhighway and its impact on family and consumer culture.

To understand why information will define the future and be central and what effect will be on family and consumer culture, it is important to know how technology is changing the ways we handle information. The first portion of this paper is devoted to such an explanation. Then the impact of the information technology on family and consumer life is explored.

### **From Atoms To Bits, From Analog To Digital**

While we are undoubtedly in an information age, most information we are dealing with is delivered to us in the form of atoms, in analog form, which is tangible or measurable like newspapers, magazines, and books. Analog method of storing and transmitting information is easy to use but has limitations.

Suppose you want to illuminate a room with as much as 100 watts of electric lighting with a rotating dimmer switch hooked to an 100-watt bulb and set it at an intermediate level. If the other family member wants to reproduce exactly the same level of lighting you set, her reproduction will only approximate your setting. If she passes the information to another family member, the accuracy of the reproduction decreases. Everytime you describe or measure how far the knob is turned, you are actually producing information about the analogy (the knob) rather than about the lighting level. Analog information can be gathered, stored, and reproduced, but it tends to be imprecise and runs the risk of becoming less precise each time you transfer it to others (Gates, 1995).

An entirely different way of storing information, the way computers work, is to use the number 1 to represent 'true' and 0 to represent 'false'. This is a binary system composed entirely of 0s and 1s. Each of 0 or 1 is called a bit. A bit is the smallest atomic element in the DNA of information (Negroponte, 1995). It has no color, size, or weight, and it can travel at the speed of light. It is a state of being: on or off, true or false, up or down, in or out, black or white. In the early days of computing, a string of bits most commonly represented numerical information. These bits are all that is meant by 'digital information' (Gates, 1995).

Over the past twenty-five years we have greatly expanded over binary vocabulary to include much more than just numbers. We have been able to digitize more and more types of information, like audio and video, rendering them into a similar reduction of 1s and 0s (Naisbitt, 1994; Negroponte, 1995). All of today's computers, whatever their size or power, manipulate information stored as binary numbers. Binary numbers are used to store text in a personal computer, music on a compact disc, and money in a bank's network of cash machines. Before any kind of information can go into a computer it has to be converted into binary numbers. Machines, digital devices, convert the information back into its original, useful form.

In case of a facsimile machine, the scanner in it would generate a fine line-by-line map with 1s and 0s representing the black and white of ink and no ink (Negroponte, 1995). The faithfulness of the digital image to the actual page will vary in accordance with how finely it is scanned. But no

matter how finely the fax scans the original, in the end the fax is nothing more or less than a picture of it.

The computer's abilities to provide low-cost, high-speed processing and transmission of digital data will transform the conventional communication devices in homes and offices. Therefore, the major changes coming with the digital revolution are in the way people communicate with each other.

The revolution in communications is just beginning—all the computers will join together to communicate with us and for us. Interconnected globally, they will form a network, which is being called the information superhighway. The superhighway is about the global movement of weightless bits at the speed of light. In the near future we will be moving ever-increasing numbers of bits from place to place through the structure of the superhighway.

A direct precursor of the superhighway is the present Internet, which is a group of computers joined and exchanged information using current technology. It is a long way from being the superhighway, but it is the closest approximation we have today (Gates, 1995). The popularity of the Internet is the most important single phenomena in the world of computing since the IBM PC was first introduced in 1981. This growth of the Internet suggests that superhighway applications will diffuse easily.

The change from atoms to bits, from analog to digital, is irrevocable and unstoppable. Like a force of nature, the digital age can not be denied or stopped. Being digital is almost generic in its nature, in that each generation will become more digital than the preceding ones.

The digital global web of networks will make it possible for us to communicate with anyone anywhere anytime, altering the way we work, the way we play, the way we move about, and the way we socialize with others. In short, the information superhighway will transform our culture. Just about everything will be done differently.

Now let's turn our attention to the implications of the information technology on family and consumer culture.

### **Changes in Family Life**

Human life has experienced the transition from the world of the first dimension as a unit of a tribe, to the second with a birth of an empire and then a nation, and to the third as we move around the world by airplanes and reach out to the space. We are now entering the fourth dimension with a birth of the digital revolution, seemingly the last one, that will overcome the limitation in geography via the information superhighway (Knoke: Hwang & Choi, 1996).

Digital living will include less and less dependence upon being in a specific place at a specific time. Many questions come up about how the digital living will change the family life.

### **Empowered Individuals**

The first point I want to make is that the telecommunications revolution will enlarge the role of an individual with more access to information, greater speed in execution, and greater ability to communicate to anyone, anywhere, anytime. The opportunities for each of us as individuals are far greater than at any time in human history. Accordingly, a much greater importance will be put on an individual than a family.

Telecommunications will connect remote family members together through facsimiles, telephones, and on-line bank systems. At the same time, it will also disperse family members under the same roof into different digital worlds of their interests. Communications among family members will not be smooth and, therefore, the relationships among them will become unstable. This will then weaken the role of a family as a socializing agent. Children will spend much more time with telecommunication devices than with their parents. We need to pay special attention to the role and meaning of the family in the digital world as a basic social unit that used to sustain a sense of humanity.

### **Cultural Division Between Generations**

The information superhighway is not for our generation or those before us. It is for future generations. The children who have grown up with PCs in the last decade, and those who will grow up with the superhighway in the next decade, will push the technology even farther. Some people worry about the social divide between the information-rich and the information-poor, but the real cultural divide is going to be generational.

When I meet an adult who tells me she has discovered CD-ROM (which stands for Computer Disc-Read Only Memory, a multimedia version of audio compact discs), I can guess that she has a teenage child. When I meet someone who tells me he has discovered HiTEL or Chullian, there is probably a college student in his home. One is an electronic book, the other a socializing medium. Both are being taken for granted by young generation the same way adults do not think about telephones.

Because most people remain comfortable with whatever they learn early and are reluctant to alter familiar patterns, the technology will divide societies by generations. If anyone do not learn to use a computer, he or she will be missing the chance of an amazing experience and can not share common interests with younger generation and, consequently, run

the risk of communication blocks with their own children.

Another problem is that most Internet forums today remain unmoderated, anything, even sexually explicit materials, can go without parental guide. Some parents might resist the use of computers because they believe they can not monitor what their child is doing and can not exert any control. Or some parents do not even know what their children are doing with computers from which they feel disfranchised.

Technology is not going to wait until people are all ready for it. Therefore, we need to try to find out as much as possible about the technology that will touch us and to keep in harmony with younger generations.

#### **Overcoming the Gender Imbalance**

Technology has been experienced male-oriented development. Since technologies are expressive of innovators' values, there may have been a lot of 'toys for the boys' mentality of male innovators in early days (Cawson, Haddon, & Miles, 1995). This means that instead of tackling the oppressive labor of housework, innovation has been focused on gimmicky gadgets and entertainment devices.

It seemed that parents used to encourage only boys to mess around with computers in the past. Today girls are far more active with computers than ever before. However, there are still many fewer women in technical careers.

We all witness that once a kid is exposed to computing, he or she is hooked. Therefore, it is important to create the opportunity for that exposure regardless a child is a boy or a girl. By making sure that girls as well as boys become comfortable with computers at an early age in their homes we can ensure that they play their rightful role in all the work that benefits from computer expertise. We have to pay particular attention to correcting the gender imbalance in this upcoming digital world.

#### **Changes in Social Life**

The new communications capabilities will make it far easier than it is today to keep up with distant friends and relatives. The superhighway will also enable us to find new companies with common interests, since it makes all communication easier. Bulletin boards and other on-line forums allow us to be in touch one-to-one, or one-to-many, or many-to-many, in very different ways. People of similar interests are able to meet on-line and organize without any physical contact. Friendships formed across the network will also lead naturally to getting together in person. Individuals can choose freely their social counterparts in electronic communities. Social

life will depend on his or her own choice rather than on such elements as blood or birth place.

The communications network will form society's new playgrounds, new workplaces, and new classrooms. It means we will become reliant on it. Therefore, we need to concern seriously individual overindulgence and also society's heavy reliance on the superhighway.

### **Diversity in Values :**

#### **A Balance Between Cosmopolitan and Ethnic Culture**

On the one hand, the information superhighway is going to break down national boundaries and may promote a cosmopolitan culture, or at least a sharing of cultural activities and values. On the other hand, the highway will make it easy for patriots deeply involved in their own ethnic communities to reach out to others with similar interests. This may both strengthen cultural diversity and the tendency toward a single world culture.

The technological change also influences us at the level of individuals. If people do gravitate to their own interests and withdraw from the broader world, there is a risk that common experiences and values will fall away. This would have the effect of fragmenting societies.

Multipolarization will appear and authoritarianism will be much weakened. Therefore, there will be much diversity in value system. Societies that are not ready to accept the diversity of the 21st century will be in chaos.

### **Changes in Consumer Life**

One of the dramatic changes that the information superhighway will bring into the consumer life will be an emergence of a world-wide electronic marketplace. This new ultimate market will eventually be the world's central department store. The cyber market will be huge and will combine all the various ways human goods, services, and ideas are exchanged.

The introduction to the marketplace of telecommunication systems will be accompanied by a shift in focus from business-driven to consumer-driven. We are approaching toward a consumer-driven information age. Let's move on to speculating possibilities for the future consumer life.

### **Toward Perfect Information**

The forthcoming electronic markets will be very efficient ones that provide nearly complete instantaneous information about worldwide supply, demand, and prices. Everyone can get almost the same deal because information about all transactions speeds across wires to anyone anywhere.

Most of product information on the information superhighway will come directly from manufacturers. They will use a variety of provocative techniques to attract consumers. On-line links will let consumers navigate through whatever information the advertiser has made available, which might be product manuals consisting of video, audio, and text. Vendors will try to make getting information about their products as simple as possible.

Consumers will also be able to check what others say about the product in which they are interested. They will look for the electronic bulletin boards containing formal and informal reviews of the product and its manufacturers and retailers. Within the electronic market, companies that do not serve consumers well will see their reputations and sales decline, while those that do a great job will attract sizable followings through this new form of 'word of mouth' (Gates, 1995).

The information superhighway will make the consumer market fairly close to an ideal market in which everyone would be able to make fully informed decisions and society's resources would be distributed efficiently.

#### **Broad Spectrum of Consumer Choice**

In the cyber market the consumer will get not only competitive cost savings, but also a much wider variety of products and services to choose from. All the goods for sale in the world will be available for them to examine and compare. They will be able to amble globally at their own pace among goods and services.

The broader choices for the consumer will not just applied to goods and services, but will include almost everything from how you invest, to who your friends are and how you spend your time with them, and where and how securely you and your family live. The greatest benefit from a digital world will be a broad spectrum of consumer choice.

#### **Overcoming Limitations in Time and Geography**

Telecommunications will overcome all the major barriers to a truly global economy: time, distance, and language. It will save consumers' time enormously because it will simplify and standardize shopping and will remove bothersome travel to stores and shopping malls. Consumers will be able to get advice—financial, legal, and medical—without leaving their houses. Consequently consumers could use the time saved from shopping or running errands to other activities they are interested. Their time management will be much efficient than that in today.

Digital telecommunications will overcome the limitation of geography and physical separation. There are many telecommuters who do not travel daily

to offices but instead commuted via fax machines, telephones, and e-mail. As more individuals free to work wherever they choose to live, the distinction now made between the workplace and everywhere else will be changed.

If the average office workers in any major city stayed home one or more days a week, the decreases in gasoline consumption, air pollution, and traffic congestion would be significant. Telecommunications will change the balance of the pluses and minuses of the life in urban areas. For those who have a connection to the superhighway, the technology will substantially reduce the drawbacks of living outside a big city. It will liberate those who would like to abandon city living.

#### **Customized Market**

Because the information superhighway will carry video, consumers will be able to see exactly what they have ordered. Once consumers know exactly what they want, they will be able to get the products just that way. Computers will enable goods to be both mass-produced and custom-made for particular consumers. Customized products will often cost no more than a mass-produced one would. Increasing numbers of products will be created on the spot to match the exact desires of a particular consumer. Customization will become an important way for a manufacturer to add value.

Customized information will be a natural extension of customized manufacture. Consumers could decide how many articles they want to read and how much to spend. For their own daily dose of news, consumers might subscribe to several news services and let a software agent pick and choose from them to compile their completely customized newspapers (Gates, 1995).

Customized advertising or delivering different streams of advertising to much finer consumer groups will also become possible. This will benefit all parties: the consumers, because ads will be better tailored to their interests, and thus more interesting ; advertisers, because they will be able to aim at somewhat more targeted consumers.

As the information superhighway allows consumers' experiences and products to be custom tailored to their interests, it will give them more control over their lives.

#### **Threatened Privacy**

The power and versatility of digital technology promises to promote economic development and to move close to Adam Smith's ideal market. However, as with all major changes, the information society will carry



costs. One of the major dark side of a networked world will be a completely unprecedented capacity for surveillance of every human being (Cavoukian & Tapscott, 1997).

The information technology will chip our privacy away, bit by bit, by electronically tracking our activities, transactions, and communications. Everytime we use a credit card, make a phone call, order something from a catalog, or subscribe to a newspaper or a magazine, we leave behind a data trail that can be picked up by the tracking technologies. The result, then, is a formulation of a digital picture of our personal preferences, our habits, our likes and dislikes.

The information superhighway will also make it possible for us to keep track of our own whereabouts. It will be able to track our interactions with the superhighway—all of the commands we issue, the messages we send, and the people we call or who call us. The resulting record will be the ultimate diary and autobiography.

The digital technology also has a potential to keep all our personal documents and messages totally private. Government will consciously set policies regarding privacy and access to information. However, we need to pay special attention on privacy protection and on exploration of a broad range of solutions.

So far, I have made some speculations about what will happen to family and consumer culture in the decade ahead. All of these speculations come from something I am not really sure of. But we all know the information superhighway is going to happen. Without access to the information technology families and consumers will be disempowered.

In this fast coming information age, education is the best preparation for being able to adapt. For the more, we, as teachers and scholars in home economics and as a group of older generation than our students of PC generation, need to keep in mind that the technology will be pivotal in our future role in education. We need to cooperate to find out as much as possible about the information technology that will touch each one of us in this planet and will transform our culture. The more we know about it, the less disconcerting it will seem.

One thing I want to draw your attention before I finish my presentation is that computers are not moral ; they can not resolve complex issues like the rights to life and to death. As technology develops, discrepancies between human and technology, and between nature and technology are frequently experienced. We need a new paradigm toward the 'harmony' among human, nature, and technology in this fast changing information age (Penzias: Kang, 1996).

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