Introduction to "Converging Ethics"

Takeshi KURAMOCHI

Abstract

In 2003, the U.S. President's Council on Bioethics published an important report entitled *Beyond Therapy : Biotechnology and the Pursuit of Happiness*. In the report, the council discussed the relationship between the development of biotechnology and our good life through chapters entitled Better Children, Superior Performance, Ageless Bodies and Happy Souls. In the chapter on Superior Performance, it asserted that the relationship between doer and deed is crucial to our happiness. I appreciate the significance of the relationship. In this short presentation, I will examine the basis of the significance from a different perspective, namely in terms of manipulation and cultivation.

Ⅰ. Introduction

We are much annoyed when someone begins to call with a "keitai"(cell phone) in the train. Why so? It is difficult to give an accurate explanation. I think it is because we feel that person detaches us around him and flights alone into another world.

We are getting many ways of personal communication and the representative ones of them are keitai and personal computer. What we are getting anew are not only ways of personal communication, but also ways of general enhancement of our daily lifestyles. Three great new breakthroughs in the field of technology are communication or computer technology, biotechnology, and nanotechnology.

We have discussed so far mainly the technical and ethical problems of enhancement in the field of biotechnology. We have discussed, for example, the problems of prenatal diagnosis and screening out, genetic engineering and selecting embryos for desired traits to create better children, psychotropic drugs of stimulants for improving children's behavior, drugs such as Modafinil, Ritalin, Viagra, growth or steroid hormones, genetic engineering for superior performance, IGF-1 genes and growth hormone for muscle enhancement, donepezil (one of the major acetylcholinesterase inhibitors), amphetamines, Ritalin for memory enhancement, targeting specific deficiencies of old age, caloric restriction, genetic manipulation and prevention of

oxidative damage for general (body-wide) age-retardation, and "sweet oblivious antidotes" such as beta-adrenergic blockers or "mood brighteners" such as serotonin reuptake inhibitors for happy souls.

It is not only biotechnology, however, but also the other two new technologies, namely computer technology and nanotechnology, that are fundamentally transforming our daily lifestyles. So we have to consider the technical and ethical problems of the other two technologies as well.

Ⅱ. The 3 New Technologies

All three are reorganization or edit technologies. Computer technology is a reorganization or edit technology of consciousness and knowledge, biotechnology is that of life, and nanotechnology is that of matter.

According to Claude Shannon and Alan Turing, a computer should be able to process whatever can be transformed into binary data, and the forms of anything in the world such as orders of matters, sentences, numerical formulas, pictures, symphonies, thinking, memories, even what is called heart, spirit, or personality should be able to be transformed into binary data. So computers should be able to process and edit any forms in the world, give us the possibility of grasping the continuity of the machine and human being, and compile an artificial intelligence (AI).

We can say biotechnology began with the discovery of the double helix structure of DNA by James Watson and Francis Crick in 1953. DNA is a kind of "recipe of life" and, as it were, speaks "codon-analytic language." We have already finished the sequencing of

human DNA and developed genetic engineering. The range of gene therapy covers not only the care for cancer or AIDS, but also rewriting or editing of genes. If we can rewrite or edit genes, we should be able to edit the "programs of life" and even the biological programs of human beings at our own will.

Nanotechnology was proposed by Kim Eric Drexler in the 1970s. He thought if we could produce an ultra super minute assembler that could manage matters at the molecular- or atomic-level, we should be able to synthesize anything at our own will. It raised the possibility of reorganizing or editing matter itself. We could produce gold from lead, diamond from dust, emerald from water, ruby from fire, and sapphire from air. We could produce whatever we want through the reorganization or rewriting of the order of atoms or molecules of raw materials. Nanotechnology opens up the unlimited possibility of solving any problems we are faced with including that of natural resources and global warming. We were convinced of the possibility of this technology when IBM Corporation succeeded in the drawing the logotype IBM with 35 atoms in 1990.

Computer technology grasps consciousness or spirit, biotechnology grasps life, and nanotechnology grasps matter in a unitary way as a kind of information or the organization of information, respectively, and they give us the possibility of managing at will anything in the world. If we could bring these three technologies to perfection, we should be able to attain the status of Creator of the world.

Ⅲ. Technology and Our View of World and Human Beings

Technology is a mediator-system which is built up on knowledge. It mediates between human beings and nature, theory and practice, knowledge and other knowledge, consciousness and unconsciousness, and mind and body.

The development of science and technology has changed and is now changing the outer environment surrounding our daily life. It has, however, not only made our daily life more convenient and efficient by changing our outer environment. It has also changed how we see and grasp nature, the world, the universe, and the human being itself. It has influenced not only our view of space, time, and the objective world, but also our viewpoint on life and our framework for grasping it. It changes our views of society, consciousness, and life itself. It influences our way of life and culture in each era. It changes the meaning of the objective world and the nature of our very humanness.

The development of science and technology from the 19th to 20th century was helped by the utilitarian view that took these disciplines as ways and means for human beings to manage and control nature with efficiency. They were keyed solely to achieve efficient manufacture on the premise that stable and constant subjects manipulated and utilized nature for their own purpose. On the other hand, the phase of the transformations of society and the ways of perception, cognition, and thinking caused by their development were almost completely ignored.

The central technology after the industrial revolution has been that of power and speed carried by machines with internal-combustion engines. It is not the extension of the physical functions of us like a tool, but the disconnection of them from the human body into outer space. It is the simulation of the motor-muscular system which has the engine and transmitter of information. Here the technology is cut off from human beings and transformed into an external, autonomous, and automatic system.

On the other hand, computer technology is the disconnection of human mental function into outer space. It is the simulation of our nerve-brain system which has a central processing unit, memory device, interface device, and signal transmitter. It does not make for power or speed beyond human beings like a machine. The only thing it can do is to process information. However, when it develops more and more in cooperation with brain science, and BMI (not Body Mass Index, but Brain-Machine Interface) technology will develop into BBI (Brain-Brain Interface), the nature of our very humanness will change fundamentally and inevitably. Moreover, the depth of fundamentality and the strength of inevitability of the change would surpass by far that of the change brought about by the system of confession and *penance−books* which changed Europeans into the Christians of the Middle Ages and that of the Copernican revolution which heralded the dawn of the modern age.

About nanotechnology, it is said that applications would include ① extremely fast computers, ② lighter, stronger materials (a strong enabling factor for space technology),

③ clean, efficient manufacturing processes of most products, ④ cheap solar energy production, and the ability to actively scrape excessive CO_2 out of the atmosphere, ⑤ desktop manufacturing devices with near-universal capabilities, and ⑥ tiny medical robots that could enter individual cells and perform molecular-level repair, eliminating most disease and ageing, and making it possible to upload human minds to computers (this would be a second possible route to human-level artificial intelligence).

Ⅳ. What should we do if we were creators of a world of exponential change?

A nanotechnology bill signed into law by President Bush in late 2003 requires the program to ensure "that ethical, legal, environmental, and other appropriate societal concerns, including the potential use of nanotechnology in enhancing human intelligence and in developing artificial intelligence which exceeds human capacity, are considered during the development of nanotechnology." Here, we should note the phrase "the potential use of nanotechnology in enhancing human intelligence." The technology to enhance human intelligence is not just biotechnology any more.

The synergistic combination of ① nanoscience and nanotechnology, ② biotechnology and biomedicine, including genetic engineering, ③ information technology, including advanced computing and communications, and ④ cognitive science, including cognitive neuroscience, known in short as "NBIC", and the combination called "converging science

and technologies," stems from a 2002 report sponsored by the US National Science Foundation (NSF)[1].

We have argued, so far, the technical and ethical problems of enhancement in the framework of bioethics and neuroethics separately. These separate technical and ethical arguments of enhancement, however, should not be able to grasp accurately the core of the problems which would be raised anew from the converging technologies. The viewpoint of enhancement as manipulation or as cultivation is in the framework of bioethics and is also too old to show the core of the problems. In the era of converging technology, manipulation necessarily should be cultivation, and cultivation necessarily should be manipulation.

The most important and urgent problem in the era of converging technology is to hammer out Converging Ethics at all costs. Converging technology may lead human beings to become "Humans made with Jewels" or "Ghosts in the Shell"[2] which are the ultimate form of a cybernetic organism or the network of pure spirits which are the ultimate form of us when converging technology will develop in the direction to ignore all the physical desires and feelings. We must go between "Humans made with Jewels" or "Ghosts in the Shell" and the network of pure spirits. So the guiding principle to hammer out Converging Ethics must be the question : what is a human being and what is human flourishing (eudaimonia)?

Notes

[1] MC Roco & WS Bainbridge ed., *Converging Technology for Improving Human Performance*, Arlington, VA : National Science Foundation/Department Commerce-sponsored report, 2002.

[2] Ghost in the Shell : a famous animation movie directed by Mamoru Osii which is called the origin of the movie "MATRIX."

References

Muroi, H., *Tetsugakumonndai Tositeno Tekunorojii*, 2000, KODANSHA