

## **Lecture : 31**

### **Course Title: Science, Technology and Society**

But should we be concerned by the so-called technological inevitability of mechanization? Mindful of the dangers of this idea of inevitability, we need to be alert to the implications of the convergence of two powerful forces, the market and mechanization, leading to the dominance of the culture of reduction and commodification. In this world of convergence, everything can be commodified, measured and calculated and can be put in the competitive market for sale, detached from its roots and purpose. Could it be that the forces of commodification and detachment are already shifting the role of the university from scholarship and learning environment, to a courseware production factory and ultimately to a “clearinghouse of best practices”.

Debates have also ensued in both communication studies and STS about the social consequences of media and information technologies. Although historians have noted that utopian and dystopian claims have been made about virtually every new communication device or information service to come along (Lubar, 1993), as Marvin (1988) points out, predictions about technologies are not always borne out by their actual consequences. In STS and communication studies, two main views of the consequences of media and information have emerged.

On the one hand, the technologies are thought to be “revolutionary” that is, they are a challenge to, and a radical departure from, existing media and information systems and improve new practices and institutional arrangements. In the case of newer technologies, advocates of the revolutionary perspective contend that, because the technologies are designed, built, organized, distributed, and used differently from conventional mass media and information systems, they have the potential to overturn the social relations, work patterns, cultural practices, and economic and political orders created and fostered by industrial-era communication and information technologies (Beniger, 1986; Castells, 2001; Harvey, 1989; Pool, 1983; Zuboff, 1988). This position has been characterized as the “discontinuity” perspective (Schement and Curtis, 1995; Schement and Leverouw, 1987; Shields and Samarajiva, 1993; Webster, 2002

#### **Computers in the workplace**

Computers can replace human labor and pose a threat to jobs. Bank tellers, auto workers, telephone operators, typists, graphic artists, security guards, and so on. Even professionals like medical doctors, lawyers, teachers, accountants and psychologists are facing a threat of replacement by computers that can perform their tasks quite efficiently. Thus within a short time computer generated unemployment will be a real problem. Even if a job be not eliminated it can be radically altered.”For example, airline pilots still seat at the controls of the commercial airplanes; but during much of a flight the pilot simply watches as computer flies the plane. Similarly those who prepare food in restaurants or

make products in factories may still have jobs ;but often they simply push buttons and watch as computerized devices actually perform the needed tasks.In this way it is possible for computers to cause “de-skilling “of workers ,turning them into passive observers and button pushers. Again ,however, the picture is not all bad because computers have also generated new jobs which require new sophisticated skills to perform-for example ,”computer assisted drafting “ and “keyhole “surgery.” 3<sup>1</sup>

Another workplace issue concerns health and safety.” As Forester and Morrison point out, when information technology is introduced into a workplace, it is important to consider likely impacts upon health and job satisfaction of workers who will use it. It is possible ,for example, that such workers will feel stressed trying to keep up with high speed computerized devices –or they may be injured by repeating the same physical movement over and over –or their health may be threatened by radiation emanating from computer monitors.” 4<sup>2</sup>

### **Impact on social relations**

The gap between rich and poor nations and between rich and poor citizens of a nation is already disturbingly wide. The dividing line between information rich and information poor is affecting education and employment opportunities, medical services and other areas of life. Besides, the growing uncertainty about exactly in what direction this particular technology will be employed poses threat to certain basic social norms as the dividing line between public and the private becomes blurred and almost non –existent. Wade L.Robison.draws our attention to a gloomy picture of IT and its implications in some unwanted directions.” “Who would have predicted a few short years ago, the growth and menace of viruses and the extensive use of the Internet for pornography and cyber stalking? Potential ethical problems relating to the introduction of new technologies do, therefore, appear to come to our attention and demand some sort of response quite quickly. Technologies are also inextricably woven through many areas of our social life.” 3<sup>3</sup>

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Besides computer ethics needs to address the growing tendency among internet users to replace the actual worlds by virtual world images and the latter laying the guideline for assessing the former rather than the other way round. While certain wrongs are sought to be belittled either by re defining private-public boundaries, concepts like hacking etc. derive new justifications. In relation to internet Communities and hacking, this leads to expressions of equality which are for equal as they deny real differences among people. “In addition, freedom of speech can be extremely problematic if it becomes a freedom for others to be harassed and oppressed. The freedom expound by some internet communities

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<sup>1</sup> Gopal Information Ethics, in Collste (ed.). *Ethics in the Age of Information Technology. Studies in Applied Ethics series, v. 7. Linköping: bpt-TRYCK AB, 2000. Pp.17-18*

<sup>2</sup> Ibid.

<sup>3</sup> Ibid. pp.57-58

can lead to forms of liberalism (Winme 1997). These communities can be vociferous in allowing their members freedom at all cost, but at the expense of the chance of others to speech. <sup>46</sup>(11)

As a result, this human dimension need safeguarding human dignity as the death of the ‘person’ is also the death of the free and autonomous centre of human agency. Some serious risks come from violation of our personal rights and dignity. It may lead to the death of a person.

Wade L. Robison observes:” Bt the way in which our privacy is being put at risk has changed because we are now voluntarily giving up information about ourselves—to our physicians ,for instance ---that is being gathered into data bases to be appropriated. This leads to a new understanding of the concept of privacy which reconciles that divergent set of values which marked our understanding of the old privacy torts .There is something appropriated ,nut it is our identity ,not our property. But taking our identity as one takes a piece of property is to deny our standing as autonomous moral agents.”<sup>5</sup>

The internet now is a tool to be used for adding a global dimension to something very personal and intimate; it is now an aid for washing dirty linens in public in a very super fast manner and a tool for blackmail and exploitation to an unimaginable extent. Robison goes on :” After I directed a conference on privacy and the internet, I received a call from a young woman who was extremely distraught. After breaking up with her boyfriend of five years, she began to receive messages by mail, by fax, by phone and by e-mail, at her office and a home, from strangers from all over the world. The messages ranged from ultra polite ,’You are an extremely beautiful woman ,and I hesitate to introduce myself ,but... ‘to the unrepeatable. Unfortunately, the latter far outnumbered the former. Her boyfriend had posted nude photographs of her on his website, along with information about how anyone interested might contact her. And so, around the world ,many saw the photographs and responded. The woman was calling me to see if I had any idea what recourse, if any, she might have. That she called me showed how desperate she had become.”<sup>6</sup> He comments:” This case illustrates rather nicely<sup>7</sup> the typical pathology of an invasion of privacy, magnified by its occurring in such a public setting as the World Wide Web.

At a time when images can be stolen and re-used by others, people are also taking on the identity of others for purposes of their own. What seems to be happening here is that our

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<sup>4</sup> Ibid. pp.11-12

<sup>5</sup> “Privacy and the Appropriation of identity” in Gobal Information Ethics, **in Collste (ed.). *Ethics in the Age of Information Technology*. Studies in Applied Ethics series, v. 7. Linköping: bpt-TRYCK AB, 2000. ... p.42**<sup>5</sup>

<sup>6</sup> Ibid. pp. 42-43

sense of ourselves as individuals is being exhausted by the notion that we are a set of data. To the extent that we become digitalized we are identifiable only as a set of data that is open for public reading and for all sorts of vulnerability that is associated with it.

### **Biotechnology – Implications for the Meanings of Life and Life Processes, Application in Agriculture, Healthcare and Environment**

Biotech and defines biotechnology as the application of science and engineering in the use of living organisms, such as plants, animals and micro-organisms, to develop and improve products and quality of life. Federal government research shows that biotechnology may be the world's next generation of transformative technologies, potentially rivaling information and communications technology in potential scope and economic impact. Over the past decade, the area of ranks high with the federal government as an important economic sector and a key enabling technology.

In the past few years, the expansion of genomic knowledge and technologies has brought many disciplines closer to STS. For example, medical anthropologists, sociologists, and bioethicists have been drawn to STS perspectives and concepts to further their own research interests. One theme they examines that of the “dynamics of expectation,” through which hope, promises, and hype help construct “the future” as a resource to shape innovation and sociotechnical change in the present. In other words, such expectations are per formative in the way they help mobilize the future into the present and become embedded in post genomic biotechnologies.

An STS perspective casts a skeptical eye on revolutionary claims made for such developments and reflects on how social science itself participates in the making of sociotechnical futures. As they say, there is still a very large gap between scientific claims about dramatic changes in biomedicine and what actually happens in clinical practice. Finally, they argue that empirically grounded research that is aware of its political implications is crucial in this area, where issues of governance and regulation are holly contested. Future research will hopefully provide a better understanding of why expectations about genomics have been realized in some areas but not others. However, there are increasing doubts about the extent to which many of these supposedly “revolutionary” technical and social changes are actually happening in practice (Nightingale & Martin, 2004),the matter is more complicated by the fact that there has been relatively little progress in translating scientific advances into the clinic, this lack of progress has important implications for the study of genomics and raises difficult questions for the social sciences.

## **Emerging Technologies**

This gap between the potential and the actual is worth examining specially in relation to genetic technology and its implications in human hopes, aspiration, transformations etc. The idea that new genomic knowledge is in the process of transforming biomedicine is now widely held and becoming increasingly taken for granted. The transformative power of genomics is a dominant view in debates around the biomedical science and plays an important role in informing and shaping social science research agendas. For example, the United Kingdom's social science funding council, the ESRC, is funding three genomics centers the justification of which is explicitly transformative: "Recent leaps in the scientific study of genes and our growing ability to manipulate the genomes of plants, animals and humans far out strips our understanding of the social and economic consequences of genomics" (Anon., 2005; see also Harvey et al., 2002).

Science and technology are advancing so fast that society has difficulties in keeping pace with the complexities that new developments bring. Human reproductive techniques have progressed rapidly in the past three decades, and other new techniques such as cloning have been introduced (Kirkman, 2001; Roberts, 1998; Williamson, 1999b). Ideology is clearly influencing the direction of research and legislation on human cloning, which may present one of the greatest existential challenges to the meaning of creation. Human cloning represents asexual reproduction, and the critics of human cloning often assume that the result of cloning is not a unique individual. This has led to condemnations of human cloning from the politicians' side and to fear, ignorance, and "clonophobia" from the public's side (Pence, 1998).

## **Biotechnology – Implications for the Meanings of Life and Life Processes: A philosophical assessment**

In between these uncertainties and fears and apprehensions along with hopes and aspirations, standing on the threshold of the biological century, now we find that more than physics or mathematics, it is now biology that has turned aggressively useful, that bio-thinking will shape our vision of ourselves in the years to come. If all our distinctive human traits, our sensitivity and emotions, our altruism and compassion, is written in our genes, if these are identified as our weak points that need to be corrected, human designers will replace the sport of nature with models of human fancy. Genetic engineering will provide genetic therapy provided these are not culture laden terms but are similar to the problems in mathematics to be solved in a matter of fact way by the disengaged and detached man of reason. Designing humans as an artificial and a mechanical process assures perfection since the humans so designed are no more blind victims of genetic lottery. Combining sperm and egg in a dish test tube babies are made, or a genetic duplicate is made cloning human beings. In this transition from biology to bio and gene technology, many complicated questions will remain unanswered: questions about human manipulation and personal identity, the question of surrogate mothers and pre-natal embryo transfer, about intolerance for diversity and for imperfection, about

obsessions for becoming God like and perfect, about attaining knowledge that is absolutely certain and exact.