Library Hi Tech

From computer ethics to the ethics of global ICT society
Krystyna Górniak-Kocikowska

Article information:

Users who downloaded this article also downloaded:

For Authors

If you would like to write for this, or any other Emerald publication, then please use our Emerald for
Authors service information about how to choose which publication to write for and submission guidelines
are available for all. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com

Emerald is a global publisher linking research and practice to the benefit of society. The company
manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as
providing an extensive range of online products and additional customer resources and services.

Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee
on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive
preservation.

From computer ethics to the ethics of global ICT society

Krystyna Górniak-Kocikowska

Philosophy Department, Southern Connecticut State University, New Haven, Connecticut, USA

Abstract

Purpose – The purpose of this paper is to address the place of computer/ICT ethics in the global ICT society driven by knowledge economy.

Design/methodology/approach – The paper focuses on three main issues: the evolution of the name of the leading technology of our times and, accordingly, the evolution of the name of the society in which this technology plays the leading role; some ethical dilemmas that the global ICT society will need to solve; global ICT ethics and the knowledge economy.

Findings – The paper suggests that global ICT ethics should be an ethics focusing on the dynamics of the relationship between the weak and the strong, the rich and the poor, the healthy and the sick worldwide – and it should explore the ethical problems from the point of view of both parties involved. That way, Global ICT Ethics can have a truly communicative character, and it can become an ethics that will be both a co-creator and also a result of a democratic processes.

Originality/value – This paper should interest anyone concerned with ICT and globalization.

Keywords Ethics, Communication technologies, Globalization

Paper type Conceptual paper

Introduction

Ten years ago, at the first ETHICOMP conference in Leicester, UK, I presented a paper "The computer revolution and the problem of global ethics" (Górniak-Kocikowska, 1996, 2004 (shortened version)). I argued then that the computer revolution has a global character and that computer ethics has to be therefore a global ethics. Throughout history, different societies created their own ethical systems by which the members of that particular society were expected to live. However, today while using computer technology, especially computer networks, an individual leaves behind the "local" point of reference and applies a perspective of the creators of this technology. That often means also the suspension or abandonment of the ethical rules of one's own society/community in favor of those by which the network users around the globe are expected to act. A global ethics of the computer era emerges.

I am happy that I was not wrong then. But what about now? Where are we, and where are we headed? I would like to address some of the many problems related to the ethics of the new, global society; a society we now often call the ICT Society.

I will focus first on the issue of the significance of the evolution of the name of the leading technology of our times, from computer technology to ICT; and, accordingly, the evolution of the name of the society in which this technology plays the leading role. The problem of the difference between knowledge society and knowledge economy will be brought up as well.

Next, I will present some ethical dilemmas that the Global ICT Society will need to solve if its goal for the future is the flourishing of both humankind and individual humans. I will emphasize the importance of communication for the successful completion of the tasks computer/ICT ethics will need to undertake.

Finally, I will present some thoughts on the relation between global ICT ethics and knowledge economy. I consider it useful to examine the meaning and the significance of the difference between the terms: knowledge economy and knowledge society. I will present some thoughts about the difference between Global ICT Society as a knowledge society, and Global ICT Society as a society based on knowledge economy. This will allow me to address selected ethical issues pertinent to each of these two models of society. These issues include freedom, intellectual property, and social justice. I will also present my proposal for the role of ICT ethics in the knowledge society driven by knowledge economy.

The conclusion of the paper is devoted to the question: What ethical values are of greatest importance for the Global ICT Society driven by knowledge economy?

What's in the name?

First, I would like to focus on the significance of the changes in the names given to the technology we called at different times, among others, "computer technology", "digital technology", "information technology", and "information and communication technology".

This, often confusing, *l'embarras des richesses* of names documents quite well the evolution of social perception of the computer-based technology that took place over the years.

Moreover, the abundance of names we have for the technology that continues to revolutionize our lives reflects the confusion we all experience to some degree when trying to understand the world we live in. It seems that there is little doubt that "our era" is the era of that particular technology; but what are the main characteristics of the dominant technology itself? There seems to be some disagreement here, and again it is reflected in the names: the "computer era", the "digital era", the "IT era", and now the "ICT era" – to mention just a few most popular. We too name "our" society accordingly; if we live in a "computer era" we live in a "computer-based society"; if ours is the "ICT era" we are members of the "ICT society", and so on. Of course, chances are that future generations will give our times a name altogether different from any of those we consider presently.

There is no doubt that this new era in which we live started with the computer revolution. The invention of computers provided the foundation of all subsequent technologies, including ICT, which keep changing our world and our lives. However, the aforementioned evolution of names reflects not only the changes computers brought into our lives. It also reflects the changes in the perception of a computer: from "number cruncher" to universal tool whose most prominent feature is its "logical malleability" (Moor, 1985); from a purely mathematical machine to the tool of real-time verbal and visual global communication. One needs to remember, however, that computers did not lose any of their initial features in the process of changes they underwent. They are still mathematical machines in that sense that mathematics and mathematics-based physics constitute the foundation of this technology. But because

computers today became so much more, it is often all-too-easy to forget about their mathematical core.

One cannot help but notice that the terms used to describe the defining characteristics of our leading technology became progressively more inclusive. It seems that the more we are aware of how many areas of our lives are affected, or even controlled, by this technology, the more general, more inclusive its name, so that it possibly refers to all areas of this technology's influence. Moreover, the increasing inclusiveness of the name given to the leading technology of our times indicates one other significant change in both the technology in question as well as in our thinking about it. Generally, and "by habit" a distinction is made between "hard" (e.g. mathematics) and "soft" (e.g. social sciences) type of knowledge. Many of those who opt for the name "Information and Communication Technology" do so not only because it reflects the wide range of areas in which this technology plays a vital role; they choose this name also because it indicates the bridging of the "hard" and "soft" knowledge.

Studies from all over the world show that when the statistics include data about gender, the "hard"-"soft" line reflects usually also the gender division within ICT. The term "computer science" understood in its original sense, i.e. as "informatics" – in many countries informatics is regarded as a branch of mathematics – is still definitely an almost exclusive domain of men both in social perception and in actuality. On the other hand, the name ICT, mainly due to the "communication" component, not only testifies to the change in the character of the technology addressed by James Moor, but it also indicates that women too may claim this technology for their own. For this reason one can make a statement that for the first time since the Industrial Revolution there is (at least in theory) a truly universal technology: The information and communication technology. Last but not least, one takes it now almost for granted that ICT is global. Therefore, the society of the ICT era can be rightly called the Global ICT Society – a global society supported by a universal technology.

This new, global society is also often called the knowledge society, and its economy – the knowledge economy. The knowledge society is also called sometimes the "knowledge and information society", and the knowledge economy is known otherwise as "knowledge-driven economy". Knowledge society will be understood here as "a society endowed with the ability and capacity to generate and capture new knowledge and to access, absorb and use effectively information and ICTs". (D'Orville, 2000) Knowledge economy is understood as one "in which the generation and exploitation of knowledge play the predominant part in the creation of wealth" (What Is . . . , 2005).

Once knowledge became the economic backbone of the global ICT society, the importance of ICT for our lives has increased even more considering the importance of ICT in the production, transfer, and storage of knowledge.

At times, "knowledge society" and "knowledge economy" seem to be almost synonymous, but they are not. It matters whether we use the term "knowledge society" or "knowledge economy", even though sometimes it might be difficult to notice the difference between these two terms because at least since the time of Adam Smith and later Karl Marx there is a tendency to identify a society with its economy or – more precisely – with the society's leading mode of production of wealth. In the earlier part

of this paper I followed this pattern when exploring the subject of names. Here, some additional clarification regarding names is needed because the existing difference between "knowledge economy" and "knowledge society" affects moral philosophy.

The roots of this difference go back to what in Ancient Greece was perceived as the difference between *episteme* and *techne*; roughly the equivalent of theoretical and practical knowledge, or – as Joel Mokyr calls it – the propositional knowledge and the prescriptive knowledge (Mokyr, 2002, p. 4). One could call the propositional knowledge the "what" knowledge, and the prescriptive knowledge the "how" knowledge. It seems that scholars who are more interested in the theoretical, propositional knowledge are inclined to favor the idea of the knowledge society, whereas those involved with the prescriptive knowledge, favor the concept of knowledge economy. With regard to ethics it seems that there is a much greater interest in moral issues regarding knowledge society than it is in relation to knowledge economy; which is a quite understandable situation, albeit hardly a desirable one. In any case, it seems to be worth while to ask whether it would be possible to build a bridge between knowledge society and knowledge economy; and if so, what kind of ethical problems could be solved that way. ICT could be helpful here as well, since ICT, the universal technology, is used for the advancement of both propositional and prescriptive knowledge. Moreover, the presence of the communication component in ICT blurs somewhat the line between technology understood as "the manipulation of nature for human material gain" (Mokyr, 2002, p. 3) and the human sciences. There seems to be, therefore, a hope that the new global society in which ICT plays the pivotal role can become a knowledge society based on knowledge economy.

Ideally, the knowledge economy would be a major contributor to the process of the creation of the global society in which knowledge would serve the goal of creating conditions and mechanisms which would allow all humans to flourish as humans, guided by a universal ethics.

ICT ethics – the ethics of the global ICT society

Let me now share some thoughts on the ethics of the Global ICT Society driven by knowledge economy. Obviously technology, as well as knowledge, can be used for ethical or unethical purposes. "Athena's gifts were many: she gave King Cecrops the olive tree, but she also gave the city of Troy the wooden horse that led to its destruction" (Mokyr, 2002, p. 297). In the case of ICT the importance of this ambivalence was acknowledged very early on, even before the power of the new technology could be truly appreciated. Already the computer technology prompted one of its co-creators, Norbert Wiener, to pay attention to the ethical problems this technology might cause. At that time, Wiener was one of a handful of scholars who could see the scientific and technological importance of informatics (including, of course, his brainchild, cybernetics). He was also exceptionally interested in the ethical aspect of science, his firm position being that science should serve the wellbeing of humankind. Wiener was acutely aware of the dual potential (to be used for the good or for evil purposes) of the new technology. A half century ago he issued warnings about the dark side of this technology and thus became, according to Terrell Bynum (2005), the founder of information ethics.

Decades later, Walter Maner argued that ethical problems related to computer technology merit a whole new field of study which he named "computer ethics", and perceived it mainly as a form of professional ethics. In April, 1995, the first international ETHICOMP conference on computer ethics took place in Leicester, England, marking another milestone in the development of this field of research. Today, scores of scholars examine ethical issues caused by and/or related to ICT. In step with the changes of names mentioned earlier in this paper, computer ethics evolved into information ethics, to be replaced by ICT-ethics; and it definitely is not just another professional ethics anymore, if it ever was such. ICT is now present pretty much everywhere, and has an impact on everyone's life, not being dealt with by any single profession exclusively. In the words of Thomas Riley:

> Some form of information technology drives nearly all facets of life. This is not just isolated to developed countries, but is evident in most of the developing countries, though in much smaller numbers (Riley, 2003).

No wonder there are many important ethical issues related to this omnipresent technology and that ICT ethics is rapidly gaining momentum.

Another phenomenon that needs to be addressed with regard to further development of global ICT ethics is the shift in the interpretation of the definition of humans as social animals.

Throughout the history of western thought, there occurred several major changes regarding this concept. When Aristotle brought it up while speaking of humans as "political animals", or when the Stoics, like Seneca, called humans "social animals" they did so mainly to emphasize that it is the presence of "the animal in us" that makes us social. Aristotle's definition of a human being placed humans within the category of animals. Living in society, or as Nietzsche much later derogatively called it, in a herd, has been regarded as our natural condition. A human being was regarded as a member of a society first (usually with a fixed place and role in it), and a unique individual second.

Yet with time, however, and especially since Descartes, a reversal of this order gradually took place. It became almost a paragon of humanness to suppress this "herd instinct"; instead, one was supposed to regard oneself as a (rational) individual apart from society and ideally above it. Consequently, the problem of the individual self, and of one's own identity became of great interest to scholars and ordinary people alike. Later, when Karl Marx claimed that humans are social beings, he and his followers treated this statement mostly as a point in their argument for the necessity to organize workers and to make them perceive themselves as social beings first (by nature and by necessity) and individuals second. They argued that because we are indeed rational beings we should opt – in our own individual best interest – for the social/communal form of existence and perceive it as superior to the solitary one.

When philosophers, sociologists, and other scholars from George Herbert Mead and John Dewey through Peter Berger to Alasdair MacIntyre examined this problem, they concluded that it is indeed the social character of human nature that makes us truly human – if we define humans as rational beings. In the words of G.H. Mead, "minds and selves are essentially social products, products or phenomena of the social side of

human experience" (Mead, 1934, p. 1). According to MacIntyre, the acknowledgement and cultivation of the social character of human nature is necessary for humans to flourish as humans (MacIntyre, 2002, Ch. 7). He further writes: "For we cannot have a practically adequate understanding of our own good, of our own flourishing, apart from and independently of the flourishing of that whole set of social relationships in which we have found our place" (MacIntyre, 2002, pp. 107-108).

As a result, we seem to have arrived at some sort of synthesis because presently neither MacIntyre nor any other serious scholar who accepts the definition of humans as "social animals" would negate the individuality of each human being. To be fully human today means to flourish as an individual within human society. This may look at first glance as the old Platonic-Aristotelian organic concept of the relation between the individual and society, but it is not. Unfortunately, the constrains of this paper do not permit me to follow this subject further.

In addition, some researchers, for instance Sherry Turkle, seem to be quite sure that they have collected enough empirical data to claim that the very sense of self and identity undergoes quite a dramatic change in the era of the internet – to the point that the very concept of one stable identity of a human individual becomes questionable. Instead, there emerges an idea of a multiple, changing, frequently "constructed" and "reconstructed" identity; especially among the MUD (Multi-User Dungeons or Domains) players. (Turkle, 1995, pp .11, 12) The identity of an individual turns out to be both dynamic and socially dependent.

The social side of human existence includes communication. Therefore, if one investigates the problems regarding human beings, in particular ethical problems, and perceives humans as social beings, one has to perceive humans necessarily as communicative beings as well. For this reason, i.e. because it contains the "communication component", ICT can be justifiably seen as the most human technology there was in a very long time; or maybe even the most human technology ever. Also for this reason, the social impact of ICT can be – will be – larger and deeper than the social impact of most other technologies have been.

As already mentioned, ICT, like any other technology, can be used for beneficial or harmful purposes. Of course even in a global communicative society the notion of what is beneficial or harmful depends for the most part on who makes the assessment. The same thing can be beneficial to one individual and harmful to other. This is also true about groups of people, small and large. Unfortunately, all attempts to establish ethical rules that would benefit everyone failed as yet. This includes Kant's categorical imperative and the hedonic calculus of the utilitarians, thus far the most successful attempts at creating a universal ethics. Their failure resulted mainly from one inherent flaw. What these philosophers thought of as universal moral values, as the Good every human being would readily aspire to, were in reality the values of European middle-class post-scientific-revolution men; values these men would like to impose on (or, ideally, to have them being willingly accepted by) the rest of humankind. In this, both Kant and Bentham were quite typical of Western philosophers, almost all of whom until recently represented a very similar position, equating the ethical values created within the Western civilization with universal moral values. This is obviously not a position from which a universal ethics of the Global ICT Society should be

created, unless one does not accept freedom, equity, and democracy (democracy understood, among others, as the lack of tyranny, oppression, and exploitation) as the necessary characteristics of that society.

Interestingly enough, it seems that the progress in attempting to create that kind of universal ethics is most evident in the exploration of the boundaries of the very concept of humanness, through the research of the intelligence of non-human animals (MacIntyre, 2002) and through the research of AI.

Global ICT ethics and knowledge economy

It is obvious that knowledge becomes rapidly one of the most precious commodities in the global ICT society. However, knowledge has not gained this star status within the economy overnight. Rather, it was a slow and inconspicuous ascent.

Although already Francis Bacon had claimed that "knowledge itself is power;" and although the economists of the time of the industrial revolution were well aware of knowledge as an economic factor, it was still regarded as a marginal factor. "For the last 200 years, neo-classical economics has recognized only two factors of production: labor and capital" (Riley, 2003). It was only in the late twentieth century that the commoditization of knowledge became fully and openly recognized. In the words of Luc Soete:

> Since the early 1980s, the economic profession has started to recognize the fact that knowledge accumulation can to a large extent be analysed like the accumulation of any other capital good. That one can apply economic principles to the "production" and "exchange" of knowledge; that it is intrinsically endogenous to the economic and social system [. . .] (Soete, 2002, p. 36).

This is a quite remarkable change in our attitude toward knowledge. Not that people in the past were completely unaware of the market value of knowledge. Even though knowledge has not been the economic driving power of the earlier western societies, there were always people who were making money by selling knowledge. Yet, they did not operate in the center of the economy; even more importantly, the number of these people was relatively very small. One needs to remember that as late as the beginning of the twentieth century farmers were still by far the largest segment of productive population even in the highest developed countries; whereas today "knowledge workers" are becoming rapidly "the largest single group (though by no means a majority) in the work force and population of post-industrial society and in every developed country" (Drucker, 1994).

Despite the relatively insignificant economic position of knowledge in the past, there has been a struggle over the ethics of the marketing of knowledge throughout the history of western civilization ever since the controversy between Socrates and the Sophists. All that time – in theory, at least – the Socrates-Plato position, namely, that the production and distribution of knowledge should not be "polluted" with a market attitude seem to have been victorious in the West (other civilizations generally supported similar views). The world of ideas was supposed to be a common good, free for anyone bright enough, determined enough, brave enough, and patient enough to seek it. That was supposed to be true even for some very lucky women and slaves.

This kind of freedom came at a high price; more often than not one had to be a member of the economically privileged leisure class in order to participate in the free exchange of ideas, to cultivate reason, and to enjoy that kind of freedom. To be sure, there were exceptions made for those without money and/or aristocratic titles (e.g. Jean-Jacques Rousseau). During the eighteenth and early nineteenth centuries when the spirit of the scientific revolution was still very high, freedom of thought and free access to ideas so hard fought for during the scientific revolution, continued to be highly treasured. Yet the possession of knowledge and the access to it remained a privilege. I think that it is noteworthy that the promise of free education for all belonged to the strongest and most successful propaganda tools of the socialist and the communist movements. Responding positively to these promises was not only a matter of the thirst for knowledge and the desire to be taken care of at the time of need; it was the desire for equal treatment, a desire to be acknowledged as a fully human being. No wonder, therefore, that one of the greatest ethical concerns now turns out to be the problem of the moral right to the ownership and trading of knowledge. This concern is most commonly expressed by debating two issues: the intellectual ownership, and the economic inequalities, especially between countries and continents.

The latter is a classic social justice issue. It is recognized even by some of the scholars who write about knowledge economy and who generally seem not to be interested much in ethics. The core of the problem in this case is the inequality of distribution of ICT throughout the global society. In terms of social justice theories this is a continuation of the old conflict between egalitarians and libertarians. The emergence of knowledge economy seems to have resolved this controversy with the victory clearly won, at least presently, by the "Sophist-camp" – see the old debate between Socrates and the Sophists.

> Information and knowledge are replacing capital and energy as the primary wealth-creating assets, just as the latter two replaced land and labour 200 years ago. In addition, technological developments in the 20th century have transformed the majority of wealth-creating work from physically-based to "knowledge based" (Riley, 2003).

In the knowledge economy, free access to knowledge would be possible – in the case of extreme development of market liberalism – only if it were in some way economically advantageous to those who own it.

There are still several other unsolved problems like, e.g. the problem of freedom – freedom of information, freedom of speech, even freedom of thought. This is a problem closely related to the issue of intellectual property which has been for some time raised by scholars in the area of computer/ICT ethics. On the surface, the guarantees for freedom as worked out within the democratic societies organized in nation-states with capitalist free market economy remain undisturbed. But the very nature of knowledge economy has to put these freedoms under scrutiny and make them questionable at best. The commoditization of knowledge, when it becomes total, will also mean the commoditization of thought. A commodity is by definition not there to be shared freely – it is there to be traded for a profit.

Another problem closely related to the issue of freedom is the question of trust – it is doubtlessly one of the most difficult and most important ethical problems generated by the very structure of human nature. The commoditization of knowledge will

inevitably affect the concept of trust and the way society will solve this problem. This in turn will have an impact on interpersonal relationships such as friendship. Again, the confines of this paper do not permit further elaboration.

What ethical values are of greatest importance for the Global ICT Society driven by "knowledge economy" if the primary ethical concern were to be "the human use of human beings" the way Norbert Wiener saw it? Keeping in mind Alasdair MacIntyre's reflection on some of the basic flaws in the most influential theories within the Western moral philosophy of the past, it seems to me that one of the fundamental moral rules should be the flourishing (in MacIntyre's sense) of every human individual. MacIntyre writes that "for a human being to flourish unqualifiedly qua human being, it is her or his life as a whole that must flourish [...]" (MacIntyre, 2002, p. 113).

This concept of flourishing does not contradict Kant's stipulation that a human should always be the goal, never a mere means, or Wiener's appeal for the human use of human beings; but it adds a new dimension to them. The human flourishing, perceived as the fullest development of the human potential towards the Good can actually stop being a utopia, and it can become a realistic goal for the global society. The concept of human flourishing does not need to be in conflict with knowledge economy. Even if "useful knowledge" (Mokyr, 2002) is the backbone of knowledge economy, other types of knowledge and other human activities that contribute to human flourishing will also play a vital role in knowledge economy if they will contribute to the greater productivity of the minds engaged in the production, trade, and application of knowledge. With the assistance of ICT, humans can accomplish this. What is now needed most is for knowledge economy to gear up for the pursuit of this goal. In the global society in which knowledge has the leading economic role and value, every human mind should be regarded as a potential source of economic growth. Therefore, every human being should have the opportunity and the conditions to develop his/her mind's potential to the fullest. The task for moral philosophers would be to see to it that the goal towards which humans will want to develop their minds will be the wellbeing of the global society in which every individual could live in conditions of freedom, equity, and democracy.

Conclusion

ICT can be used as a very effective tool for supporting freedom and democracy worldwide. But, true to its dual character, there is also a high potential in ICT to become an efficient and useful tool for autocracy or even totalitarianism. (Górniak-Kocikowska, 2001a, b) It also can be used by terrorists, and it is. As I mentioned earlier, the technology can serve either to foster the well-being of humankind, and to make it flourish and reach a higher level of development; or it can be used to subdue, enslave, and de-humanize humans physically, intellectually, and emotionally. The danger of ICT being used to harm humans is real, and one should be aware of it as well as one should be aware of the beneficial side of this technology. ICT ethics has to pay vigilant attention to the possibilities of harmful use of ICT. This is needed to maintain a healthy balance in this technology's assessment – if for no other reason. Most of the time ICT is too closely related to the market forces, and its developers are often too interested in the economic success of their inventions to be willing or/and able to examine and to present to the public the dark side of this

technology. I do not believe that in the knowledge economy one can expect the majority of researchers and inventors working in the area of ICT to follow in the footsteps of Norbert Wiener with regard to ethical concerns. It would be a utopian expectation. Instead, global ICT ethics, resulting from collaborative work of scholars active globally, should take on themselves the task of examining the global impact of ICT, especially in terms of the possible harm this technology could cause. ICT ethics should then supply the arguments supporting decisions made in order to prevent the use of ICT in harmful ways; especially regarding people who are on the peripheries of power centers, and who are too powerless and vulnerable to effectively protect themselves from such harm.

Unfortunately, many ethicists, especially those following the western philosophical tradition, may have quite significant difficulties in applying this attitude. The roots of the problem seem to lay mainly in the tradition of western moral philosophy. As pointed out by one of the most prominent contemporary American ethicists, Alasdair MacIntyre, in the history of Western moral philosophy "from Plato to [George Edward] Moore and since" very little attention has been paid to the problem of "human vulnerability and affliction and to the connections between them and our dependence on others" (MacIntyre, 2002, p. 1). MacIntyre proposes to amend this situation, and I would like to second this. I am strongly convinced that one of the fundamental tasks of computer ethics/ICT ethics is to be a watch dog, guarding the global society from becoming a society of slaves to the few who – using ICT – can pull the strings of power to their own exclusive advantage. To that purpose, Global ICT Ethics should be an ethics focusing on the dynamics of the relationship between the weak and the strong, the rich and the poor, the healthy and the sick worldwide – and it should explore the ethical problems from the point of view of both parties involved. That way, global ICT ethics can have a truly communicative character, and it can become an ethics that will be both a co-creator and also a result of a democratic processes.

References

Bynum, T.W. (2005), "Norbert Wiener and the rise of information ethics", in Van den Hoven, J. and Weckert, J. (Eds), *Moral Philosophy and Information Technology*, Cambridge University Press, Cambridge.

D'Orville, H. (2000), "Towards the global knowledge and information society – the challenges for development cooperation", available at: www.undp.org/info21/public/pb-challenge.html (accessed 15 March 2005).

Drucker, P.F. (1994), "Knowledge work and knowledge society: the social transformations of the century", online at www.ksg.harvard.edu/ifactory/ksgpress/www/ksgnews/transcripts/drucklec.htm (accessed 6 April 2005).

Górniak-Kocikowska, K. (1996), "The computer revolution and the problem of global ethics", *Science and Engineering Ethics*, Vol. 2 No. 2, pp. 177-90.

Górniak-Kocikowska, K. (2001a), "Computer technology – an invitation to neo-totalitarianism", *APA Newsletters*, Vol. 00 No. 2, pp. 62-6.

Górniak-Kocikowska, K. (2001b), "Revolution and library", *Library Trends*, Vol. 49 No. 3, pp. 391-540.

Górniak-Kocikowska, K. (2004), "The computer revolution and global ethics", in Bynum, T.W. and Rogerson, S. (Eds), *Computer Ethics and Professional Responsibility*, Blackwell Publishing, Oxford, pp. 319-26.

MacIntyre, A. (2002), *Dependent Rational Animals: Why Human Beings Need the Virtues*, Open Court, Lasalle, IL.

Mead, G.H. (1934), *Mind, Self, & Society: From the Standpoint of a Social Behaviorist*, University of Chicago Press, Chicago, IL.

Mokyr, J. (2002), *The Gifts of Athena: Historical Origins of the Knowledge Economy*, Princeton University Press, Princeton, NJ.

Moor, J.H. (1985), "What is computer ethics?", *Metaphilosophy*, Vol. 16 No. 4, pp. 226-75.

Riley, T. (2003), "An overview of the knowledge economy", online at www.egovmonitor.com/features/riley07.html (accessed 1 June 2005).

Soete, L. (2002), "The challenges and the potential of the knowledge-based economy in a globalised world", in Rodrigues, M.J. (Ed.), *The New Knowledge Economy in Europe: A Strategy For International Competitiveness And Social Cohesion*, Edward Elgar, Aldershot.

Turkle, S. (1995), *Life on the Screen: Identity in the Age of the Internet*, Simon & Schuster, New York, NY.

"What Is knowledge economy?" available at: www.med.govt.nz/pbt/infotech/knowledge_economy/knowledge_economy-04.html (accessed 11 June 2005).

Corresponding author
Krystyna Górniak-Kocikowska can be contacted at: Gorniakk1@southernct.edu

This article has been cited by:

1. Eleni Metaxa, Miltiadis Sarigiannidis, Dimitris Folinas. 2014. Legal Issues of the French Law on Creation and Internet (Hadopi 1 and 2). *International Journal of Technoethics* **3**:3, 21-36. [CrossRef]

2. Bernd Carsten Stahl, Grace Eden, Marina Jirotka, Mark Coeckelbergh. 2014. From computer ethics to responsible research and innovation in ICT. *Information & Management* **51**, 810-818. [CrossRef]

3. Kamel Fantazy, Alaa-Aldin Abdul Rahim A. Al Athmay. 2014. Ethics and religion in higher education. *International Journal of Commerce and Management* **24**:2, 180-196. [Abstract] [Full Text] [PDF]

4. Samer Alhawari, Amine Nehari Talet. 2013. Ethical Decision Making with Information Systems Students. *International Journal of Cyber Ethics in Education* **1**:2, 41-53. [CrossRef]

5. Rakesh Belwal, Khalid Al-Zoubi. 2008. Public centric e-governance in Jordan. *Journal of Information, Communication and Ethics in Society* **6**:4, 317-333. [Abstract] [Full Text] [PDF]

6. Krystyna Górniak-Kocikowska. 2008. ICT and the tension between old and new: the human factor. *Journal of Information, Communication and Ethics in Society* **6**:1, 4-27. [Abstract] [Full Text] [PDF]

7. Nuno Sotero Alves da Silva, Isabel Maria Surdinho Borges Alvarez, Simon RogersonGlocality, Diversity and Ethics of Distributed Knowledge in Higher Education 131-159. [CrossRef]

8. Maslin Masrom, Zuraini IsmailICT Ethical Issues, Globalization and Knowledge Society 78-88. [CrossRef]

9. Samer Alhawari, Amine Nehari TaletEthical Decision Making with Information Systems Students 70-83. [CrossRef]