Future Impact of New Communication Technologies: A Bibliographic Analysis

By Levi Obijiofor

Abstract

In this bibiliographic review, Obijiofor explores the impact or consequences of new technologies such as computers, telecommunications, satellites, home video systems, interactive multi media systems on developed and developing countries. It sheds light on two schools of thought; that the new technologies would provide urgent solutions to present and future problems and can also promote pornography in the internet with little control by the gate keepers. The paper explores the following areas of concern: uses of new technologies, legalistic interpretations of freedom of expression, gender and new communication technologies, the information superhighway and public expectations, among others. Finally the paper concludes that before government and policy makers rush into a final decision, the guiding question should be, does the common man or woman in the West or in Africa buffeted by hunger, understand the issues involved?

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Impact Possible de la Nouvelle Technologie de Communication: Une Analyse Bibliographique

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Résumé

L'auteur de cet article fait une analyse critique de l'influence de la technologie moderne (ordinateur, télécommunications, systèmes de video satellites domestiques, systèmes interactifs de multi média), aussi bien dans les pays sous développés que dans les pays Occidentaux. Il s'efforce d'éclaircir deux courants de pensée. L'un étant que cette technologie fournirait des solutions aux problèmes actuels et à venir. Le deuxième soutient que celle-ci facilite l'expansion de la pornographie en Internet, avec peu ou pas de contrôle. Cet auteur fait également une étude détaillée de l'interprétation légale de la liberté d'expression, de la question du genre, de la Super Voie de Communication et les attentes du public (entre autres), dans le contexte de cette nouvelle technologie. A son avis, qu'il s'agisse de l'Occident ou de l'Afrique, la question fondamentale pour les gouvernements et les planificateurs est la même. Est-ce que la masse affamée de la population populaire comprend les aspects sociaux impliqués?

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Introduction

The emergence of new communication technologies heralds a new era in communication of all kinds. But uncertainty and speculation still surround their potentials and the nature of their impact. Will the new technologies hold positive consequences for human society? Arguments abound as to whether the new technologies such as computers, telecommunications, satellites, home video systems, interactive multimedia systems, the Internet and others can shape the future of developed and developing countries. Advocates are hopeful that the new technologies would provide urgent solutions to present and future problems. Pessimists disagree, pointing to the dangers and pitfalls of the new communication technologies, such as the marketing of pornographic products on the Internet, the perpetration of organised, corporate crimes and the likelihood that they may widen the existing gap between the information rich and information poor. Nevertheless, developing countries are being urged to acquire the new information and communication technologies to kickstart their ailing economies.

This bibliographic analysis examines a number of views and perspectives concerning the new communication technologies. In doing this, particular attention has been given to the various debates on the subject as they relate to:

- uses of the new communication technologies in society;
- individual rights to communicate with the new technologies versus government plans to regulate the nature of information in the cyberspace;
- impact of the new technologies on national development;
- questions of access;
- fears about their impact on the nature of work;
- gender and the new communication technologies;
- the information superhighway and public expectations;
- concerns about equity, affordability and privacy;
- worries about impact on national sovereignty, language and culture;

• virtual reality and future challenges.

While these are, by no means, an exhaustive listing of the wide range of issues thrown up by the emergence of new communication technologies, they do represent an overview of the major issues.

Uses of the new technologies

Communication scholar Tehranian (1990) argues that the new technologies, like the old, should be viewed neither as technologies of freedom nor of tyranny, but basically as technologies of power that lock into existing or emerging technostructures of power. They may serve democracy only to the extent that democratic social forces can employ them to achieve greater access to and participation in decision making (Tehranian, 1990). He believes that information technologies play a dual role in society. On one hand, they open up opportunities for centralisation of authority, control and communication typical of the modern industrial state, and on the other hand, they supply alternative channels of cultural resistance and ideological mobilization for opposition forces. The 'Big Media' (such as national press, broadcasting and mainframe computers) are identified with the centralising forces while the 'Small Media' (such as the alternative press, small scale audio visual production and transmission facilities and personal computer networking) provide the avenues for community resistance and mobilization. On this basis, one can argue that the new communication technologies serve the interests of both the privileged and the underprivileged in society.

In a related sense, Stevenson, Burkett and Myint (1993) argue that the new communication and information technologies can strengthen the centralised industrial, command economy or decentralise empowerment for finding creative solutions to local and global problems through new social technologies. Increasing globalisation, facilitated by the new technologies, has brought

about changes which flow through to local communities. Paradoxically, however, these local communities are forced to make international connections in order to solve local problems.

With particular reference to the Philippines, de Ayala (1996) foresees changes to large and small scale business processes brought about by the new technologies. Not only will consumers be in closer contact with suppliers and producers, the new technologies will also eventually lead to better educated, more knowledgeable, more critical but less loyal customers. The downside of this development, in a developing economy such as the Philippines, is that the fledgling domestic national markets may be stifled by regional trading blocs and international markets which promote intense competition. On a similar note, Chin (1995) believes that the development of information technology infrastructure in the Philippines rests on the national plan (NITP 2000 program), the objective of which is to create a well-informed computer literate society capable of using information technology as an everyday tool to enhance work and living.

Regulating the use of the new communication technologies

Many governments are giving top priority to acquisition of the new technologies because they are perceived as pivotal to overall development. However, there is a growing anxiety or unease among these governments to curtail the use of the technologies by groups engaging in unauthorised conduct or challenging the authority of various regimes. "Many Asian governments share the dilemma of desiring to control the distribution of information whilst recognising... that national economic and technological development requires increasing access to broadband networks and the information they provide" (Lambert, 1996). However, these same governments "feel profoundly threatened by the concept of a medium in which they cannot control access to information..." The question of controlling access to the new technologies is not peculiar to Asia alone. A recent attempt by the

United States Government to ban "indecent" materials on the Internet was rejected by a US federal judge who ruled that the Internet deserved protection from government legislation. The US Government however has indicated it would appeal the ruling. At issue here is the challenge posed to individual freedom to communicate by the desire of various governments to control the moral content or `political correctness' of what is communicated.

Impact on national development

The link between technological growth and socioeconomic development is based on historical facts. During the industrial revolution, the Western industrialized world experienced the impact of science and technology and found it to be an indispensable tool of development. Thereafter, the belief has been that if technology promoted the socioeconomic development of Western countries, it should do the same in developing countries. McQuail (1987), for instance, argues that "One clear promise of the new technologies is an increase in communication of all kinds, between individuals and also between persons..." Nevertheless, this argument overlooks the fact that before increased communication can take place, the communicators must have access to the new technologies or must possess the wherewithal to purchase the communication tools. In a world in which the developed and developing countries pursue different goals and priorities based on the different levels of their technological endowments, the new communication technologies are bound to be viewed with both optimism and suspicion.

Furthermore, the new technologies must be able to address problems of human needs. For instance, while extolling the usefulness of telecommunications technology for giving "some new means of bringing people together", Stevenson (1991) wonders if the new telecommunications technology, monopolised by the privileged industrialized world, will be "enough to address the world's most serious problems of poverty, hunger and

alienation." The implication is that new communication technologies which do not address immediate human needs are not quite useful to human society no matter how effective they may be in increasing communication among people. In a similar argument raised in an analysis of the technological adaptation process among the Maori of New Zealand, Schaniel (1988) explains that new technology may create change in society, and that the direction of change is determined by the nature and function (use) of that technology in the adopting culture. Indeed, it was former President Julius Nyerere of Tanzania who reportedly said that while the industrialised world may be travelling to the moon with ease (as a result of their technological advancement), African leaders are still grappling with the problem of how to reach their people in the villages.

Taking Africa as an example, arguments as to whether the continent should acquire the new communication technologies have become more pronounced. The central issues revolve around the question of priorities. Is it appropriate for African leaders to ignore the basic needs of their people and hop onto the bandwagon of the new communication technologies? Will acquisition of new communication technologies transform African economies, lead to greater food production and improved quality of life, overcome poverty and illiteracy, and end internecine civil strifes?

Taking the Internet and other emerging electronic networks as an example, Jegede (1995) doubts their ability to accelerate Africa's development even as he recognizes the need for Africa to share information and ideas with the rest of the world.

If we had everyone in Africa electronically networked today, it would not necessarily develop Africa. In fact, what it would do, and appears to be doing at the moment, is divert attention from all other problems of development making people believe that getting hooked to the superhighway is the panacea for Africa's problems.

However, Djamen *et al* (1995) disagree, arguing that electronic networking will not only enable Africans access global data but

will also help the entire world to access information on Africa in Africa. Thus, the present situation in which Africans do not directly control their own data would be reversed."

Access versus high cost

Whatever may be the advantages of the new technologies, the problem of access remains an enduring one. Just as access to the mass media is limited in rural areas of developing countries, so too will access to the new technologies be limited to a few people owing to the high costs of the new communication technologies. Take for example a developed country such as Australia where the question of access to the new technologies has resurfaced following the emergence of digital video communication (DVC). Lennie (1993) observes that potential questions about its use as a new form of interactive television and associated home information services have arisen as a result of the anticipated high cost of DVC for domestic consumption and the increasing privatisation of such services. These imply that disadvantaged groups could have reduced access to information and other needed essential services. At stake here are questions concerning access to and uses of the new technologies, the ability or inability of average citizens to acquire them vis-a-vis the high cost of the new technologies, and their broader impact on national development.

Apart from the question of access, fears also exist about the impact of the new technologies (especially satellite technology) on cultural identity, national sovereignty and inequalities in society. This worry is based on the ground that the new communication technologies are not value-free because they come packaged with the value orientations of their manufacturers (see, for examples, Moran, 1994; Oliver, 1994).

Fears about impact on the nature of work

Beyond these issues, uncertainty still surrounds the extent to which the new technologies are able to address problems of society. Goodloe (1991) adopts a positive attitude to the new technologies, believing, for instance, that a proliferation of computers will lead to efficient operation of government departments in developing countries and also assist in information democratisation as the new technologies become more accessible to a greater number of people. He however, fears that the new communication technologies could lead to massive loss of jobs. Geyer (1992) echoes the same view, pointing out that, although computers have revolutionised the mode of education and training, health and medicine, transport, agriculture, sport, and entertainment, certain fundamental and worrying questions remain. For example, what would happen if fewer people produced more goods and services due to the impact of new communication technologies? Furthermore, if people work from the comfort of their homes (telecommuting) with the aid of the new technologies, how would this affect family and work relationships? Certainly, these questions touch on how the new communication technologies will affect the nature of work and living.

Gender and communication technologies

In an essay examining the role of gender in the new communication technologies, Lennie (1993) argues that, although research into communication and information technologies has largely ignored or marginalised gender issues, the active involvement of women in the design of the new technologies may lead to creative and empowering uses for emerging communication technologies. Also, Stevenson and Lennie (1995) analyzed emerging 'Communicative Age' designs in the context of competing pressures to continue the current technology-driven systems, and to replace nature entirely through new technologies. Among

the strategies they developed for creating a 'Communicative Age' are the greater involvement of women in creating alternative designs for communication and information technology, re-learning the art of conversation, and using action learning and foresight.

Information superhighway and public expectations

One aspect of the new communication technologies which has raised and perhaps dampened expectations is the information superhighway. No where is the desire to develop the highway more urgent than in South East Asia where many of the governments are now investing in high technology industries. These countries see broadband telecommunications and interactive multimedia as pivotal to the restructuring of their societies (Langdale, 1995). For countries with major export-oriented telecommunications equipment industries (examples include Japan, Taiwan and South Korea), Langdale states that the need for an innovative domestic telecommunications services industry cannot be overstated. The objective is to open up markets for their national equipment manufacturers. Langdale (1995) also believes that interactive multimedia is likely to provide a major global market for equipment manufacturers in the future.

A report by an expert group in Australia (Broadband Services Expert Group, 1994) states that multimedia and new communication technologies offer opportunities to expand access to cultural collections and events by creating new cultural products and services. According to the report, the new technologies will, over the years, benefit us all, in museums and galleries, health centres, homes, offices, factories and classrooms. Japanese authors Esaki and Kaneko (1993) echo a similar view, predicting that, in the coming century, new technologies such as digital computers and digital TV will become common household communication tools, making multimedia interaction easy.

However, not everyone is overly enthusiastic. Some have counselled caution over expectations from the new communica-

tion technologies. For instance, Kryish (1994) cautions that current predictions for the information superhighway are distinctively similar to predictions made about cable television in the USA two and a half decades ago. In each era, advocates depicted the technology as 'revolutionary', predicting that traditional methods of work, play, learning, and commerce would be transformed; that people would carry out their activities in the comfort of their homes, and that the new technologies would provide answers to all problems (Kryish, 1994). Kryish argues that as US Cable TV did not develop as expected, people should not rely too heavily on arguments which promote new technologies as autonomous, revolutionary and utopian.

Concerns over equity, affordability and privacy

Mandeville (1995) reports that while the information superhighway consisting of new telecommunications infrastructure is gaining widespread usage among businesses and households in urban Australia, the rural areas are yet to be serviced by or introduced to the superhighway. The implication is that the regional and rural areas which produce a significant percentage of state GDP "could increasingly be left out of information age developments." Of what use therefore is the information superhighway if it ignores the needs of the rural and regional people who generate about 40 per cent of the state's gross domestic product? In a related study, Hearn *et al* (1995) state that Australia's telephone system which is moving away from the old analog based service to one that involves computer processing, software and databases, as well as digital switching and signalling, is raising a groundswell of concerns about issues relating to privacy and consumer protection from the misuse or unauthorised use of personal information made possible by the network's capacity for information storage and retrieval. Other issues raised by developments in the new telecommunications technology include gender, access, equity and affordability, ownership and control, social lifestyle and leisure.

While outlining the enormous potential of the Internet to promote Pacific Islands products and tourism in a global market, Lomas (1995) states that very few people in the Pacific Islands have access to the Internet. Access, availability and efficient services are the telecommunications concerns for widely scattered islands of the Pacific region, some of them with rugged terrain.

Melody *et al* (1992) argue that technological improvements to the telecommunications network have opened up new opportunities for the provision of services that can make callers more informed and allow many services to be provided more efficiently. However, the new developments also raise questions about inappropriate use and misuse of personal information, privacy and censorship, consumer protection and competition. These questions are: Who owns the valuable information about the calling habits of individual customers? Who should get access to it? How should it be used? Should it be restricted? If so, how? (Melody *et al*, 1992). The authors believe that the resolution of these issues will help shape the future information society.

Impact on national sovereignty, language and culture

In an analysis of international satellite television broadcasting, Sinclair (1995) notes that satellite distribution is purely an 'international' means by which signals are spilled across national and international borders. In this connection, he feels that the concerns raised by various countries about national sovereignty and the subsequent attempt to control reception are mooted by the fact that dishes and cable systems flourish beyond their control. In this new satellite business, language and culture have become powerful forces in making and breaking international markets. According to Sinclair, service providers in Asia have found that they have to take account of linguistic, religious and other cultural factors in establishing their markets.

On the subject of language, Lambert (1996) observes that "access to the Internet depends not only on ready access to terminals, efficient phone lines and telecoms infrastructure but also a working command of English, the language of cyberspace. Without this, negotiating one's way through all the various interfaces on the Internet and accessing information is very difficult." He noted how lack of familiarity with English, the major language of the Internet, has affected the extent to which the Japanese use the Internet compared to the massive use of the Internet in Singapore — "where English is an official language". Abidi (1991) has argued that by use of the dominant languages not only in the Internet but also in the mass media, indigenous languages are suppressed and hence local cultures and traditions are rendered subordinate to the cultural images that are depicted in powerful foreign media. In this context, the media audience in developing societies are turned into passive participants.

The relevant question at this point is: do modern mass media promote multiculturalism or the dominance of one culture? There is a wide range of views representing the concerns of the developing and the developed worlds. From the perspective of developing countries, what we receive from the mass media are merely what the western world, the network owners, want the people to get. For instance, Plange (1993) argues that television and video tend to be laden with foreign (western) values and that greater consumption of broadcast and taped (recorded) programming affect societal attitudes, family, and employment routines. Ogden (1993) however argues that in the Pacific islands, assessing TV and video to help analyse social and cultural impacts of new technologies is very difficult in countries undergoing rapid change and subject to massive foreign influences. But Varan (1993) believes that television has widened the economic gap between the rich and the poor. For Stewart (1993), transnational consumerism is encouraged and strengthened as the media (TV) advertise mostly imported products. A similar view is held by Dunleavy, Hearn and Burkett (1994).

They argue that the mass media are deeply interwoven with the consumer economy through the shaping of recreational tastes and activities and these in turn feed into patterns of consumption.

Virtual reality and challenges of the new technologies

Modern communication technologies affect not only our cultural values and consumption habits, but also our sense of travel and tourism. For example, virtual reality, facilitated by new communication technologies, promises to transform tourism, creating a virtual self in which "there is no longer any place" (Inayatullah, 1993). In the age of information superhighway, it is now possible for people to visualise themselves in more than two locations simultaneously without physically being there. Thus, more and more people seem to be asking, "why travel, when reality and imagination are blurred anyway." Inayatullah believes that globalisation through communication technologies and deterritorialisation will create the possibility wherein "we could all become perpetual immigrants, forever travelling and never fearing deportation." These new technologies which promote virtual reality promise to dramatically change the structure, the nature and the futures of tourism. Consider what life would be like when we travel without worrying about all sorts of official documents, visas, passports, innoculation certificates and so on. Beyond virtual reality, advances in genetic technologies may also create two global societies, a society of people who are genetically created and another society populated by people who are born through the natural, traditional methods.

Cheong (1995) observes also that new communication technologies have made travel systems more efficient. Many hotels now have the World Wide Web sites in the Internet to advertise their products and services. There is however, a downside to this new development because through virtual reality, people can now realistically tour the world, experience romance and danger all in the safety of their homes or virtual reality centre. Cheong

however states that virtual reality is still undeveloped as it lacks the features of smell, touch and taste. He warns: "the threat of virtual reality becoming a substitute for travel is not unfounded and should not be ignored." The good side of virtual reality is that it helps to safeguard and protect local tourism ecology and landscape.

Conclusion

Every new technology is usually assessed by its usefulness to human society. But in doing this, it is important that we are not locked into the common perspective which depicts emerging communication technologies mainly in binary opposition terms such as good versus bad. This view is too simplistic and misses out on a range of meanings embedded in the concepts. There is need for a deeper, more sophisticated understanding of the meanings of the new communication technologies especially as they relate to power structures; how the technologies are situated/appropriated in different cultures or epistemologies; and the various concerns and worries about the new technologies. A deconstruction of our understanding of new communication technologies will enable us to understand fully their present and future challenges and impact on human society.

Above all, there is also the urgent need for more public discussion to educate the general public to be able to make the right choices as far as the implications of the new communication technologies are concerned. This is the only way that we can move the debate forward. It is wrong to assume that everyone has full knowledge of the new technologies. There are individuals in Western industrialized capitals (not to mention the huge population of the developing world) who are yet to come to terms with the new technologies. It is therefore important that before governments and policy makers rush into a final decision, the guiding question should be: does the common man or woman in Paris, London, New York, Tokyo or in a remote African or Pacific Island village who is buffeted by hunger understand the issues

involved? Indeed, of what use are the new communication technologies to the less privileged members of society?

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