NEW MEDIA AND THE QUALITY OF LIFE

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1. INTRODUCTION

We are currently in the middle of a revolution. This revolution, sometimes called the *digital revolution*, is the revolutionary transformation brought about in the information and communication structure of society by the advent of the digital computer, with most of the major transformations having taken place in the past thirty years. Digital computing technology has generated the mainframe and personal computer, the multimedia computer, and computer networks. It has also transformed the telephone system and the monetary system, it is transforming all kinds of conventional products ranging from washing machines to automobiles, and it is on its way to change television as well. More than ever, contemporary society is an Information Society, in which the importance of information and communication is much greater than in past societies, and of which technologies that facilitate information and communication processes are a central societal feature.

In this paper, I want to evaluate the implications of contemporary information and communication media for the quality of life, including both the new media from the digital revolution and the older media that still remain in use. My evaluation of contemporary media will proceed in three parts. In the section to follow, the benefits of contemporary media will be discussed, with special emphasis given to their immediate functional benefits. The section thereafter is devoted to a discussion of four potential threats posed by contemporary media. In a final major section, I look at the future of digital media and the possibilities available to us in shaping that future. A short concluding section ends the paper.

In my assessment of contemporary media, they are identified as neither utopian nor dystopian nor neutral technologies. Contemporary media offer specific opportunities and threats, and therefore are not neutral. Their ultimate benefits and harms, however, are determined by a number of social choices: choices in design, regulation, and application of these technologies, as well as in societal adaptation to them. Although my assessment is meant to be neither

utopian nor dystopian, I will take more time analyzing threats posed by contemporary media than I will analyzing benefits. This is not because I believe contemporary media to be more harmful than positive, but because the threats I will discuss have so far received relatively little attention in public debate, and therefore require more sustained analysis. Moreover, the extent to which these threats become actual societal harms depends on the social choices that are being made and still have to be made regarding these media.

In the final part of my essay, which considers the future of information and communication media, I will sketch various ways in which the implications of new media for the quality of life are dependent on social choices. Most attention, however, will be given to social choices in design. It will be argued that the design of new media involves important social choices, as choices in design determine the particular landscape of opportunities and threats offered by a technology. To make this discussion concrete, I will consider a major futures study by the Philips Corporation, called *Vision of the Future*, in which possible future media products are envisioned that are intentionally designed to adhere to a number of social values.

2. THE IMMEDIATE BENEFITS OF INFORMATION AND COMMUNICATION MEDIA

The most important benefits of most technologies are *immediate benefits* that are implicated by their instrumental role. The major benefit of an ax is that it cuts wood, and the major benefit of an automobile is that it transports people from one location to another. Technologies may have benefits that are unanticipated and unintended, but these often pale in comparison to such immediate benefits. In this section, I will provide an account of the immediate benefits of information and communication media. I will first give a very general account of these benefits, that draws from the work of Albert Borgmann. Next, I will give a more specific historical account of them.

2.1 A Borgmannian Analysis: The Benefit of Availability

In his influential analysis of modern technology, Albert Borgmann (1984) identifies the initial promise of technology in the modern age, formulated at the beginning of the Enlightenment by such protagonists as Bacon and Descartes, as

the promise that technology would bring enrichment and liberation from toil and hardship. Technology was expected to give people freedom, autonomy, and happiness. This promise of technology is repeated throughout the modern era. According to Borgmann, *modern* technology has a characteristic way of trying to fulfill this promise of technology. Modern technology attempts to make human beings autonomous and prosperous by making commodities available to them in a way that is "instantaneous, ubiquitous, safe, and easy" (p. 41). The machinery by which these commodities are made available is concealed as much as possible, as it is only a means to an end. Indeed, the machinery that procures a commodity can change radically as technology evolves, while the commodity that is procured remains the same.

The evolution of information and communication technologies can be seen to fit this pattern. Information and communication technologies procure the commodities of information and communication. Information can be conceived of as a commodity, because it consists of quantifiable, consumable units such as sentences and visual images. In the case of communication, the actual commodity is a communication *link*: a link between oneself and another person that enables the exchange of information, but also the expression of feelings and emotions. Like other commodities, such links can be available more or less easily and ubiquitously. The evolution of information and communication media throughout history shows a pattern of information and communication being made available ever more ubiquitously, faster, easier, and more safely.

—*More ubiquitous*: Over time, information and communication have become possible at more places, over longer time periods, and over longer distances. The technology of writing, for example, made it possible to store information for indefinite periods of time, and made information more transportable. Technologies like telephony and computer networks have made communication over vast distances possible. The Internet provides access to vast amounts of information whenever and almost wherever one pleases. The recent trend in mobile electronic media makes information and communication possible in yet more places.

—*Faster*: The fastest speed the written word could travel used to be the travel speed of the fastest horse, the fastest carrier pigeon, or the fastest sailing ship. The development of faster transportation systems after the mid-eighteenth

century, such as trains and steamboats, and, later, airplanes, increased this speed. Electronic media now deliver information at the speed of light.

—*Easier*: Although new media are often initially more difficult to operate than older media, they still ultimately tend to make information and communication more easily available. Less and less physical and intellectual labor has to be performed to acquire a piece of information, or to establish a communication link with another person. For example, before the invention of the telegraph, communication with a remote person required physical travel. The telegraph eliminated this requirement. The telephone subsequently increased ease by eliminating the need for an inconvenient Morse code.

—*Safer*: Media eliminate a requirement of physical presence at the source of information or at the location of the person one communicates with, and may be used to mask the identity of their users. In this way, they may eliminate risks and increase the personal safety of their users.

In conclusion, a Borgmannian account of the information and communication technologies identifies them as technologies that are developed because of their immediate benefit of making information and communication more available. By increasing this availability, media promise to make human beings increasingly autonomous and prosperous by effortlessly and safely providing them with the information and communication they want wherever they go and whenever they please.

2.2 Benefits to the Modern Individual

A Borgmannian account of information and communication media points out that they have evolved because of perceived benefits and that they make certain commodities more available. It does not explain, however, why these commodities, that is, information and communication, are apparently so valuable to human beings that they want them to be rapidly available anywhere and anytime. Why the apparent great need for ubiquitous information and communication? Part of the answer, as commentators like Beniger (1986) have remarked, is that contemporary media serve corporate interests in controlling large-scale systems of production, transportation, distribution and consumption. However, I am not concerned here with benefits to corporate users, but only with

benefits to individual users. There is nowadays a large choice in media products aimed at the consumer market, to be owned by private individuals for their personal use. The question is: do private individuals have a real need for these media? Or are televisions, home computers, video cameras, modems, and the like really superfluous consumer goods that only serve fleeting and idiosyncratic needs?

A large part of the immediate benefits of media like televisions and home computers is to be found in their ability to entertain. These media are often acquired primarily because of their benefit of entertainment: they bring pleasure and play to the individual in a way that is ubiquitous, fast, easy, and safe. Most media, however, are not just acquired for their entertainment function but also for their information and communication functions. The modern individual wants information and communication to be easily and ubiquitously available, and contemporary media satisfy this desire. Modern individuals have this desire, I will argue, because of the way modern life is organized. The modern individual is an *individualist*. Modern individuals want to give shape to their own lives rather than be determined by external circumstances such as family ties, place of birth, and past traditions. They want to plan their future, create their own lifestyles, make their own judgments and decisions, and determine with whom they establish social ties. As Harvey (1989) has put it, the modern individual is an *entrepreneur*, a competitive individual whose actions are not based on collective norms and values, but on the desire to maintain a particular individual lifestyle.

Managing one's life based on an ideal of autonomy requires access to relevant information and communication channels. Modern individuals have to carefully select the information that is coming to them, because not all information is equally relevant. Information must be tailored to their needs. Traditional mass media are often insufficient for this purpose, as are traditional informants in their family or neighborhood, as these are often unable to supply them with the very specific information they need. Therefore, many people look for specialized media and knit their own social networks. They look for information that tells them how they can improve their situation, that helps them make plans, that shows them alternative choices, and that helps them control and manage their environment. This requires a lot of specialized information and targeted communication, because of the complexities of modern life. There are always new opportunities to explore, new places and products to get to know, new rules

and regulations to learn.

A factor related to modern individualism that also enhances the demand for information and communication media is the increased *mobility* of the modern individual, and, related to this, the changing *geography* of her local environment. Individuals *travel* a lot, to visit friends and family, for business, and for pleasure. They are also more prone than in the past to live and work at different locations. Many Americans, for example, grow up in one city, go to college in another one, then work in several different cities, only to retire at yet another location. The classical city with its civic center is slowly disappearing, and is replaced by more dispersed geographical structures. Because of the resulting distances, mediated communication is often convenient, and information about different locations is often needed. Moreover, there is also the desire to maintain contact with one's home base while traveling. Mobile telephones and other information and communication media help people be informed and keep in touch in a mobile and geographically dispersed society.

The modern individual moreover chooses to participate in more *diffuse social networks*. There is a dissolution of traditional social structures such as the family and the neighborhood, and individuals are instead more loosely tied to a number of diffuse networks of individuals who fit their lifestyles and interests, and who may sometimes live far removed from their own home. Communication media such as the telephone and electronic bulletin boards may help people establish and maintain social contacts with people that live far away, and to knit new social networks. It should be noted, however, that the using of information and communication media is not just a response to increased mobility; the availability of the media in turn facilitates mobility and flexibility.

In conclusion, contemporary media offer clear benefits to modern individuals in ways that fit modern lifestyles.

3. CONTEMPORARY MEDIA AND THE QUALITY OF LIFE: FOUR PROBLEMS

It is now time to consider the other side of contemporary media. Contemporary media, I claim, have potentially serious drawbacks that could be as negative as their immediate benefits are positive. My concern here will not be

with negative *political* impacts of contemporary media. These include consequences for the distribution of social goods, such as power, status, and wealth. These impacts of contemporary media, such as the threats they pose to privacy or to the quality of work, have received much attention, but important as they may be, they will not be discussed here.

The negative consequences of new media I will be concerned with are *cultural* and *psychological* consequences, rather than political ones. They are threats to the quality of the *lifeworld* of the modern individual. I will argue that there are four potentially serious problems with contemporary media that jointly detract from their promise to enhance the quality of life. They are: (1) the problem of presence competition, (2) the problem of surrogacy, (3) the problem of rationalization, and (4) the problem of community.

3.1 The Problem of Presence Competition

Consider a room in which one person is watching a movie, another is surfing the Internet, and a third is engaged in a telephone conversation. There is a sense in which these persons are not present just in the room, but are also present somewhere else. The first person is immersed in the world of the movie, the second is in cyberspace, and the third is together with a person that is not even in the same room. I will call situations in which one can be present in this way *presences*. A presence can be defined as a part of the overall environment that behaves according to principles that are relatively independent of other features in one's environment, and that invites one to make it a focus of sustained attention and engagement.

The prime example of a presence is one's immediate, physical environment. A movie is a presence as well, as are stories in novels. Games can constitute presences, although games are independent of the immediate physical environment to different degrees. A baseball game, for example, is necessarily strongly integrated with the physical environment in which the game is played, and for this reason hardly qualifies as a separate presence. A computer game, in contrast, focuses all one's attention away from one's physical environment to the screen, and the dynamics of the game are defined separately from those of one's physical environment. Other examples of presences are telephone conversations, Virtual Reality environments, and programs and windows on a computer screen.

Presences require one's undivided attention, and it is therefore impossible to be fully engaged with two presences at the same time. It is, for example, impossible to be fully engaged with one's immediate environment while simultaneously giving one's full attention to a TV show, or to have an involved telephone conversation while playing a computer game. In contrast, it is much easier to simultaneously engage several aspects of one's environment that are not presences. It is, for example, possible to hold a conversation while drinking a cup of coffee, because one's use of the cup can be easily integrated with one's conversational activity.

Presences cannot be integrated in this way without serious loss in the quality of engagement one has with them. Presences fiercely *compete* for one's attention, and only one presence can become its subject. Before the arrival of electronic media, this competition was usually not very intense, because one's environment would not normally include many presences, and those that did exist, such as books and board games, were often not very demanding of one's attention, or were integrated to some extent with one's immediate environment. Nowadays, one often finds a whole series of presences in one's environment, that moreover are more demanding of one's attention than traditional ones. A ringing telephone, for example, is more difficult to ignore than a book on the sofa.

It may be thought desirable to have many presences in one's environment, because these presences offer choice and opportunity; one can choose out of all available presences the one that is most entertaining or most useful. If one is bored with one's immediate environment, one can escape to a different presence, like a movie or a telephone call with a friend. A laptop plus modem connection on vacation makes it possible to alternate between work and vacation. These advantages are, however, counterbalanced by three major disadvantages:

i. Loss of engagement: Because presences are constantly competing for one's attention, one continuously has to choose between them. This often results in a loss of engagement with any presence that one may have focused one's attention on. This is the case, first, because a continuous evaluation of the relative worth of a presence one is engaged with is incompatible with a full engagement with this presence. One cannot be fully engaged with a conversation while simultaneously evaluating whether this conversation is more entertaining than an upcoming movie on television. Engagement is moreover often lost

because people temporarily or permanently switch to a competing presence that they find more important. An engaging conversation may be abruptly ended when someone's movie starts, or a vacation at the beach may be disturbed by frequent calls from the office on one's cellular phone. When watching a TV show on cable, one is often tempted to zap through the other forty channels, to see if nothing more worthwhile is on. A telephone conversation can even be interrupted by an incoming call, when call waiting is used. Engagement also suffers, finally, when people try to engage with more than one presence at the same time, as do people who try to simultaneously watch television and have a conversation.

Albert Borgmann (1984) has argued that engagement is the prime ingredient for a good life. It is clear, however, that when there is a constant competition between several presences that invite one's engagement, it is difficult to be fully engaged with any one of them. As a result, life in environments with many competing presences is in danger of becoming shallow and distracted. This effect is only enhanced by the fact that many mass media, television channels in particular, try to rapidly alternate between presences to ensure that consumers do not get bored.

ii. Presence inflation and presence invasion: There is a danger that in an environment with multiple competing presences, certain presences systematically win out that ought not to. This can happen in two ways. *Presence inflation* is the process in which a presence other than one's immediate physical environment becomes the dominant presence in one's life. A good example is given in Sherry Turkle's *Life on the Screen* (1995). Turkle discusses cases of Internet users who spend more time on-line than off-line, and who hold that their life on-line is more engaging and meaningful than their off-line life ("real life"). Before the emergence of computer networks, of course, television had already been playing a similar role for millions of people (see Postman, 1985). Even a medium like the telephone can play this role, as it does for teen-agers who spend most of their time on the telephone when at home, and consequently neglect their home environment.

I do not want to make the case that presence inflation always detracts from the quality of one's life. However, in many actual cases presence inflation clearly represents an unhealthy escape from the circumstances of everyday life, and sometimes even constitutes a genuine addiction. Instead of dealing with the

here and now of one's immediate environment, one chooses to dwell in another presence. This has the danger that one's immediate, physical environment, in which one is bodily grounded and from which there is no ultimate escape, is neglected, and that any problems it contains remain unsolved.

Presence invasion is another way in which a presence may systematically win out over others. In presence invasion, a presence manages, against one's preferences, to invade and temporarily replace another presence. Presence invasion occurs when a presence succeeds in capturing one's focus through coercion or sensed obligation. Two types of presences have a particular tendency to behave in this way. *Work-related presences* are presences from the sphere of work, such as one's business laptop, and phone calls from and modem connections to the office. They have a tendency to invade other presences because of the strong social expectations and emphasis on achievement in the sphere of work. Information and communication technologies make it easier to carry one's work with one wherever one goes, with all the negative consequences this entails.

A second invasive type of presence is found in *real-time mediated communication*, particularly communication by telephone. The possible importance of an incoming phone call, and the social expectation that calls are answered, makes many people interrupt their everyday activities to answer the phone. The spread of mobile telephony has worsened this tendency; people who are known to carry a mobile telephone are expected to be always available.

iii. Aggrievement of third parties: When someone shifts from one presence to another, she may leave behind parties that are suddenly left without her attention or availability. Many people, for example, have experienced the annoyance of disrupted conversations because the other person has an incoming phone call that is given priority. They are losers in a competition between presences. Someone who is engaging an alternative presence moreover often causes annoyance to those in his immediate environment, because this engagement generates noise, movements, and images that are often wholly dissociated from anything happening in the immediate environment ("presence noise").

The problem of presence competition, in short, is a threefold problem. In an environment of competing presences, people tend to lose engagement with any

particular presence, they may come to suffer from presence inflation and presence invasion, and they may aggrieve third parties when they move between presences.

3.2 The Problem of Surrogacy

The problem of surrogacy is the problem that information and communication technologies tend to substitute mediated experiences and simulations for real experiences, in a way that may detract from the quality of life. Such mediated experiences and simulations I call *surrogates*. The problem of surrogacy is not that surrogates are somehow inherently worthless or morally inferior. A mediated or simulated experience is often better than no experience at all. The problem is rather that surrogates appear to have a tendency to *replace* real-life experiences, rather than just exist in addition to them.

Perhaps the most important domain in which substitution is taking place is the domain of *interpersonal interaction*. More and more direct interactions with other human beings are being replaced by mediated contacts or by recordings or computer simulations. *Mediated contacts* include telephone communications and computer-mediated communication. *Recordings* include movies and films, that make it possible to have intimate experiences of other human beings without being really involved in their lives. They also include recorded voice messages such as those found on answering machines. *Computer simulations* include computerized telephonic answering services as well as computer software that simulates computer-generated characters that allow simulated interpersonal interactions. A particularly vivid case of such a simulation is the *Tamagotchi*, a recent rage in Japan and several other countries, which is a computer toy that contains a simulated electronic pet, that must be fed and cared for, and undergoes a whole life cycle before it dies. Children and adults often develop affectionate relationships with these "pets," and grieve when they die. Other examples are given by interactive adult games, in which the challenge is to seduce and undress virtual women by typing in appropriate lines, or therapeutic software in which the computer plays the role of a counselor.

Substitution is also taking place in many domains other than the interpersonal domain. Many events, ranging from religious masses to football games, are now experienced as mediated by television. Computer software simulates all kinds of experiences, such as virtual tours of the Parthenon in Athens

or the Louvre in Paris. Many activities that used to be performed with the aid of physical tools are moreover increasingly performed through computer software. Paint software, for example, simulates real paint and a real canvas, photography software simulates a dark room, and chess software simulates a real chess board and pieces.

How should we evaluate the implications of these substitutions for the quality of life? Positively, the availability of surrogates offers people additional choices, and may save them inconveniences that accessing and interacting with their real-life counterparts may bring along. I will now present three arguments, however, that point to a potential loss that these substitutions also bring along.

First, surrogates may be argued to lack the *experiential depth* of real-life experiences. Several sensory modalities are lost, usually including touch, smell, and taste, and sometimes also vision or hearing. Telephones, for example, eliminate vision, and along with it, the perception of facial expressions and bodily gestures of one's conversation partner. Those sensory modalities that remain are usually strongly reduced.

Second, many surrogates lack *interactivity*, or only allow for strongly reduced interactivity. This lack of interactivity is most evident for a medium like television, but even the telephone is a medium that only allows for limited interaction. One can only *talk* to the person at the other end, one cannot touch or hold her, show or give her things, use facial or manual gestures, or position oneself relative to her.

Third, many of the surrogates that media put in the place of real-life phenomena are *simulations*, that lack the reality and completeness of real-life phenomena (Baudrillard, 1988; Borgmann, 1992). In television movies, for example, emotions and behaviors are scripted and not real. Likewise, simulated virtual-reality environments behave according to the rules of a computer program, without the messiness and unpredictability of a real-world environment. Even if simulations of people and things were possible that could easily be mistaken for reality, they nevertheless remain simulations, and for this reason it is often considered wrong to be as fully engaged with them as one is with real people and things.

These three arguments all suggest that a surrogate experience is somehow less complete and engaging than a comparable real-life experience. Still, substitution by a surrogate may often provide clear benefits that makes substitution nevertheless preferable. There will also be instances, however, where these benefits are less clear, and substitution only takes place out of laziness, an unhealthy avoidance of the emotional demands of interpersonal interaction, or boredom. Many surrogates, such as computer games and television series, are designed to be *more exciting* than most real-life events. Such surrogates invite people to substitute for the supposed dullness of real life the excitement of a surrogate. Substitution by surrogates may be particularly threatening to human interaction, because simulated and mediated human interaction may be appealing to some because it is safer and more controlled, and less emotionally demanding.

3.3 The Problem of Rationalization

To what extent do information and communication technologies contribute to the rationalization of existence, by making human life a subject of conscious planning and control? It is pointed out regularly (see, e.g., Forester and Morrison, 1996, chapters 6 and 8) that information and communication media are being systematically used to monitor and control human behavior, especially in the workplace, but also in the public domain. Others have argued that it is not just particular applications of these media that have a rationalizing effect, but also their inherent structure. As Donald Norman (1993) has pointed out, computerized media require the user to conform to their logic of operation. For example, computer software used for drawing pre-structures the drawing process, limiting it to a number of basic operations the user is able to perform.

There is yet a third way in which information media may be argued to rationalize life. Information media allow one to have information about and perceptual experiences of things before they are encountered directly. Such pre-information or pre-experience rationalizes life by making these things subject to rational planning and control. Suppose, for example, that you want to visit a restaurant with your spouse, and you have software on your home computer that provides you with information about all restaurants in town, together with pricing, menus, and pictures of the interior. This information can be beneficial by helping you to pick the best restaurant based on rational criteria. However, by making activities more and more planned, pre-information and pre-experience eliminate

spontaneity and the possibility of discovery. In decision-making and action, rational criteria will prevail over intuitive and context-sensitive ones, and choices will tend to become more planned and controlled. It needs to be asked whether this gain in rationality is always worth the loss of spontaneity and discovery.

3.4 The Problem of Community

Engaging social interaction with other human beings is often recognized as one of the cornerstones of a good life. It has been pointed out by communitarians in particular that such social interaction is difficult to realize in the absence of communities in which individuals can find solidarity, a sense of belonging, and mutual trust and care (Etzioni, 1994). *Communities* are groups of people that have on the basis of a shared history formed webs of personal relationships that embody shared values, mutual commitments, and cooperative practices. Existing communities tend to be undermined by contemporary media, however. The virtual communities and diffuse social networks that these media put in their place may well fail to qualify as genuine communities.

A first way in which contemporary media undermine community is by enabling instantaneous, safe, and easy forms of mediated communication, such as communication over telephones or computer networks, that make it possible to maintain social ties with people far removed from one's own geographical location, and to build so-called virtual communities, which are groups of people that have formed personal relationships in cyberspace. Now, when people invest in mediated social contacts, this has consequences for the time and effort they have available to put into local social networks. Local communities hence nowadays have to compete with virtual communities and other long-distance social relationships.

The argument is sometimes made that virtual communities can have the same qualities as nonvirtual communities, and that they are adequate and even welcome replacements for the nonvirtual, geographically localized communities that have been deteriorating in past decades (Rheingold, 1993). It is indeed true that some key virtues of genuine communities can be and have been realized in virtual communities, such as solidarity, a sense of belonging, and mutual trust and care. However, virtual communities may still lack some of the properties that make it possible for these virtues to reach the depth that they are able to reach in

geographically local communities. Most important, virtually communities are usually specialized. They are joined because of a shared interest, such as politics, gameplay, or the discussion of personal problems. In a genuine community, instead, one usually has multiple social relationships with a person and may engage in different social interactions with him or her. Virtual communities moreover usually have few public spaces and objects that require a shared responsibility and shared maintenance (Winner, 1997). It is also easier to abandon a virtual community. One merely has to log off, whereas leaving a geographical community is usually much more difficult, because it includes one's home and often also one's job. Social interactions in virtual communities are also frequently less engaging because they lack face-to-face interaction. One does not get to know whole persons, but user i.d.'s that type sentences (Sclove, 1995). Virtual communities, in short, are poor substitutes for well-functioning geographical communities.

A second way in which contemporary media undermine community is by substituting interaction with machines for interaction with other human beings. Many information and communication functions that used to be performed by human beings only are nowadays also performed by machines. For example, instead of going to a bookstore or a bank and talk to a real person, one can now use teleshopping and telebanking services that do not require communication with another human being. Instead of buying a train ticket from a human ticket vendor, one can use a machine that issues the ticket. When calling for weather or traffic information, one nowadays does not get an operator on the line, but a computerized message system. Games like chess can nowadays be played against computer opponents. One can even buy therapy software that simulates a live therapist for all one's counseling needs. Traditional public spaces moreover become more and more obsolete as many transactions and interactions move to cyberspace (Mitchell, 1995).

Contemporary media may undermine community, finally, by the way they individualize experience. Mass media are being replaced by individualized media, and as a result, there are less and less shared experiences to constitute a cultural background of individuals.

I conclude that *if* the communitarian argument that engaging social interaction requires the existence of solid communities is correct, *then* it appears

that contemporary media pose a threat to high-quality social interaction.

4. VISIONS OF THE FUTURE

4.1 New Media and the Future

If current trends persist and the market for new media continues its rapid growth, both the immediate benefits and the concomitant problems of new media will continue to grow. The rapid increase in the number of people who use mobile telephony, expected to hit a quarter billion world-wide by the year 2000 (*Newsweek*, February 10, 1997, pp. 34-35) will create a culture in which mediated communication can take place anytime, anywhere, and in any mode. The rapid increase in the number of Internet users and the advent of a genuine Electronic Superhighway will lead to a rapid growth of virtual communities, virtual commerce, and virtual entertainment. The advent of virtual reality technology, including networked virtual reality systems such as the one now under construction by Microsoft will further enhance the possibilities and the appeal of electronic media. The public will experience unprecedented opportunities to communicate, to interact and perform transactions, and to inform and entertain themselves. The promise of technology, as Albert Borgmann has called it, to bring individuals autonomy, enrichment, and disburdenment, is likely to find its complete realization in electronic media. Yet, at the same time, it looks as if people will be increasingly subjected to the diagnosed problems of new media. People, it seems, will live in an increasingly fragmented, surrogated, rationalized, and socially superficial world.

As we massively embrace new forms of media, is it possible to maintain their benefits while avoiding their problems? Many of the problems with new media, I believe, can be reduced through a proper social regulation of their availability and use, along with adjustments to the social environment in which they are used. Indeed, any new technology unavoidably leads to some such adjustments, including changes in values, attitudes, behavior, social relations, and social institutions. In the right social and psychological context, the negative impacts of contemporary media will be greatly reduced. For example, presence

competition will be less of a problem if people regulate the conditions under which alternative presences are made available in particular environments and under which it is acceptable to switch to another presence, and if they learn to offer greater psychological resistance to the lure of competing presences.

Social regulation and adaptation is however to a large extent a*post hoc* solution, a response to particular technologies that hit the market. Work in current technology studies shows that important social choices are already being made during the design stage of technologies (see, e.g., Sclove, 1995; Akrich, 1992; Winner, 1980). This raises the question whether alternative designs of electronic media could help to avoid the problems of contemporary media, and yield products that genuinely enhance the quality of life. At least one major supplier of new information and communication media, the Philips Corporation, firmly believes in this possibility.

4.2 The Philips Corporation's Vision of the Future

The Philips Corporation is a major international supplier of products, systems and services in the fields of electronics and lighting, with most of its activities in the consumer market. It is known for major innovations in electronics, such as the analog and digital compact cassette, the compact disc, and the 100 Hertz television. Its total sales in 1996 topped 35 billion dollars. In 1996, Philips completed a major study, its *Vision of the Future* project, which had as its aim to explore new products that could be developed by Philips within the next ten years. A key requirement for these products was that they should be designed to enhance the quality of people's lives. To this purpose, emerging socio-cultural trends were mapped, which were taken as points of departure for more specific scenarios in which new products could be expected to provide people with genuine benefits. These scenario studies resulted in some 60 descriptions of products that were thought to be both technically feasible within the next ten years and likely to genuinely enhance the quality of people's lives. The results of this study were documented in a book (Philips, 1996), a video compilation, and a website (www.philips.com/ design/rof).

In its attempt to design products that can help people improve the quality of their lives, Philips assigns a special role to information technology. Indeed, some 90% of the 60 hypothesized products in the study can be classified as

information and communication media. Senior director Stefano Marzano claims that information technology makes a good fit with current socio-cultural trends, and can help people meet many of their social, cultural and intellectual needs. It may even help give rise, he claims (pp. 13-15), to a New Modernity, an age in which the old Modernist vision of relentless industrial progress is replaced by a new vision of progress that emphasizes quality over quantity. Indeed, the new media Philips wants to design are supposed to entail a shift from "the old model of quantity and complexity" towards "a new model of quality, simplicity, and consumer satisfaction" (p. 18).

Three examples serve to illustrate the kinds of products included in the Philips study. The *shiva* is a hand-held personal computer designed to handle multiple tasks. It responds to speech, touch, and writing, and offers access to databases, video telephony, pen-based electronic mail, personal banking, on-line shopping, and monitoring of home and car security. Another product is the *hot badge*, a personalized badge that contains a short-range transmitter that transmits information about the wearer's interests and receives similar information from badges worn by others. When two people with hot badges meet and their interests overlap, the badges will signal each other. This may help "break the ice," at parties for instance, and help people find others with common interests. As a final example, an *emotional communicator* is a personal object that can take any form, and that is used between loved ones or friends to communicate feelings of love or support. It makes use of paging technology, allowing a sender to transmit paging signals which change the color or temperature of the emotional communicator, or which make it vibrate or release a fragrance, thus communicating the love or friendship of the sender.

These products are based on a number of *values* that Philips has distilled from its study of future socio-cultural trends. The most important values can be summarized as follows:

(i) *Time*: According to Philips, people have two needs regarding time. First, they need to win time to keep up with "the demands of modern life." Technology can help people do more in the same amount of time and help them do things simultaneously (Philips calls this "multitasking"). Second, people have a need for quality time, time periods in which there is no pressure to do things quickly, but in which time is experienced as "non-existent." These are moments

of rest, meditation, reflection and wonder. Philips believes that technology can also help us secure and experience such quality time.

(ii) *Space*: As with time, people are believed to have two kinds of need regarding space. First, people want to "conquer" space, eliminating as many boundaries as they can, and be present in places far away, join virtual communities, and communicate over vast distances. Technology can help people conquer space. Second, people like to have their own clearly defined space, a place in which they see their identity reflected. Personalized technology, Philips claims, can help people create a sense of place.

(iii) *Sociability*: People need contacts with other people, and they need to be part of communities. The family has been fragmenting, however, and friends and family are often located in other parts of the country or world. Technologies such as home computers may be designed to support collective activities next to individual ones, and information technology may be used to link up people from everywhere around the globe, and to help people form virtual communities.

(iv) *Exploration*: People nowadays have a need to explore new realms. Cyberspace can constitute such a new realm.

(v) *Connectivity*: People nowadays need to be able to link up quickly with all kinds of experts and sources of information. New information and communication technologies can help people to quickly get the information and advice they need.

(vi) *Subjectivity*: People are nowadays looking for identity. The rapid pace of modern life is leading many people to take time out to reflect on their lives and on values. New products, Philips believes, may help them do this.

4.3 Vision of the Future: An Evaluation

It is not difficult to see that many of these values correspond with what I called the immediate benefits of information media. Many of the products proposed by Philips have as a primary aim to make information and communication available more ubiquitously, faster, more easily, or more safely.

The shiva is the ultimate example: it makes all sorts of information and communication quickly and easily available, wherever one goes and whenever one pleases. Many proposed products aim to enhance the availability of communication links, at home, on the road, or elsewhere. Included even are products that allow for communication while skiing or mountain biking. All products are designed to be easy to use, through the use of intuitive, natural interfaces such as speech, touch, and writing. Many products are designed to conquer space and save time, even when the amount of space and time to be conquered is tiny, as with *remote eyes* for use in the home that monitor other rooms. Many products moreover offer individualized and mobile information and communication functions, and help to make it possible to maintain diffuse social networks.

Yet, not all values embedded in the products are about increasing the availability of information and communication. Many products reflect an effort to address other values as well. Many products, in particular, are supposed to help people express their individuality and to help them create identity and a sense of place. One way in which this aim is achieved is by offering products in different styles and colors, to suit individual taste. Most products are moreover intended to be durable quality products. Another way is by assigning very personal functions to products, so that they gain personal and emotional significance. The emotional communicator, mentioned earlier, is a case in point, because of the emotional bond it expresses with another person. An object like the shiva may also become a very personal object, because the software adapts to fit the user's habits and wishes, and because it is intended to be always carried along. Another highly personal product is the *family tree*, an interactive picture frame that brings together existing archive material from families, such as photographs, videos, letters, and current information. The family tree can be used to spend quality time and to explore family roots.

Are the four problems with new media that I outlined earlier also addressed? Let us look at them one by one. The problem of community is addressed to some extent. Philips says it values community, and several products aim to enhance the sociability required for community building. Some products are designed for *sociable use*, such as electronic multiple-player game boards for children, and new interactive table tops in bars that allow for game play and communication with other customers. Some are intended to make it easier to*get*

to know new people, such as the aforementioned interactive table tops in bars and the hot badge. Many others are intended to help people *maintain communicative contact* and *build virtual social networks*, and to increase the *quality* of mediated communication, by including video telephony or virtual reality technology, and by personalizing communication devices.

However, most products have the negative impact that sociability will be more and more realized through mediated communication and in virtual communities. Most products do not help to build local community, but may instead end up further undermining local communities by making the formation of diffuse social networks and virtual communities easier and more appealing. It remains doubtful that this loss of local community can be offset by improvements in the quality of mediated interaction with virtual communities.

Improvements in the quality of mediated interaction also relate to the problem of surrogacy. The Philips solution to the problem of surrogacy appears to be to make surrogates better, to make them more like the real experience they replace. Video telephony and high-quality virtual reality technology is supposed to help here. One suggested product, for example, is a connective dining service, to be offered by hotels, that allows someone away on business to join the family for dinner, using enhanced telephony that extends the home dining table virtually into the hotel room. A problem with this solution is that even good surrogates are still surrogates, as argued, and good surrogates may even add to the substitution of real experiences by surrogates. Moreover, one proposed product, the *make-up box*, threatens to further blur the boundary between reality and simulation. It consists of software for video telephony that can be used to morph one's facial features or voice or to change one's background.

The problem of rationalization is recognized in part. One aspect of it, the fact that machines often require users to conform to its logic, is addressed because many products make use of what Donald Norman (1993) has called *user-centered design*, rather than *machine-centered design*. They emphasize simplicity, user friendliness, and responsiveness to the needs and wishes of users, even when these needs are "irrational" (recall the emotional communicator). Rationalization through pre-information and pre-experience, however, is enhanced by most products. The hot badge, for example, rationalizes social interaction by making it contingent on a programmed system of categories. Another product, the *Oscar*

guide, enables pre-experience of other environments or countries. It is a virtual travel guide on the network that helps one sample other environments or cultures, and that can even be used, in combination with virtual reality technology, to pre-experience a whole vacation.

The problem of presence competition, finally, is left almost completely untouched in the Philips study. Instead, many products are intentionally designed to enable what Philips calls "multitasking," that is, doing things simultaneously. This is hoped to save people time, time that can perhaps be spent as quality time. History has shown, however, that time saved through more efficient technology is quickly appropriated to enhance productivity in other domains. In spite of all time-saving technologies, for example, Americans are now busier and work longer hours than they did thirty or one hundred years ago. The Philips products would have the result, in any case, that more presences would be competing for our attention at more locations.

5. CONCLUSION

The Philips study shows that there is room for choice in technological design, and that products can be designed to express social values. As Richard Sclove (1995) has argued, technologies can be designed to create opportunities and constraints, and to regulate social behavior in specific ways. Designers and suppliers have a choice in the way they design a particular product or feature, and they have a choice as well not to develop certain products or features at all. The Philips study also suggests, however, that attempts to incorporate social values in products may not always yield the intended results, and that certain values, such as for example the restriction of presence competition, are difficult to even begin to address through design.

Ultimately, designers are dependent on the society in which their product is to function. Ultimately, the most important choices are not made by designers and suppliers but by other members of the society in which a technology is embedded. These individuals ultimately choose which products and features they accept, and what restraints and regulations they impose on their usage; they choose the places where certain products can be found, the context in which products are used, and the uses to which products are put. However, making critical choices about technologies such as electronic media requires being

educated about their potential meanings for our lives. Neil Postman (1985) has remarked that, "We have yet to learn what television is" (p. 160). Nowadays, dozens if not hundreds of new media products confront us, whose significance for our lives is often still a question mark. There is still much to be learned.

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