AMERICA'S MEDIA MODELS OF COMMUNICATION: A CASE FOR CHANGE

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INTRODUCTION

America has entered the Information Era, an age when social and economic patterns are focused as never before on the production, transmission, and consumption of information. Major media industries involving television, radio, the internet, and other telecommunications services dominate every phase of the process of communicating this information. There are patterns in the structures and operations of these companies that can be considered media communication models. The most prominent of these models are the centralized and distributed models of communication.

This paper will examine the centralized and distributed models in terms of their basic evolution, features, and context of use. Important issues that have arisen through implementation of these models will be discussed. The case will be made that the American media need to move from their traditional broadcast models of operation toward the use of more adaptable, decentralized models to facilitate open and participatory communication and information-sharing systems. The role of the designer in this transformation will also be considered as integral to devising solutions to better serve today's knowledge-based society and plan for tomorrow's needs.

IN WHAT CONTEXT DO MEDIA COMMUNICATION MODELS NEED TO BE ANALYZED?

The incorporation of ever-evolving information technology into nearly all aspects of daily life has profoundly changed the American social landscape, and this poses great challenges regarding the ways in which people process and manage the flow of information necessary for all forms of communication, including the media.

Many social scientists have noted the ways in which technological changes are precipitating social, political, and economic upheavals (Mazarr, 1999). For example, J. Feather states:

> "The information-dependent society that is emerging from our revolution--the post-industrial revolution as some analysts call it--combines both profound change and fundamental continuity. It can only be understood in context. Part of this context is historical: the development of writing, printing and systems of communication. Part of it is economic: the means by which systems for the communication of information have become enmeshed in general systems of social and economic organization, so that information and the means of its storage and transmission have been commodified. A third part is political: commodified information is valorized by more than merely the cost of its production and distribution, for there is a real power to be derived from its possession and a loss of empowerment caused by its absence" (Feather, 2004).

Although the Information Era is only in its infancy, it appears that American society has already begun evolving into what Manuel Castells has termed a "network society," that is, a "social structure…made of networks powered by microelectronics-based information and communication technologies" (Castells, 2004). He maintains that this evolution is part of a larger phenomenon that will result in the gradual emergence of globally interdependent social structures. Castells believes that the network model, based on a pattern common to all life forms, is replacing the pre-existing vertical/hierarchical organization of society, due to advances in electronic technology that enable it to be more efficient. This efficiency is due to the fact that the network form is flexible, adaptable, and able to self-reconfigure if disrupted.

According to Castells, networks' unique ability to divide and recombine is a source of innovation that will propel economic productivity, cultural creativity, and political power making. Castells predicts that programmers and switchers (managers of connections between networks) will wield special influence in the network society, with its focus on process. In the most positive sense, Castells envisions the culture of the network society as "a culture of protocols of communication between all cultures in the world, developed on the basis of a

common belief in the power of networking and of the synergy obtained by giving to others and receiving from others" (Castells, 2004).

The network society relies on the rapid exchange of information and an informed labor force to generate prosperity. Researchers often refer to this reliance on knowledge as a source of competitiveness and as a basis for production/consumption decisions as the "knowledge economy." The dynamics of the knowledge economy operating within the network society during the Information Era are driving tremendous growth in the power that media entities are able to exercise and consolidate. This then, is the backdrop against which various media communication models are being scrutinized.

WHAT ARE THE DOMINANT MODELS OF MEDIATED COMMUNICATION TODAY?

The models of communication which pertain to the media today have evolved in tandem with changing personal and professional expectations and improvements in technology. They are to varying degrees derivatives of an important model developed by Claude Shannon and Warren Weaver in the late 1940's.

Probably no model has been as influential to communication studies, computer science, engineering, telecommunications, journalism, linguistics and many other fields as the Shannon-Weaver transmission model of communication. Both men worked for Bell Telephone Labs and created their model in efforts to develop a mathematical theory of communication and assist engineers in the construction of efficient methods of transmitting information electronically from one location to another (Chandler,1994, Foulger, 2004, Gordon, 2006, Kaminski, n.d.).

See figure 1.

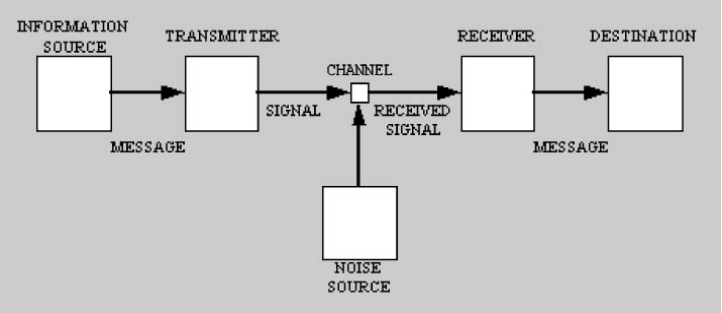

Figure 1. Shannon-Weaver Transmission Model of Communication Process

The components of Shannon and Weaver's model consist of the following: (1) an *information source,* which is the individual or entity which produces a message, (2) the *message,* which is both sent and received, (3) a *transmitter,* which converts the message into a signal, (4) the *signal,* which flows through a channel, (5) the *channel,* which can be different parts of the electromagnetic spectrum or a variety of other mediums such as paper, (6) the *noise source,* which is a form of interference that distorts the transmitted signal, (7) the *receiver,* which converts the signal back into the message, and (8) the *destination,* which is the individual or entity that consumes the message (Chandler, 1994, Foulger, 2004, Gordon, 2006).

Shannon and Weaver's original model diagrams information flow within a medium, but is incomplete in its representation of real world human communication (Foulger, 2004). Its linear, unidirectional orientation fails to incorporate the bi-directional nature of most interpersonal communication (Chandler, 1994, Foulger, 2004, Kaminski, n.d.). The destination becomes secondary to the information source (Chandler, 1994). To address this problem, the Shannon-Weaver model was modified to integrate the concept of feedback developed by Norbert Wiener, who is widely accepted as the father of cybernetics (Chandler, 1994, Foulger, 2004, Gordon, 2006, Rifkin, 1998). *See figure 2*. Rifkin explains that: "Cybernetics reduces activity to two essential ingredients, information and feedback, and claims that all processes can be understood as amplifications of both" (Rifkin, 1998). With the addition of feedback, Shannon

and Weaver's model became an interactive model wherein the destination transforms into the information source and the information source transforms into the destination.

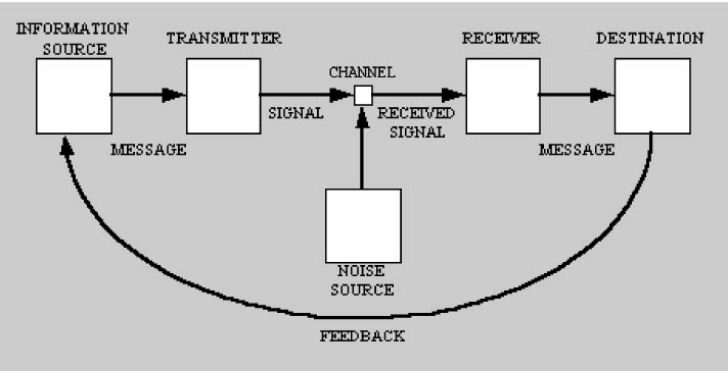

Figure 2. Shannon-Weaver Transmission Model of Communication Process with Wiener's Concept of Cybernetics

The convergence of Wiener's cybernetic concept of feedback and Shannon-Weaver's transmission model set the stage for the emergence of almost all subsequent derivative communication models. Most notably, the *centralized* model came to be characteristic of the large media entities which managed broadcasting within the realms of radio, television, and print. The *distributed* model came into being with the proliferation of micro-electronics and the establishment of the Internet. Both models incorporate a systems approach to mediated communication, focusing on the structures of the communication systems rather than message-making itself.

In the centralized or broadcasting model, information sources are limited to a small number of producers (multinational corporations) who provide information to a large number of consumers (the general public). The information property is centralized and the intellectual content is usually lost once it is broadcast (Dickson, 2000). The centralized model is a fixed system that is not self-configuring (Castells, 2004). The main advantage of this structure is its simplicity. Its linear nature, however, tends to misrepresent human communication, and the model is hierarchical (and thereby exclusionary) by design (Dickson, 2000).

The distributed model, based on the operation of the Internet, blurs the traditional distinction between media producers and consumers, since theoretically all producers can be consumers, and vice versa (Morris, 1996). The information property is distributed, and the intellectual content is always available (Dickson, 2000). The internet model comes closest to Castells concept of the self-configuring network. As compared to the centralized media communication model, the distributed model is more closely related to the newest technology, as well as to most scientific theories of human behavior and non-linear thinking.

WHAT ARE SOME OF THE MOST IMPORTANT ISSUES RELATED TO IMPLEMENTATION OF THE CENTRALIZED AND DISTRIBUTED MODELS OF COMMUNICATION?

The current workings of the American media, based mostly on the centralized and distributed communication models, raise several issues regarding the generation and dissemination of information. Serious questions are being posed about the degree to which the media serve the public interest. For centralized models of operation, the issues are tied to both content and the conduit or medium used to provide the content. For distributed models, virtually all of the issues are related to the conduit itself. A great number of these issues cluster around the dynamics of power and control, but two other areas of concern are policy considerations and media accountability.

Issues of power and control are at the core of much of the controversy about media communication, because the disparities between those who control access to information and those who are marginalized by the communication process are so great. If knowledge is power, then control of the dissemination of knowledge confers immense power, not only in terms of

financial gain but also for social control and political influence (Innis, 1951, McChesney, 2004, Newman & Scott, 2005, Williams, 1974).

One translation of power is ownership, and within broadcast media the number of owners continues to diminish. The result is an ongoing trend of concentration among broadcast media companies who are multinational corporations with billions of dollars in their revenue streams and whose broadcasting outlets span across the globe (Cooper, 2005, McChesney, 2004, Newman & Scott, 2005). In 1983 there were approximately 50 competitive media corporations; today there are five: Time Warner, Walt Disney Company, Murdoch's News Corp, Viacom, and Bertelsmann (Bagkikian, 2004). Once an entity owns a dominant share of the broadcast media market, they have control over the content of the medium as well as spatial and temporal control over the flow and dissemination of information, whether it is in television, radio, or print. Such control affords these multinational corporations the power of incredible influence over the lives of every American citizen.

In essence, the multinational media corporations (MNCs) that operate within the American media market assume gate-keeping roles in terms of information. These MNCs have the power to suppress information, misinform, and dis-inform the American public. The MNCs function as gate-keepers who control access to information on many levels and determine who can participate in their communication media. As an assurance of maintaining their grasp on American broadcast media, the "Big Five" multinational media corporations partake in joint ventures, so that they have a mutual interest in the welfare of each other's companies. As it stands today, our broadcast media companies are a functioning oligopoly.

Ownership in the context of the distributed network (internet) is a more elusive issue because it exists at a level that many people rarely perceive, consisting of the backbone or

supporting network structures that allow the internet to function. Power and control are expressed in terms of who can connect, how they connect, and at what cost (Newman & Scott, 2005). The gate-keeping effect here is directly tied to access. Control of the conduit equates to power over the internet. The fact is that there are many people who are external to the networks for various reasons. These individuals are part of the network society phenomenon that Castells calls fragmentation. Fragmentation refers to the condition in which individuals who are outside of communication networks also remain outside of the network of power made up of participants who interact on a global level through advanced technology. The companies involved are the telecommunication providers who own and operate satellite, cable, telephone, wireless, and fiber optic networks across the country and the world.

Telecommunication companies are undergoing patterns of concentration of ownership similar to the broadcast media companies. Traditionally exclusive providers are combining into multinational conglomerates, consolidating their communication infrastructures into larger scale networks. With this convergence, the ability for smaller telecommunication providers to compete deteriorates. Examples of these mergers are: Sprint Nextel, Verizon Business (result of MCI Worldcomm merger), SBC merging with AT&T, AT&T acquiring Cingular and Bellsouth, Comcast, and Time Warner. These companies not only control internet conduits, but all other bundled telecommunication services to homes, including telephone, cable, satellite, internet, and wireless.

Policy issues comprise another important area of concern connected to implementation of both the centralized and distributed models of media communication. What enabled American media, broadcast and internet, to progress to its current state of disarray and commercialization, at least in part, are the policies in place at all levels of government and the media institutions

themselves (Bagkikian, 2004, Cooper, 2005, McChesney, 2004, Newman & Scott, 2005). The result of failed policies and lack of regulation is an American media system that falls short of meeting the information and communication needs of the country. On the national level, those who control the media have adopted strategies that favor profit over the public interest. Media spaces, physical and virtual, have become public spaces and are inextricably bound to our prosperity as individuals, communities, states, and as a nation (Levy, 1997).

Within the ranks of the federal government, the Federal Communications Commission is the public representative for the media and holds the responsibility of ensuring that the media in this country serve the public interest. The multinational media corporations and the telecommunications companies, who have been given the use of public rights of way for decades, use their government licenses for profit-maximization instead of actualizing the true power of their respective media of communication to inform the public. Their powerful grip on the American media and information service markets is only made stronger by policies implemented by the U.S. government and enforced by the FCC, such as the Telecommunications Act of 1996 (Bagkikian, 2004, Cooper, 2005, McChesney, 2004, Newman & Scott, 2005).

It does not come as much of a surprise that the FCC and state and local governments fail in their oversight role if one examines the relationship between the media and politics. Political advertising is the single largest expenditure in most political campaigns and that reinforces the reality that the media has a strong influence over the American population (Bagkikian, 2004). It is a powerful vehicle for disseminating information into the public sphere, regardless of whether or not the information is valid. Media and telecommunications companies contribute generously to both sides of most campaigns and have a strong lobby in Washington to ensure that their agendas are met by those who make the decisions on policies that make or break their grasp on

media power. These companies operate at a multi-billion dollar level, making it virtually impossible for any rival competition, public or private, to debase or decentralize them. Another actuality is that many former FCC policy makers step down from their positions in government and enjoy high salary jobs in the media and telecommunications industries, helping companies with their corporate models and developing new strategies to maintain their powerbase.

A third issue category, closely related to power/control and policy issues, is media accountability. There has been and continues to be extensive debate concerning the social impact of information filtering by the media (chiefly as carried out by the broadcast media). What underlies this debate is the view of broadcast media as beneficiaries of a certain amount of public trust and the huge "gift" of accessibility through exclusive licensing to a broadcasting spectrum formerly in the public domain. There is a strong public sentiment that media are duty-bound to reciprocate by playing a responsible role in the creation of an informed citizenry, thus enhancing the collective intelligence of the nation (Levy, 1997). McChesny (2004) states the obvious conflict: "The crucial tension lies between the role of the media as profit-maximizing commercial organizations and the need for the media to provide the basis for informed self government." Decisions not only about what to filter out but also what to plan and present as content overwhelmingly reflect the dominance of the profit motive for broadcasters. The internet has been subjected to more criticism concerning accessibility of the conduit than quality of the content. This is in part because of the huge variety of sources for content confirmation in internet communication, and perhaps because of the initially lower amount of public trust invested in it as well.

WHAT CAN BE DONE TO TRANSFORM THE INADEQUATE MEDIA COMMUNICATION MODELS OF TODAY INTO MORE INCLUSIVE AND PARTICIPATORY ONES?

In order to achieve improvements within the sphere of the American media, Levy suggests that our society should concentrate on "methods of communication that are predisposed to acknowledge, integrate, and restore diversity rather than simply reproduce traditional media-driven forms of distribution" (Levy, 1997). A careful look at the centralized (broadcast) and distributed (internet) models of communication as they now exist in U.S. society leaves no doubt that many people are left out of the equation, either through lack of representation within the media or lack of access to media outlets.

The process of crafting possible solutions for problems that are caused by or directly linked to the structure of centralized and distributed models must begin with acceptance of the principal that there is value and benefit to be gained in the creation of a diverse, transparent, fully participatory system of communication that allows for immersion into experience through media.

We also must acknowledge every individual's right to be recognized as a knowledge entity whose inclusion is of inherent value to the collective public interest (Levy, 1997). Once we are set on this approach, we can advance to a level of identifying some of the factors that have brought about the exclusion of many people from the centralized and distributed models of communication. These factors appear to group themselves into the categories of spatial (geographic) limitations, socio-economic limitations, educational limitations, political limitations, and miscellaneous limitations, including personal abilities and disabilities, fears, beliefs, motivations, etc.

In efforts to design better models of communication and information systems, many solutions must be conceptualized, and through debate and discussion a result can be achieved. Some solutions involve using existing systems and digital electronic devices. Others will require new concepts, models, policies, practices, and products to be developed. The following solutions are suggestions for consideration to modify the exclusionary nature of American media, which have adopted the structures that enforce the aforementioned limitations.

The transcendence of *geographic* limitations can be accomplished through the development of decentralized information networks. We should encourage community-based network development initiatives, including the spread of wireless technologies, last mile interconnection (direct connection from a truncated network to a residence or other remote location such as a rural school), and individual private networks (both host and client). In new housing developments, the installation of broadband connections and/or fiber-optic cable should be standard practice. Current technologies exist which could enable individuals and communities to create their own bandwidth and not have to rely upon internet service providers or larger backbone telecommunications companies for their connection to cyberspace. Incentives could be offered for personal communication network development that would challenge commercial truncation and "conduit" hierarchies, freeing people from the restrictions of the telecommunications industry, or at least fostering some meaningful competition.

Socio-economic limitations can be attacked by reducing the cost barriers to participation in mediated communication. We can design low-cost micro-electronic devices capable of performing specific communication functions that are often limited or not incorporated at all in current product designs. Some of the trends that we see across all digital technology today are increased mobility, miniaturization, and multiplicity of function (feature set). Through

incentives, subsidies, or public mandates we can manufacture the devices that are used to interface with the electro-magnetic spectrum, and make them affordable and available to a much larger population in America. In essence, cyberspace and cyber culture, the new American and global culture, exists within the electromagnetic spectrum and the memory banks of our computers, cellular phones, digital video recorders, digital media devices, etc. How we are able to extend ourselves through information technology into the spectrum will in large part be the deciding factor for empowerment and participation in our society and in others around the world. Every effort should be made to reduce the cost of the technology that would make this empowerment possible, and to enlarge the options for free use of communication technology in public spaces such as schools and libraries. If everyone could create his or her own network and content with the flexibility of interconnecting with any and all other networks, then the current American media landscape would be significantly different. Communication would more likely be modeled around an adaptive, lateral, and dynamic self-organizing system, should this become reality.

On a more fundamental level, *educational* limitations can only be overcome by a significant investment of resources in educational revamping by individuals, communities, governments, industry, and other institutions. The most successful means of empowering those who are victims of media exclusion is education. Today's media-driven technological world has created a new language to communicate with, a language that at its core demands strong critical thinking skills and a new form of literacy comprised of a combination of media (sociological) literacy and computer (technical or IT) literacy. In today's educational system, curriculum adjustments should be made to stimulate more awareness of and engagement with technology, engineering, design, visual communication, and media studies. Everyone must know how to

scrutinize the media messages communicated to them as well as understand the means by which they are communicated. Another option is to get more people using and experiencing all aspects of media. Both Thomas Friedman and Michael Mazarr feel that educational reform will be crucial in preparing society to manage the challenge of change in the Information Era. As Mazarr states, "…in a knowledge society education determines the fates of individuals and nations" (Mazarr, 1999). Education must become more holistic, egalitarian, and high-tech, and must emphasize creativity, participation, choice, and competition.

In the area of *political* limitations, several key solutions are possible and in the direct public interest. First, the amendment or abolishment of the 1996 Telecommunications Act is of critical importance to break down the barriers of exclusion in contemporary American media. No longer should the media giants be allowed to self-regulate and be left unchallenged on the subject of a free press and public service. The licensing monopolies that were granted by this legislation must be eliminated, because they enabled the MNCs to focus strictly on profit maximization instead of promoting the public interest. Licensing the use of the electromagnetic spectrum should be a process that empowers the public rather than subjugates it; therefore, spectrum licenses should be distributed in such a way as to allow for free and diverse competition in local markets. American media policy should mandate the incorporation of local issues (localism) and diversity of information sources rather than centralizing information sources and homogenizing media content.

Miscellaneous limitations (related to personal skills, disabilities, fears, motivational levels, etc.) can be dealt with by devising solutions tailored to each individual's particular circumstances. Information technology products and devices can be designed to facilitate more effective use by people of varying ages, skills, and ability levels. For example, significant

improvements can be made in the ergonomics used in high-tech product design, the instruction modes offered, and the size and legibility of controls and input devices. Information systems should be designed to be more flexible in various environments and more adaptable to individual learner's/user's needs.

CONCLUSION: WHAT IS THE ROLE OF THE DESIGNER IN THE TRANSFORMATION PROCESS?

Herbert Simon and Horst Rittel have coined the term "wicked problem" to describe the type of design problem for which a designer generates alternatives that are passed through the filters of constraints, constants, and variables to produce a final solution, tangible or intangible (Bayazit, 2004). Because there are always unforeseen consequences to every action, the solution's "finality" is only temporary; yet the designer must continue to propose solutions as if the ideal were possible.

The challenges and wicked problems inherent in moving toward improved media communication models that would replace vertical hierarchies with horizontal integration are so complex that we cannot simply enact only one solution or one specific plan. We have to attack the problems whenever they can be identified on all levels across the social strata, while constantly redefining and reiterating what the problems are. This solidifies the need for active participation and acceptance of personal responsibility to improve the media and its modeled systems of communication.

In times of extraordinary change there arise unprecedented opportunities. Evolving technology will create opportunities to circumvent the media power elite and promote a more fluid and inclusive scheme for mediated communication:

> **"**Working with today's models of communication, it is hard for us to envision an environment in which your information source could be either a national network or an

> individual in your local community, much less one in which you move seamlessly between broadcast and individual communication. Yet unless we embrace such a model we will lose the opportunity to develop the full potential of this technology. A digital democracy means the participation of untold millions of individuals from every point of the globe. The current model of limited numbers of broadcast voices simply will not succeed in this environment. Television and traditional media will not be eclipsed by the Internet, but they will have to share that space known today as "cyberspace" with a new and diverse group of communicators" (Coyle, 1997).

The ability to communicate and transfer knowledge over time and space uniquely characterizes our human experience. Therefore, maximizing the range and depth of communication options expands our knowledge and perspectives, and propels us toward the actualization of our full human potential.

FIGURES:

Figure 1 **Shannon-Weaver Transmission Model of Communication Process**

Foulger, D. (2004). Models of the Communication Process. Retrieved March 2, 2006 from the World Wide Web: http://foulger.info/davis/research/unifiedModelOfCommunication.htm

Figure 2 **Shannon-Weaver Transmission Model of Communication Process with Wiener's Concept of Cybernetics**

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